USSR UDC 519.217

ARSENISHVILI, G. L.

"Some Problems from the Theory of Semimarkov Rth Order Processes"

Vopr. Razrab. I Vendrenaya Sredstv. Vychisl. Tekhn., [Problems of Development and Introduction of Computer Equipment--Collection of Works], Tbilisi, 1970, pp 128-132, (Translated from Referativnyy Zhurnal Kibernetika, No. 5, 1971, Abstract No. 5V50 by D. Sil'vestrov).

Translation: Suppose $\{\xi_0(t), \ldots, \xi_r(t); \eta(t)\}$, $t \geq 0$ is a homogeneous Markov process (the first component of which, $\xi_0(t)$, is called an Rth order semimarkov process), taking on values in the set $H^{(r+1)} \times [0, \infty)$, where $H = \{0, 1, \ldots\}$ and the transition probabilities of which over the small time interval Δt are

$$P\{(k_0, k_1, \ldots k_r; x) \xrightarrow{\Delta t} (k_0, k_1, \ldots k_r; x + \Delta t)\} = \frac{1 - F_{k_0}(x + \Delta t | k_1, \ldots k_r)}{1 - F_{k_0}(x | k_1, \ldots k_r)} + o(\Delta t),$$

$$P\{(k_0, k_1, \ldots k_r; x) \xrightarrow{\Delta t} (m, k_0, \ldots k_{r-1}; 0)\} = \frac{F_{k_0}(x + \Delta t | k_1, \ldots k_r) - F_{k_0}(x | k_1, \ldots k_r)}{1 - F_{k_0}(x | k_1, \ldots k_r)} \times b_{k_0 m}(x | k_1, \ldots k_r) + o(\Delta t),$$

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USSR UDC 519.217

ARSENISHVILI, G. L., Vopr. Razrab. I Vendrenaya Sredstv. Vychisl. Tekhn., 1970, Tbilisi, pp 128-132.

here $F_{k_0}(x/k_1,\ldots,k_r)$ as a function of x for all $k_0,\ldots,k_r \in H$ is the distribution function in $[0, \infty)$, while $b_{k_0 m}(x/k_1,\ldots,k_r)$ are non-negative functions such that $\sum_{m\in H} b_{k_0 m}(x/k_1,\ldots k_r)=1$.

This work produces conditions sufficient for the existence and explicit expressions for the stable distribution of the random process $\{\xi_0(t),\ldots,\xi_r(t); \eta(t)\}, t \geq 0$. Also, a system of differential equations is produced which satisfies the Laplace transform of the time spent in a fixed subset of states by random process $\{\xi_0(t),\ldots,\xi_r(t)\}$, $t \geq 0$.

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1/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CLOUDS BORN IN THE LABORATORY GEORGIAN SCIENTISTS BUILDING HIGH ALTITUDE CLOUD CHAMBER -U-

AUTHOR--ARSENISHVILI, YE.

A

COUNTRY OF INFO--USSR

SOURCE--TBILISI, ZARYA VOSTOKA, 10 APRIL 1970, P 4

DATE PUBLISHED--10APR70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CLOUD CHAMBER, TROPOSPHERE, CLOUD PHYSICS, WEATHER MODIFICATION, ALTITUDE SIMULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0474 STEP NO--UR/9029/70/000/000/0004/0004

CIRC ACCESSION NO--AN0114732

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AN0114732

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A 20 METER TALL SILVER TOWER IS RISING ON THE BANKS OF THE KURA RIVER NOT FAR FROM THE COMPUTER CENTER OF THE ACADEMY OF SCIENCES GEORGIAN SSR. THE BUILDING WILL HOUSE A HIGH ALTITUDE CLOUD CHAMBER CAPABLE OF PRODUCING CONDITIONS RESEMBLING THOSE AT THE UPPER LIMIT OF THE TROPOSPHERE. THE CHAMBER WAS PROPOSED BY SCIENTISTS IN THE DEPARTMENT OF CLOUD PHYSICS AND WEATHER MODIFICATION OF THE INSTITUTE OF GEOPHYSICS OF THE ACADEMY OF SCIENCES GEORGIAN SSR. THE MOST IMPORTANT PART OF THE CHAMBER WILL BE A CYLINDRICAL TUBE SLIGHTLY LESS THAN FIVE METERS IN DIAMETER WITH A HEIGHT OF 17 METERS. THE TUBE WILL HAVE DOUBLE WALLS THROUGH WHICH WILL FLOW A COOLING AGENT OF FREON 30. THE CHAMBER WILL ALSO INCLUDE A CENTRAL VERTICAL TUBE AND A BY PASS TUBE, SIMILAR TO A WIND TUNNEL, TO PRODUCE RISING AIR CURRENTS. A COMPLEX SYSTEM OF REFRIGERATION EQUIPMENT AND AUTOMATIC DEVICES WILL MAKE IT POSSIBLE TO CREATE AND MAINTAIN TEMPERATURES IN A RANGE OF PLUS 18 TO MINUS 45DEGREESC AND TO REGULATE THE PRESSURE AT THESE TEMPERATURES. IN ADDITION TO SIMULATING CLOUDS, TBILISI PHYSICISTS WILL ALSO TEST VARIOUS CHEMICAL REAGENTS CAPABLE OF INFLUENCING THE PHASE STATE OF THE CLOUD MEDIUM. SUCH STUDIES ARE CLOSELY RELATED TO METHODS AND FACILITIES FOR HAIL CONTROL. STUDIES WILL ALSO BE MADE OF ELECTRICAL PHENOMENA ASSOCIATED WITH STORMS AND METHODS OF CONTROLLING THEM. GEOPHYSICISTS WILL OBTAIN THE MOST MODERN EQUIPMENT FOR THEIR INVESTIGATIONS AND WILL BE ASSISTED BY MANY OF THE COUNTRY'S SCIENTIFIC CENTERS. (4).

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--SOME FEATURES OF INFLUENZA EPIDEMIC IN THE TOWN OF GLAZOV -U-

AUTHOR--AKSENOV, V.A., ORLOVA, N.N., SELIDOVKIN, D.A., ARSENOV, L.A.,
ZORIN, V.S.
COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 97-101

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EPIDEMIOLOGY, INFLUENZA, BLOOD SERUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0063 STEP NO--UR/0402/70/000/001/0097/0101

CIRC ACCESSION NO--AP0103743
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EPIDEMIC OF INFLUENZA WITH A TWO WAVE COURSE WAS OBSERVED IN THE TOWN OF GLAZOV. THE OUTBREAK WAS DEVELOPING AGAINST THE BACKGROUND OF FAVOURABLE CONDITIONS WITH REGARD TO INFLUENZA IN THE SURROUNDING TERRITORY, A FEW WEEKS BEFORE THE ONSET OF INFLUENZA EPIDEMIC IN THE USSR. THE FIRST WAVE OF THE EPIDEMIC WAS REGISTERED IN NOVEMBER DECEMBER 1966, THE SECOND IN FEBRUARY 1967. THE FIRST WAVE INVOLVED PREDOMINANTLY CHILDREN IN KINDERGARTENS AND SCHOOL CHILDREN, IN THE SECOND WAVE THE MORBIDITY OF INFLUENZA WAS RELATIVELY UNIFORMLY DISTRIBUTED BETWEEN ADULT AND CHILD CONTINGENTS. A RISE OF ANTIBODY TO INFLUENZA A SUB2 VIRUS WAS OBSERVED IN THE SERA OF PATIENTS IN THE FIRST WAVE OF THE EPIDEMIC. A STRAIN OF INFLUENZA VIRUS WAS ISOLATED MORPHOLOGICALLY AND SEROLOGICALLY CONSIDEREE TO BE AN ATYPICAL A SUB1 STRAIN WITH ALTERED ANTIGENIC STRUCTURE. THE STRAIN HAD NO EPIDEMIC SPREAD.

UNCLASSIFIED

USSR
Analysis and Testing

USSR UDC 669.7.017:620.186.4

BOCHVAR, O. S., REPINA, L. P., and ARSENOVA, T. N., Moscow Aviation Technological Institute, Chair of the Science of Metals and of the Technology of Heat Treatment

"Features of the Microstructure of Plastic Deformation and Recrystallization of an Aluminum Alloy with Various Heterophasing"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 145-146

Abstract: A study was made of the microstructure of two complexly alloyed aluminum alloys of the Al-Cu-Li-Mn-Cd system after plastic deformation. The alloys contained (in wt%): Cu 5.02 & 4.92, Li 1.21 & 0.94, Mn 0.6 & 0.55, Cd 0.14 & 0.11, and Al the rest, respectively; they were homogenized at 510° for 24 hrs and deformed at 490° by axial compression. The effect of the heterophase condition of the structure on the development of plastic deformation was investigated. The plastic deformation of specimens of the second alloy is realized mainly by twinning. The large twins developing in the process of hot deformation propagate up to grain boundaries. The microstructures of specimens of the first alloy demonstrate the changes in the recrystallized structure determined by the correlation of deformation mechanisms. The recrystallized

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200210019-4"

USSR

BOCHVAR, O. S., et al.,Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 145-146

structure is distinguished both by grain size and by the number of twinned interlayers and annealing twins. Four figures, and one table.

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1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--EFFECT OF PREDNISOLONE ON EXPERIMENTAL BRONCHOSPASM AND CONCOMITANT DISORDERS OF PULMONARY HEMODYNAMIC -U-
AUTHOR--ARSENTYEV, F.V.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 61-4

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HORMONE, LUNG, HEMODYNAMICS, RESPIRATORY SYSTEM DISEASE, CAT, BLOOD PRESSURE, BLOOD CIRCULATION, SEROTONIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1178 STEP NO--UR/0390/70/033/001/0061/0064

CIRC ACCESSION NO--AP0115197
UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115197

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREDNISOLONE ADMINISTERED I.V. AT 1-3 MG-KG TO ANESTHETIZED CATS MODERATELY INCREASED SYSTEMIC ARTERIAL PRESSURE AND PRESSURE IN THE RIGHT CARDIAC VENTRICLE OF INTACT CATS AND SIMULTANEOUSLY INCREASED THE PULMONARY VOL. BLOOD FLOW. PREDNISOLONE DID NOT SIGNIFICANTLY AFFECT BRONCHOSPASMS OR SHIFTS IN PULMONARY HEMODYNAMICS INDUCED BY SEROTONIN. PRELIMINARY TREATMENT WITH PREDNISOLONE DEFINITELY REDUCED PROSERINE BRONCHOSPASMS AND THE CORRESPONDING PRESSOR REACTION IN THE RIGHT VENTRICLE. FACILITY: LAB. FACILITY: LAB. FARMAKOL., SERDECHNO-SOSUDISTOIC SISTEMY, INST. FARMAKOL. KIMIOTHERL., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 669.180

ARSENT'YEV, P. P., FILIPPOV, S. I.

"Viscosity and Overcooling Phenomenon in Iron Melts"

Moscow, V sb. Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality)(Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 58-62

Translation of Abstract: Problems of viscous properties of liquid pure iron and iron melts with various impurities and also the nature of the overcooling phenomenon of molten iron are considered. Regularities of the effect of separate additions on the viscous properties of iron melts are clarified. An evaluation of their structural characteristics is presented. 2 figures, 22 references.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTRICAL CONDUCTIVITY OF IRON AND IRON CARBON MELTS -U-

AUTHOR-(03)-ARSENTYEV, P.P., FILIPPOV, S.I., LISITSKIY, B.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 18-22

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTRIC CONDUCTIVITY MEASUREMENT, ALLOY MELTING, IRON ALLOY, LIQUID METAL PROPERTY, CARBON, ALLOY COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0838 STEP NO--UR/0148/70/013/003/0018/0022

CIRC ACCESSION NO--AT0132928

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AT0132928
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. IS DESCRIBED FOR THE DETN. OF ELEC. COND. OF MELTED FE AND FE ALLOYS. THE ELEC. CONDS. OF FE (C 0.23, SI 0.005, MN TRACES, S 0.012, P 0.005, AND O 0.015 WT. PERCENT) WERE DONE IN THE RANGE 1400 TO 1600-50DEGREES (SOLID FE). DURING THE MELTING OF FE THERE OCCURRED A SMALL INCREASE OF ELEC. COND.; THE RATIO FO ELEC. RESISTANCE FOR FE SUBLIQ. TO THAT OF FE SUBSOLID EQUALS 1.060. THIS INDICATES THAT THE ELECTRON STRUCTURE IN MOLTEN FE IS ABOUT THE SAME AS IN SOLID FE. THE SP. RESISTANCE OF MOLTEN FE AT THE M.P. WAS 135.1 MICROOHM-CM. THE TEMP. DEPENDENCE WAS DESCRIBED BY AN EQUATION. FOR THE SOLID FE A SIMILAR EQUATION WAS DEVELOPED. THE ELEC. RESISTANCE OF FE-C ALLOY WAS DETD. IT IS ASSUMED THAT FEOC ALLOYS CONSIST IN 2 DIFFERENT STATES. THE FAIRLY HIGH INCREASE OF ELEC. RESISTANCE WITHIN THE RANGE 0.2-0.4PERCENT INDICATES THAT C IS PRESENT AT A CATION, WHILE GREATER THAN 0.4PERCENT C THE FE-C SOLID SOLN. EXISTS WITH A DIFFERENT STRUCTURE OF SHORT ORDER, SIMILAR TO GAMMA SOLN. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--KINETICS OF THE DECOMPOSITION OF SOLID SOLUTION OF ARSENIC IN GERMANIUM -U-
AUTHOR-(05)-ARSENTYEVA, I.P., GRINSHTEYN, P.M., LIDER, V.V., MURAVLEV, YU.B., ROZHANSKIY, V.N.
COUNTRY OF INFO--USSR

A

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1260-1

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL KINETICS, SOLID SOLUTION, ARSENIC ALLOY, GERMANIUM ALLOY, SINGLE SRYSTAL, HALL CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0373 STEP NO--UR/0181/70/012/004/1260/1261

CIRC ACCESSION NO--AP0126128
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0126128
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTALS OF GE WERE INVESTIGATED WHICH CONTAINED 3.6 TIMES 10 PRIME19 ATOMS AS-CM PRIME3. THE CONCN. OF CURRENT CARRIERS WAS CALCD. FROM THE HALL COEFF. MEASURED BY THE COMPENSATION METHOD AT CONST. CURRENT. A KINETIC CURVE IS GIVEN OF THE DECOMPN. OF THE SOLID SOLN. OF AS IN GE AT 550DEGREES. IT WAS OBTAINED FROM THE DATA ON THE CONCN. OF CURRENT CARRIERS AS A FUNCTION OF THE TIME OF ANNEALING. THE CURVE CONSISTS OF 3 LINEAR SECTIONS. IN THE 1ST SECTION NUCLEI ARE FORMED AND THEIR NO. INCREASES WITH TIME, SECTION 2 REPRESENTS A DIFFUSION LIMITING PROCESS OF GROWTH OF PLATELIKE SEPNS., AND IN SECTION 3 THE PROCESS OF SEPN. IS SLOWED DOWN BECAUSE OF COALESCENCE OF THE PARTICLES. FACILITY: GOS. NAUCH. ISSLED. PROEKT. INST. REDKOMETAL. PROM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 51:801

ARSENT'YEVA, N. G.

"Concerning One Approach to Analysis of Russian Sentences"

V sb. Mash. per. i prikl. lingvist. (Machine Translation and Applied Linguistics--collection of works), vyp. 14, Moscow, 1971, pp 136-164 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V614)

Translation: The paper describes a very simple algorithm for detecting the "skeleton" of the syntactic-depth structure of a Russian sentence. The presence of such a "skeleton" facilitates and simplifies subsequent more precise and complex analysis. The algorithm operates on the basis of information contained in the entries of a combinatoric defining dictionary and a short list of syntagmata (23 syntagmata). Relations are first established between the arguments and meanings of the lexical functions, then in accordance with the rules of the pattern of government, after that with respect to agreements (A+S) between prepositions and nouns, and finally in accordance with the list of syntagmata. The algorithm is realized on the BESM-6. An experiment was done on analyzing 24 sentences with a vocabulary of 244 items. A valid analysis was obtained on 13 sentences, and in 11 there were errors due primarily to the incompleteness of the dictionary and lack of restrictions on look-up of governing words. Of all required relations, 75% were accurately determined, 13% were not determined, and only 12% were erroneously determined. I. Mel'chuk.

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ARSEN'YAN T. I.

TECHNICAL TRANSLATION

FSTC-HT-23-2615-72

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

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: L. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

NOTICE

USSR

UDC: 621.385:530.145.6:623

SEMENOV, A. A., ARSEN'YAN, T. I., GAVASHVILI, G. V., GORDEYEV, A. N.

"Statistical Characteristics of Random Fading of Coherent Optical Emission During Propagation in the Troposphere"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 77-91 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D568)

Translation: A brief survey is given of important theoretical and experimental works on propagation of coherent optical emission in the troposphere. Experiments are described on measuring the statistical characteristics of coherent emission signals on an actual communications line 4.9 km long as compared with the meteorological parameters which characterize the route (temperature, humidity, wind speed). A laser with $\lambda = 6328$ Å was used. The statistical characteristics were calculated on a digital computer. It is found that there are three types of fading, just as in the case of ultrashort-wave propagation (slow shallow, standard, and a slow component plus rapid fading). Time autocorrelation functions are found as well as the radii of time autocorrelation. Seven illustrations, bibliography of fourteen titles. N. S.

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USSR UDC: 621.371.2.551.510.52

ARSEN'YAN, T. I., SEMENOV, A. A.

"Investigation of Displacement Effects in the Maxima of the Correlation Function of Fluctuations in the Amplitude of an Ultrashor-Wave Signal in the Case of Space-Time Diversity Reception"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 67-76 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A251)

Translation: This paper is devoted to an investigation of the relationship between the parameters of a signal transmitted over a tropospheric path and the parameters of turbulence of air masses. A brief survey is given of experimental and theoretical works. Experiments are described in which a radar method was used to study vertical movements in the atmosphere. The space-time correlation properties of signals were studied by using vertically spaced antennas. Four illustrations, bibliography of six titles. N. S.

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USSR UDC: 621.396.2:551.510.51

SEMENOV, A. A., ARSEN'YAN, T. I.

"Relationship Between the Correlation Functions of an Ultrashort-Wave Signal and the Transmission Function of the Tropospheric Route"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 62-66 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A270)

Translation: The authors investigate the possibility of determining the statistical properties of a tropospheric communications channel by analyzing recordings of the amplitude envelope of a signal passing through the channel. It is shown how the zone of indefiniteness in the frequency band may be evaluated on the basis of analyzing the recording of field level fluctuation at the reception point. Bibliography of five titles. N. S.

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USSR UDC 538,566+621.371

ARSEN'YAN, T. I., and SEMENOV, A. A.

"Study of Statistical Properties of Variations of Laser Field Intensities During Propagation Over Ground Track"

Probl. Peredachi Inform. Lazern. Izluch. [Problems of Information Transmission by Laser Radiation -- Collection of Works], Kiev, 1969, pp 602-614 (Translated from Referativnyy Zhurnal Fizika, No 11, 1970, Abstract No 11 Zh172 by Z. F.)

Abstract: The authors describe results from experiments measuring the statistical characteristics of intensity of a light signal propagating over a surface track 4.9 km in length. The nature of fading is studied. Measurements of the signal distribution function are performed. It is indicated that the measured distribution functions are distinguished by great variety and include Gaussian, Rayleigh, and log-normal types, as well as other distributions. The behavior of the radius of time correlation is studied; the radius changes strongly, depending on the weather situation over the track.

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USSR

UDC 535.853.4:525.7

ARSEN'YAN, T.I., PASHKOV, F.F., SEMENOV, A.A., TISHCHENKO, A.A., RIMSKIY, N.N.
[Moscow State University]

"Interferometric Investigation Of Phase Fluctuations Of Coherent Optical Radiation In The Atmosphere"

Izv.VUZ: Radiofizika, Vol XV, No 8, Aug 1972, pp 1228-1232

Abstract: The results are presented of an investigation of the phase fluctuations of coherent optical radiation propagating in a randomly inhomogeneous troposphere. The equipment used included an interferometric system based on a Zhenan type interferometer and a special apparatus for quick-response measurement of temperature pulsations. A laser (λ = 0.63 micron) operating in a regime of axial oscillations was used as the radiation source. The radius of the beam equalled 1.2 cm. An analysis is made of averaged interference patterns as a function of the diversity base of the interfering beams. The interference patterns were obtained under various meteorological conditions which were characterized by various values of the structural constant of the refractive index. It is shown that the difference between the theoretical and experimental dependences $D\varphi(\rho)$

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USSR

ARSEN'YAN, T. I., et al., Izv. VUZ: Radiofizika, Vol XV, No 8, Aug 1972, pp 1228-1232

is determined by the turbulence intensity on the trace. A strong dependence is shown of the phase variations on the meteorological conditions along the trace, in particular on the tranverse velocity and trace length. 1 fig. 2 tab. 9 ref. Received by editors, 2 Aug 1971.

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USSR

UDC 517.864

TIKHONOV, A. N., SAMARSKIY, A. A., and ARSEN'YEV, A. A., (Moscow)

"On a Method of Asymptotic Integral Evaluations"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, Vol 12, No 4, Jul-Aug 72, pp 1005-1012

Abstract: In earlier articles dealing with the problem of finding the asymptotic behavior of definite integrals with a kernel of the delta-function type, the authors encountered a specific difficulty: viz., the fact that termwise integration of the asymptotic expression for the integrand leads to formally infinite coefficients for the asymptotic behavior of the integral -- a situation which is characteristic of many asymptotic problems. The present article suggests a special method of asymptotic integral evaluations to overcome this difficulty, based on recurrence relations derived in the earlier articles. The asymptotic behavior of integrals on a finite interval and an infinite interval is considered, and the fundamental formula of the proposed method is given.

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1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--RESONANCE SCATTERING ON THE POTENTIAL OF "TRAP" TYPE AND THE BREIT, WIGNER FORMULA -U-
AUTHOR--ARSENYEV, A.A.

A

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 2, NR 3, PP 361-366
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RESONANCE SCATTERING, SCHROEDINGER EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/2024 STEP NO--UR/0646/70/002/003/0361/0366

CIRC ACCESSION NO--AP0102053
UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200210019-4"

2/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0102053
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROOF IS GIVEN OF THE RESONANCE CHARAKTER OF THE SOLUTION OF SCATTERING PROBLEM FOR THE SCHRODINGER EQUATION WITH THE POTENTIAL OF A SPECIAL FORM.

UNCLASSIFIED

Acc. Nr: AP0036531 Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1, pp 74-77

ON THE STRUCTURE AND RHEOLOGICAL PROPERTIES OF AQUEOUS EMULSIONS OF POLYETHYLENE TEREPHTHALATE

Mikhaylov, N. V.; Sharay, T. A.; Khavkina, B. ; Arsen'yev, A. N.

Summary

A study has been made of the rheological properties of aqueous suspensions of polyethylene terephthalate (PETPH) stabilized with rosin soap as well as of some compositions consisting of PETPH dispersion and a polymer thickener-polyvinyl alcohol. The viscosity of the compositions has been found to be much higher (50—100 times) than those of its components. A mechanism of structure formation in compositions has been suggested. An empirical linear equation $\eta=f(P)$ in a logarithmic form is given and some assumptions are made regarding the physical significance of the constants in these equations.

REEL/FRAME
19721379

UDC 548.0

USSR

ARSEN'YEV, P.A., BARANOV, B.A.

"Some Properties Of Single Crystals Of Lithium Tantalate"

Tr. Mosk. energ. in-ta (Works Of Moscow Power Institute), 1972, Issue 96, pp 88-92 (from RZh: Elektrotekhnika i energetika, No 6, June 1972, Abstract No 6B95)

Translation: The point defects in single crystals of $LiTaO_3$, grown by the Czochralski method in air, were studied. After growing, the single crystals were annealed in a hydrogen atmosphere for one hour at a 600° temperature, and subsequently subjected to reiterated annealing in oxygen at the same temperature. After each annealing, the absorption spectra were taken at room temperature. On the basis of an analysis of the absorption spectra it is shown that under the influence of a reducing atmosphere, centers corresponding to absorption bands with maximums at 360, 500, and 620 nm are formed in the single crystals. 2 ill. V.I. Telyatnikov.

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1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SPECTRAL PROPERTIES OF DYSPROSIUM ION (DY PRIME3POSITIVE) IN A YTTRIUM ALUMINUM GARNET LATTICE -U-

AUTHOR-(04)-AZANATOV, Z.T., ARSENYEV, P.A., BINERT, K.E., CHUKICHEV, M.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 76-80

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SPECTROSCOPY, DYSPROSIUM, YTTRIUM COMPOUND, ALUMINUM COMPOUND, CRYSTAL LATTICE STRUCTURE, LUMINESCENCE, GARNET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION AND LUMINESCENCE SPECTRA OF DY PRIME3POSITIVE IN A Y-AL GARNET IN LIQ. N WERE DETD. FROM THE DATA THE DIAGRAM OF THE ENERGY LEVELS PRIME4 F SUB9HALVES, PRIME6 F SUBONEHALVE PRIME6 F SUB3HALVES, PRIME6 F SUBSEVENHALVES, AND PRIME6 F SUBFIFTEENHALVES WAS DERIVED.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--GADOLINIUM SPECTRA IN ALUMINUM AND YTTRIUM GARNET SINGLE CRYSTALS -U-

AUTHOR-(03)-AZAMATOV, Z.T., ARSENYEV, P.A., CHUKICHEV, M.V.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(2), 289-91

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GARNET, ALUMINUM COMPOUND, YTTRIUM COMPOUND, GADOLINIUM, EMISSION SPECTRUM, SPECTROSCOPIC ANALYSIS, LUMINESCENCE, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0088 STEP NO--UR/0051/70/028/002/0289/0291

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UNCLASSIFIED

2/2 042 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054885

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LUMINESCENCE, ABSORPTION, AND STIMULATED EMISSION OF GD PRIME3 POSITIVE IN AL Y GARNET SINGLE CRYSTALS WERE INVESTIGATED. THE SPECIMEN CONTAINED GD IN THE AMT. CORRESPONDING TO THE FORMULA Y SUB2.95 GD SUB0.05 AL SUB5 O SUB12. IN THE ABSORPTION SPECTRUM, BANDS REPRESENTING THE TRANSITIONS FROM THE PRIME6 P SUBSEVEN-HALVES, PRIME6 P SUBFIVE-HALVES, AND PRIME6 I SUBSEVEN-HALVES, STATES TO THE PRIME8 S SUBSEVEN-HALVES GROUND STATE WERE OBSD. THESE EXCITED STATES ARE SPLIT INTO 4, 3, AND 4 DOUBLETS, RESP. THE LUMINESCENCE SPECTRUM CORRESPONDED TO THE PRIME6 P SUBSEVEN-HALVES YIELDS PRIME8 S SUBSEVEN-HALVES TRANSITION. THE EMISSION SPECTRUM OF GD, INDUCED BY A 200 KEV ELECTRON BEAM, WAS DETD. AT ROOM AND LIQ. N TEMPS. THE RESULTING LUMINESCENCE CONSISTED OF WIDE, POORLY RESOLVED BANDS, INTERPRETED AS THE TRANSITIONS TO THE GROUND STATE FROM THE LEVELS: PRIME6 P SUBSEVEN-HALVES, PRIME6 P SUBFIVE-HALVES, PRIME6 P SUBTHREE-HALVES, PRIME6 I SUBSEVEN-HALVES, PRIME6 D SUBNINE-HALVES, AND PRIME6 D SUBSEVEN-HALVES. INCREASING THE ENERGY OF THE EXCITING ELECTRONS INCREASED THE INTENSITY OF THE PRIME6 P SUBSEVEN-HALVES YIELDS PRIME8 S SUBSEVEN-HALVES TRANSITION. THE LIFETIME OF THE PRIME6 P SUBSEVEN-HALVES LEVEL, 8 MUSEC, WAS REDUCED TO 3 MUSEC IN THE PRESENCE OF 0.15PERCENT TB TOGETHER WITH GD IN THE GARNET.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SPECTRAL PARAMETERS OF TRIVALENT HOLMIUM IN THE LATTICE OF AN ALUMINUM YTTERBIUM GARNET -U-
AUTHOR--ARSENYEV, P.O.

COUNTRY OF INFO--USSR

SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL 15, APR. 1970, P. 68

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--GARNET, ALUMINUM COMPOUND, YTTERBIUM COMPOUND, DOPED ALLOY, SINGLE CRYSTAL, HOLMIUM, CRYSTAL LATTICE

CONTROL MARKING--NO RESTRICTIONS

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CIRC ACCESSION NO--AP0126433
UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126433

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE USE OF THE OPTICAL ZONE MELTING TECHNIQUE TO GROW HOLMIUM DOPED SINGLE CRYSTALS OF THE YTTERBIUM ALUMINUM GARNET. AN EMISSION EFFECT WAS OBSERVED AT A FREQUENCY OF 4771-CM. ATTENTION IS GIVEN TO THE POSSIBILITY OF STIMULATION TRANSFER TO THE HO(POSITIVE POSITIVE POSITIVE) IONS FROM YB(TRIPLE POSITIVE) IONS AND FROM COLOR CENTERS ASSOCIATED WITH YTTERBIUM IONS AND WITH ANION VACANCIES. FACILITY: MOSKOVSKII ENERGETICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.373.826:621.396

ARSEN'YAN, T. I. and RIMSKIY, N. N.

"Using an Amplitude Grating to Investigating Approach Angle Fluctuations for Laser Radiation Propagated Through the Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 259-263 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D414)

Translation: A method is described for investigating fluctuations in approach angle of coherent laser radiation, using a helium-neon laser, by measuring the shift in the shadows of the lines in an amplitude grating illuminated by the incoming beam. An analytic relationship between the shift in the shadows and the approach angle is given. The shadow image of the grating was recorded on cinematic film with simultaneous recording of the meteorological parameters. The experimental curve for the radius of correlation of the approach angles as a function of the wind velocity is given. Three illustrations, bibliography of two. A. L.

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USSR UDC: 591.615+616.9-036.21

OLSUF'YEV, N. G., DOBROKHOTOV, B. P., DUNAYEVA, T. N., POMELKINA, A. A., RODIONOVA, I. V., ARSEN'YEV, V. P., and PETROV, V. G., Tularemia Laboratory and Vectors Laboratory, Division of Infections with Natural-Foci, Institute of Epidemiology and Microbiology, Academy of Medical Sciences USSR, Moscow

"The Effect of Sanctuaries on Natural Foci of Infections"

Moscow, Zoologicheskiy Zhurnal, Vol 49, No 11, Nov 70, pp 1697-1704

Abstract: The Prioksko-Terrasnyy Game Preserve in the southern part of Moskovskaya oblast has a varied fauna whose species composition and numbers are similar to those in natural forest biocenoses of the past. Wild ungulates and small mammals, particularly rodents, are very abundant. Studies conducted in 1968 and 1969 disclosed the presence of a great number of adult Dermacentor pictus and Ixodes ricinus ticks feeding on the ungulates. I. trianguliceps and I. apronophorus were less numerous. Microscopic examination revealed a number of microorganisms in the ticks: tularensis in D. pictus, tickborne encephalitis virus in I. ricinus and D. pictus, and Erysipelothrix rhusiopathiae, Listeria monocytogenes, and Pasteurella pseudotuberculosis in the rodents. Sanctuaries such as game preserves tend to maintain natural foci of infections because of the

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OLSUF'YEV, N. G., et al., Zoologicheskiy Zhurnal, Vol 49, No 11, Nov 70, pp 1697-1704

relative constancy of the many populations of wild mammals and the large numbers of Ixodes ticks.

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DOBROKHOTOV, B. P., MESHCHERYAKOVA, I. S., DOLOTOVA, L. A., POMANSKAYA, L. A., ARSEN'YEV, V. P., LEVACHEVA, Z. A., PANINA, T. V., KATELINA, A. F. and MYASNIKOV, Yu. A., Institute of Epidemiology, and Microbiology imeni Gamaleya, Academy of Medical Sciences, and Tul'skaya Oblast Sanitary-Epidemiological Station

"Application of a New Method of Detecting Tularemia Epizootics Under Practical Conditions"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

The timely detection, study, and prognostication of tularemia epizootics occupy an important place in the work of divisions of especially dangerous infections of sanitary-epidemiological stations inasmuch as this makes it possible to plan and carry out prophylactic measures against this infection properly. However, methods employed at the present time for detecting epizootics in nature are extremely labor-consuming and require a great deal of time both for the collection of field material and for its laboratory examination. It is practically impossible to survey each year the entire territory serviced by the station; therefore it is expedient to conduct a detailed study of circumstances in localities only after an approximate determination of the

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DOBROKHOTOV, B. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

probability of the presence of tularemia epizootics in any of their parts. For this preliminary estimate it was suggested that pellets of birds of prey be examined for the presence of the tularemia microbe antigen [1]. Results of the practical application of this method under the conditions of Tul'skaya Oblast are presented in this report.

On the given territory, located in the Central Russian highlands, foci of tularemia of the meadow-field type [2] are widely distributed, the principal carrier being the ordinary field mouse and the long-time preserver of the causative agent, the tick D. pictus. In spite of substantial changes which have taken place in the method of conducting agriculture, these foci continue to exist; although as a result of the mass vaccination of the population, instances of disease among the people are extremely rare [3].

During 1968 to 1971 regular organized zoologic-parasitological work was carried out in the Oblast. A total of 25,832 traps were set up in the fields by workers in the Division of Especially Dangerous Infections during the time indicated; 497 cubic meters of straw were displaced; 84 hectares of the control areas were dug up and as a result 2,199 ordinary field mice were caught.

In the autumn of 1968 a large number of ordinary field mice were observed in the southern rayons of the Oblast: more than 500 per hectare; and in the

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DOBROKHOTOV, B. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

north up to 1000-1500 in some places. This led to a concentration of small animals in the stacks (19 to 25% falling into the traps) and to the occurrence among them of tularemia epizootics. In December of 1968 and in January 1969 15 strains of the causative agent were isolated in Kurkinskiy and Shchekinskiy rayons of the Oblast: 5 from the carcasses of the field mice and 10 from the excrement. In the course of the entire year 1969 the number of field mice was low and the next increase was not registered until in the autumn of 1970: on isolated fields (clover) up to 2000, and in Shchekinskiy and Odoyevskiy rayons, up to 5000 per hectare. In 1971 the number of ordinary field mice in the entire Oblast was extremely low. During these years negative results were obtained in bacteriological investigations of small animals; only one culture of the tularemia microbe was isolated in June 1970 from the ticks D. pictus collected from cows in Suvorovskiy Rayon. Thus from 1968 to 1971 during an intensive inspection of the Oblast, the presence of tularemia was established by a bacteriological method in only three rayons -- Kurkinskiy, Shchekinskiy, and Suvorovskiy.

During 1969 to 1971, 1490 pellets of birds of prey were collected and examined in the Oblast. Their collection took place primarily in the spring

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DOBROKHOTOV, B. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

(April - May) at the time of three-to-four-day field trips by automobile; a certain number was collected incidentally while other zoological work was being carried out. The pellets were most frequently found near poles of electro-transmission and communications lines, on stacks, and near other structures on the landscape. During the entire time in the collection of pellets approximately 30 man-days were used which comprised an extremely insignificant part of the time expended by the division for inspecting the Oblast. Unfortunately in some of the 18 rayons covered by the collection, an insufficient number of pellets were found, which did not permit the positive determination of an epizootic condition of the rodent population in their territory (See Drawing). The number of pellets collected at any point was directly dependent on the number of ordinary field mice in a given locality: under an increased concentration of these rodents more birds of prey were observed and it was possible to find more pellets.

In the spring collections pellets (which had been preserved since autumn) of ordinary and rough-legged buzzards that winter in the territory predominated (more than 90%). A large portion of the pellets of the lesser falcons had disintegrated by this time. In 88 to 96% of the pellets the remains of ordinary

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DOBROKHOTOV, B. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

field mice were encountered; those of other kinds of mammals (mice of plowed land, field mice, grey hamsters, gophers, weasels, shrews) and birds were rarely encountered. During a selective examination in 1969, the remains of 128 small animals were detected in 85 pellets; in 1970, in 232 pellets, the remains of 356 small animals; and in 1971, the remains of 200 small animals in 140 pellets, giving an average of 1.5 small animal per pellet.

In this manner the 1490 pellets collected contained more small animals than those obtained in the fields during these years for investigation by all other methods. One should also keep in view that by consuming in nature primarily the weakened animals or their carcasses, birds of prey ensure the selection out of the animal population of precisely those individuals which are desirable for bacteriological investigation.

The presence of an antigen in the pellets positively confirmed the fact of an epizootic condition while through an analysis of the bone remains it was possible to determine the kinds of mammals involved in the epizootic process.

For the purpose of detecting the antigen the antibody neutralization reaction was employed. The material was prepared and the reaction carried out by the method described earlier [1].

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The antigen of the tularemia microbe was detected in 173 pellets collected in the territory of 11 rayons of the Oblast. Only those results were considered positive in which there was a sharp delay in hemagglutination which was observed in titrations (from the initial dry weight of the pellet); 1:10 - 1:20 in 73 cases; 1:40 - 1:80 in 67 cases; 1:160 - 1:320 in 23 cases; 1:640 - 1:1280 in 12 cases (See Table).

The number of sites where pellets were found containing an antigen was significantly greater than the number of sites where cultures were formed -- 21 against 4. This made it possible to establish with far greater precision the boundaries of epizootics that had transpired, and it testified to the fact that an epizootic situation with respect to tularemia still exists in a significant part of the territory of Tul'skaya Oblast. Moreover, the presence of epizootics was successfully established for the years having a smaller number of ordinary field mice where it is impossible to detect the causative agent of tularemia by the usually applied methods.

In such torpid epizootics the tularemia microbe antigen is detected only in 1 to 1.5% of the pellets. Cultures of the tularemia microbe from rodents can be isolated only at the time of sufficiently intensive epizootics, and in

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such places more than 20% of the collected pellets contained the tularemia microbe antigen.

In this way, results of an examination of pellets (by the antibody neutralization reaction) collected in early spring in meadow-field foci of tularemia can serve as a precise indication of the existence during the past winter of epizootic tularemia in the territory being surveyed and its magnitude. The revelation of this fact is extremely important in determining the enzooticity of the territory for the purpose of conducting prophylactic measures, the first and foremost being systematic vaccinations. Necessarily in a suspect territory a more thorough collection of material must be achieved for the purpose of isolating the causative agent of tularemia by ordinary bacteriological methods.

Conclusions

1. Examination of pellets of birds of prey collected in springtime in meadow-field foci of tularemia for the presence of the tularemia microbe antigen makes it possible quickly and with a small expenditure of work to establish the past winter's epizootics of this infection and their intensity over extensive areas.

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DOBROKHOTOV, B. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

2. In the course of the years 1969 to 1971, tularemia enzooticity was established by the indicated method in 11 rayons of Tul'skaya Oblast; whereas by the bacteriological method the causative agent was detected in only 3 rayons.

3. With a sufficient amount of research material (100 to 200 pellets from each point) it will be possible to successfully detect each year even torpid tularemia epizootics, given a reduced number of ordinary field mice per focus.

4. The suggested method is completely suitable for use in work of divisions of especially dangerous infections of sanitary-epidemiological stations.

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4. Olsuf'yev, N. G., Dobrokhotov, B. P. et al., Zh. Mikrobiol., 1971, No 6, p 117.

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DOBROKHOTOV, B. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

NUMBER OF PELLETS BY YEAR

RAYON	1969 Total	1969 With Antigen	1970 Total	1970 With Antigen	1971 Total	1971 With Antigen
Kurkinskiy	149	33	24	--	22	1
Yefremovskiy	58	23	40	--	14	--
Kamenskiy	--	--	14	--	40	1
Chernskiy	--	--	8	--	117	--
Teplo-Orarevskiy	27	4	24	--	--	--
Kireyevskiy	--	--	30	--	166	2
Odoyevskiy	--	--	2	--	98	42
Dubenskiy	--	--	--	--	185	55
Leninskiy	--	--	22	--	168	5
Venevskiy	2	--	67	2	--	--
Yasnogorskiy	--	--	23	3	--	--
Zaokskiy	--	--	4	--	46	2
Aleksinskiy	--	--	12	--	36	--
Prochiye	8	--	50	--	32	--
Total	244	60	320	5	932	108

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DOBROKHOTOV, B. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 105-108

Drawing

EXAMINATION OF PELLETS OF BIRDS OF PREY FOR TULAREMIA MICROBE ANTIGEN CONTENT IN MEADOW-FIELD FOCI OF TUL'SKAYA OBLAST

1. Sites of Formation of Cultures of Tularemia Microbe From the Smaller Mammals, From Their Excrement and Ixodic Ticks
2. Collection Point of Pellets in 1969
3. Collection Point of Pellets in 1970
4. Collection Point of Pellets in 1971

Crosshatched symbols are points where the tularemia microbe antigen was found in pellets; dotted symbols are points at which more than 5 pellets were collected.

Key:
1. Yasnogorsk
2. Venev
3. Tula
4. Dubna
5. Suvorov
6. Shchekino
7. Kireyevsk
8. Odoyev
9. Teploye
10. Kurkino
11. Yefremov

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USSR UDC 621.373.826:621.317.1

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., and KHATTATOV, V. U.

"Semiconductor Correlators for Micromicrosecond Light Pulses"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics -- collection of works), Novosibirsk, 1972, vyp.2, pp 291-301 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A271)

Translation: The authors present the results of studying the parameters of the thermosecond pulses of laser radiation using semiconductor correlators of light. The use of 2-photon absorbing semiconductors makes it possible to measure the moments of emission (Sn) and evaluate pulse duration and the intensity of radiation. The measurements were carried out both with repsect to the direct absorption of radiation by the semiconductor and with respect to the fall in brightness of 2-photon luminescence tracks in the specimens. A.K.

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UDC 621.375.82

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., KHATTATOV, V. U.

"Semiconducting Correlators for Picosecond Light Pulses"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics -- collection of works), vyp. 2, Novosibirsk, 1972, pp 291-301 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D994)

Translation: The possibilities of using semiconductors to measure the parameters of picosecond pulses of laser radiation in particular, their intensity and duration are discussed. The parameters of the Nd-glass laser radiation pulses were measured experimentally in the synchronization mode with respect to two-photon absorption in single $CdS_{0.6}CdSe_{0.4}$ crystals. The measurement errors were evaluated. The advantages of using semiconductors to measure the pulse durations were noted. The bibliography has 14 entries.

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USSR UDC:536.468

ROZENBERG, A. S., ARSEN'YEV, Yu. N., VORONKOV, V. G., Moscow

"Ignition of Gaseous Mixtures of Hydrazoic Acid With Various Diluents"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 302-310

Abstract: Most studies on hydrazoic acid have noted that there is a pressure threshold, below which decomposition of HN_3 occurs at a measurable rate. In recent times, the value of this threshold has been measured and its dependence on the power of the igniting spark has been demonstrated. This report presents the results of studies on the concentration boundaries of spark ignition of pure HN_3 and its mixtures with various diluents. The analysis results in the production of a formula for the concentration boundaries of ignition which is found to describe the experimentally observed dependences well. Qualitative calculations demonstrate that diluents with high Q_{11} also have high values of the inclination of the slope of the linear portion of the experimental dependence.

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USSR UDC: 621.378.325

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., and KLYSHKO, D. N.

"Controlling the Duration of a Laser Pulse by Nonlinear Absorption in Semiconductors"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 33-37

Abstract: Results are given of an experimental inquiry into the characteristics of ruby and neodymium lasers with double-photon absorbing elements, semiconductor CdS plates for the ruby and CdSe for the neodymium. A schematic of the experimental equipment is shown. The diameter and length of the ruby rod were 12 and 120 mm respectively and the dimensions for the neodymium rod were 10 and 120 mm. Two IFP-2000 lamps were used for pumping and, along with the active element, were water-cooled. The duration of the pulse was measured by the FEU-22 photomultiplier, matched to the S1-11 oscilloscope, and the radiation energy was controlled by a thermocouple calorimeter. Curves are plotted for the pulse duration of both types of laser as a function of the pumping energy. For a theoretical investigation of laser oscillation characteristics, the authors analyze a system of balanced equations describing the behavior of the inverse population density and the photon

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USSR UDC: 621.378.325

ARSEN'YEV, V. V., et al, Kvantovaya elektronika, No 7, 1972, pp 33-37

current density in the resonator. They conclude that lasers with smoothly adjustable pulse durations, attained through the use of nonlinear absorbing semiconductors, may be widely used because of the simplicity of their technical realization. Their gratitude to L. A. Sysoyev for preparing the semiconductor specimens, R. V. Khokhlov for explaining the experimental results, and to V. A. Aleshkevich for assisting with the work, is expressed.

USSR UDC: 681.142.5

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., and KHATTATOV, V. U.

"A Simple Semiconductor Correlator for Picosecond Light Pulses"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 82-84

Abstract: This brief communication reports the application of two-photon absorbing semiconductors for measuring second radiation moments of ultrashort light pulses of approximately 10^{-12} seconds duration. The moments are designated $\langle S_0^2 \rangle$, where S_0 is the intensity of the incident light on the semiconductor, with the angle brackets indicating averaging over time as well as statistical averaging. The schematic for such a semiconductor correlator, involving a laser, three calorimeters, the semiconductor crystal $CdS_{0.6}CdSe_{0.4}$, is shown. In this schematic, the laser being measured is neodymium, but the same arrangement can be used for measuring a ruby device with a CdS crystal used as the semiconductor. The authors thank R. V. Khokhlov for his explanation of the results and V. S. Fokin for his assistance in conducting the experiments.

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USSR

UDC 535.215.1

ARSEN'YEVA-GEYL', A.N., PRUDNIKOVA, G.V.

"Photoemission From Thin Layers Of Aluminum"

Uch. zap. LGU (Scientific Annals. Leningrad State University), 1970, No 354, pp 27-30 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A8)

Translation: The optical transparency and spectral distribution of the quantum yield of Y photoemission of thin layers of Al as a function of the thickness of the layers was investigated in sealed-off devices in a vacuum of $\sim (1 \div 5) \times 10^{-9}$ mm of mercury. The monotonic increase of Y was obtained during growth of thickness of the Al layer and attainment of maximum Y with a thickness identical for all frequencies ($\sim 600^{\circ}$). The depth of the photoelectron yield was determined to be $\sim 650 \pm 30$ Å. The work function of Al was measured; it was equal to 4.22 ev and did not depend on the thickness of the layer. The effect was investigated of vacuum conditions on the photoemission characteristics: it was discovered that with a pressure of 10^{-5} mm of mercury Y decreased and did not grow during an increase of the thickness of the layer with saturation at the same thickness and at a constant magnitude of the work function (4.21 ev). The reason for this phenomenon was not determined. 3 ill. 6 ref. N.S.

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USSR UDC 535.215.1

LYASINKOV, V.N., ARSEN'YEVA-GEYL', A.N.

"Photoemission From Thin Layers Of Barium"

Uch. zap. LGU (Scientific Annals. Leningrad State University), 1970, No 354, pp 30-33 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A9)

Translation: With the object of determining the depth of the photoelectron yield, the photoemission from barium films of various thicknesses (obtained by successive deposition on quartz substrates) is investigated. The resultant dependences are presented of the quantum yield on the thickness of the layer, which have a maximum, the position of which does not depend on the wave length and which corresponds to $\sim$ 75 Å. The work function of barium is determined by the Fowler method and its dependence on the thickness of a film which displays a monotonic growth during decrease of the thickness from 100 to 50 Å is presented. On the basis of the results obtained, the minimum value of the depth of photoelectron yield from barium is estimated to be a magnitude of $\sim$ 60 Å. 2 ill. 7 ref. N.S.
1/1

USSR

UDC 577.391:576.8

TROITSKIY, Nikolay Aleksandrovich, TURBIN, Nikolay Vasil'yevich, and ARSEN'YEVA, Militsa Al'fredovna; Institute of Genetics and Cytology, Academy of Sciences, Belorussian SSR

Geneticheskiye Effekty Promezhutochnykh neytronov (Genetic Effects of Intermediate Neutrons), Minsk, "Nauka i Tekhnika," 1971

Translation: Annotation: The book presents data on the genetic effectiveness of neutrons with an average energy of 200 keV, as compared with the effect of gamma rays and fast neutrons. For the first time in the Soviet literature, the question of the biological effect of elastic nuclear collisions is examined and the corresponding experimental data are given. The relationship between the genetic effectiveness of neutrons and biophysical parameters of irradiation, and, in particular, linear energy losses, are discussed. The book is intended for specialists in the field of radiation biology and genetics. 23 tables, 56 figures, 307 references, 168 pp.

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USSR

TROITSKIY, Nikolay Aleksandrovich, et al., Geneticheskiye Effekty Promezhutochnykh neytronov, Minsk, "Nauka i Tekhnika," 1971

USSR

TROITSKIY, Nikolay Aleksandrovich, et al., Geneticheskiye Effekty Promezhutochnykh neytronov, Minsk, "Nauka i Tekhnika," 1971

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USSR

UDC 616.981.42

ARSHAKUNI, G. A., MELIKYAN, V. G., SARKISYAN, G. Ye., and MARDZHANYAN, D. C., Armenian Scientific Research Institute of Animal Husbandry and Veterinary Science

"Cases of Isolation of B. melitensis from Cattle"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 25, No 8, Aug 72, pp 85-86

Abstract: An investigation of 81 cultures of Brucella isolated from aborted fetuses of cattle and from slaughtered cows in the Armenian SSR indicated that two cultures from fetuses and two cultures from slaughtered cows, respectively, belonged to the species B. melitensis, while 77 of the cultures were of the species B. abortus bovis. The results showed that occasional infection of cattle with B. melitensis is possible in the Armenian SSR.

ARSHANSKIY, N. Ya.

medical sciences

UDC: 616.31-039.37:362.11(-35)

POLYCLINIC STOMATOLOGY DEPARTMENTS OF OBLAST HOSPITALS

[Article by N.Ya. Arshanskiy, Candidate of Medical Sciences, Leningrad Oblast Clinical Hospital (Chief Physician: V.T. Fedorov); Moscow, Sovetskoye Zdravookhraneniye, Russian, No 1, 1973, submitted 14 August 1972, pp 52-53]

The improvement in stomatological care and especially the prospect for its further development make it imperative to revise some of the organizational forms of work in stomatology institutions.

The creation of independent stomatological institutions has had some effect on the successful development of stomatological care. In rayons and cities this provided the prerequisites for development and strengthening of the material-technical and personnel base of the stomatology service, for improving the quality of therapeutic-diagnostic and broadening the scope of prophylactic work, for more active influence on development of rural stomatology institutions and practical assistance to the rural population. In several oblasts the operation of independent oblast stomatology polyclinics deserves an analogous evaluation.

At the present stage of development of stomatological care we need to reevaluate critically the capabilities of such polyclinics with regard to future improvement of their therapeutic, consultant, and organizational-methodological work. Our 15 years of experience in the polyclinic stomatology department of Leningrad Oblast Clinical Hospital allows us to voice our view on some of its advantages over the operation of independent oblast stomatology polyclinics. First of all, the fact that the former is operating as a part of the oblast hospital as a department with the same rights as others expands considerably its therapeutic-consultant and diagnostic capabilities. For example, 70 percent of those who came in for consultations were submitted to a complete roentgenological examination. About 40 percent of such patients were examined in the highly qualified laboratories of the hospital, including biochemical, immunological, cytological, and other laboratories. In 20 percent of the cases clinicians of other specialties participated in the consultations.

ARSHAKUNI, R.G.

CHEMICAL SCIENCES

JPRS 61042 23 Jan 74

THE RADIATION PURIFICATION OF INDUSTRIAL WASTE WATER IN GOLD REFINING PLANTS

UDC 628.543.3

[Article by R. G. Arshakuni, candidate of chemical sciences; Yerevan, Pryvatizirovat' Armenii, Russian, No 8, 1973, pp 22-25]

In the radiation method of purifying industrial waste water, under the effect of penetrating radiation, molecules of chemical pollutants that are dissolved in the water are destroyed (broken up), followed by oxidation. This process can be figuratively compared to low-temperature "radiation combustion" of chemical pollutants in effluents.

By the radiation method of purification, it is possible to disintegrate chemical pollutants that are not susceptible to purification by existing biochemical methods.

Modern synthetic chemistry is turning out on a large scale various kinds of synthetic detergents, many of surface-active compounds or the emulsifier type for the production of polymerization plastics. Surface-active compounds are discovered with effluents into bodies of water and greatly disrupt oxygen exchange and suppress the life of organisms. Moreover, as a result of excessive foaming, these compounds hinder the operation of air tanks in biological waste water purification stations.

At present, work has already begun on the radiation disintegration of various organic compounds in effluents, including surface-active compounds.

Experiments have shown that radiation-purified waste water does not contain residual radioactivity and can be used for technological purposes -- in recycled production -- as well as for irrigation and, in some cases, for drinking water.

We must note that in the estimate of economists, at the present time, on average of about 25 percent of the value of industrial productive capital has to be spent on purification facilities at the industrial enterprise itself, and in a number of cases it is necessary to spend even greater amounts. For example, at the Sochaczew chemical combine, complete purification amounted to 40 percent of the value of the fixed productive capital.

In West Europe, up to 15 percent is allocated to purification; and in Japan, until recently this amounted to 5 or 7 percent of the value of fixed productive capital.

It is evident that the problem of purification can become an obstacle to industrial progress. It is necessary to build four plants instead of five, with complete purification, or to knowingly put up with pollution of the environment, which at the present time is world wide in scope.

One way out of this dilemma, in particular, is to develop new scientific approaches in the technique of purification in order to substantially reduce the cost of purification.

Investigations in the field of radiation purification are now being carried out by the Institute of Physical Research Academy of Sciences Armenian SSR using the facilities of the republic's powerful isotope gamma-ray source of the K-60,000 type. This installation uses radioactive isotopes of cobalt (Co60) as the source of gamma-radiation.

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Experiments have been carried out at this installation on the radiation purification of effluents of the following enterprises: the Kadzharan copper-molybdenum combine, the Yerevan chemical combine for synthetic rubber, and the experimental gold-concentration mill of the Zod gold ore combine.

The waste waters of the Kadzharan combine contain finely-dispersed particles of waste rock -- sludge that pollutes the environment. The existing system of settling basins does not provide rapid enough clarification of the effluents from the sludge, as a result of expanded areas of production and complications connected with the necessity of periodic broadening of the surface of the mirror of the settling basins under the complex conditions of mountainous terrain and in restricted areas.

An investigation of the effect of gamma-radiation on the kinetics of clarification of waste water has shown that the radiation action helps to accelerate clarification of production waste water from sludge. This effect is due to a decreased stability in the dispersed particles suspended in the waste water as a result of the action of several factors: a lessening or neutralization of the surface charge of the particles, leading to sedimentation; desorption of the ions and radiation-chemical oxidation of the surface-active compounds adsorbed by the dispersed particles, which generally impart stability to the particles in suspension.

The effect of accelerating clarification is observed in the first 10 minutes of gamma-treatment at the value equal to 36 to 40 percent (by volume) of the clarified waste water from its initial quantity.

Clarification of the waste water under the action of gamma-radiation (under the conditions described) takes place eight times faster than under natural conditions.

The radiation method makes it possible to recover (after a lapse of 10 minutes of radiation treatment) 36 to 40 percent of the original quantity of water. The effect of radiation acceleration of clarification in radiated samples of effluents is maintained after a lapse of one to one and a half hours after radiation with repeated turbidization. This means that under production conditions, effluents can be treated with radiation during their passage through the pipes that carry the effluents to the tailing dump.

The process of radiation purification does not require large expenditures of electrical power and considerably reduces the area of the tailing dump, or else it increases the productivity without increasing the mirror of the settling basins.

The necessary activity of the industrial source for radiation purification is $1.6 \cdot 10^6$ curies.

Let us examine the possibility of radiation purification of effluents of the Yerevan chemistry combine for synthetic rubber.

These effluents contain non-biodegradable surface-active compounds -- alkylaryl-sulfates of the STEK emulsifier type, NF-B dispergent, used in the emulsion method of obtaining polychloroprene rubber. Another toxic component in the effluents is organo-chlorine (chloroprene, di- and tri-chlorobutenes, and so forth).

For the emulsifier STEK, depending on its concentration and the size of the dose, 100 percent disintegration takes place in from 20 minutes (100 mg/l, MD = 200 rad/sec) to 3 hours (500 mg/l, MD = 30 rad/sec).

For dispergent NF-B, which is the most resistant component, in addition to conventional radiolytic decomposition, radiation-catalytic decomposition was carried out (with the addition of certain compounds that speed decomposition). Thus, whereas with conventional radiation, 100 percent decomposition of the dispergent (concentration of 100 mg/l) takes place over a period of 150 minutes (with a dosage of 100 rad/sec), radiation-catalytic decomposition is accomplished over a period of 150 minutes with a smaller intensity of radiation (MD = 30 rad/sec). This made it possible to cut down on the power expenditures for decomposition by 3 times -- from 0.9 to 0.3 Mrad.

It is interesting to note that with partial radiation decomposition of the molecules of surface-active compounds, these latter are so to speak (assimilated) by strains of bacteria in the air tanks (in biochemical methods of purification).

A reasonable engineering solution to the problem of purification of effluents would be a combination of biological purification with radiation purification, which

USSR

UDC 591.513

KARAPETYAN, S. K., and ARSHAKYAN, A. V., Physiology Institute imeni L. A. Orbeli, Academy of Sciences Armenian SSR

"New Experimental Data on Residual Conditioned Reflexes in Domestic Fowl"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 26, No 9, 1973, pp 64-69

Abstract: Studies were conducted on chickens to determine the effects of artificial day-night schemes on the formation of sequential conditioned food reflexes. One group of three chickens from the first postnatal day was maintained in an environment in which two astronomical days were modified into three days (12 hours of "day" and four hours of "night")by artificial lighting. Another group of three chickens were raised under normal conditions and served as controls. Analysis of the results showed that the appearance of residual conditioned food reflex in the experimental group was significantly delayed: with a 10 sec interval between sequences the mean delay time was 5.80 ± 0.79 sec for the sequence reflex. Infrequently, the experimental group exhibited a complete or partial loss of the conditioned reflex. In the control birds the mean delay time was 8.58 ± 0.72, a statistically significant difference ($p < 0.01$).

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USSR

UDC: 681.3.001.019.3

ATOVMYAN, I. O. and ARSHAVSKIY, M. I.

"Diagnosing Defects of an Information Search Device Using External Media"

Riga, Avtomatika i vychislitel'naya tekhnika, No 1, 1972, pp 32-36

Abstract: Because the problem of devising diagnostic tests for automatons with memories is too complex to permit setting up algorithms that can be used by computers, the authors concentrate on the problem of diagnosing defects in partial automatons widely used in computer systems. The search device they consider is part of a device for introducing information, the basic problem of which is to find, through a shift in the information carrier, the address block communicated to the device by the central machine. A description of this search device is given, together with a block diagram, and the operation of its component parts analyzed. The system developed by the authors for diagnosing the defect is described.

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USSR

UDC 681.326.658.562:533

ATOVMYAN, I. O., and ARSHAVSKIY, M. I., Moscow Engineering Physics Institute

"A Device for Setting the Address in the Peripheral Units of Digital Computers"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 23, Aug 71, Author's Certificate No 310249, Division G, filed 31 Jan 70, published 26 Jul 71, p 151

Translation: This Author's Certificate introduces a device for setting the address in the peripheral units of digital computers. The device is based on the use of pulse potential elements and contains flip-flops with counting inputs, a ripple-through carry circuit with ripple-through carry amplifiers, and a circuit for setting up the initial code. As a distinguishing feature of the patent, the capability of localizing malfunctions is increased by adding a test mode flip-flop and a group of differentiating diodes whose potential inputs are tied together and connected to the one-output terminal of the test mode flip-flop. The pulse inputs of the differentiating diodes are connected to the zero-output terminals of the corresponding flip-flops for the digital places, and the outputs of the differentiating diodes are connected to the inputs of the ripple-through carry amplifiers of the adjacent most significant digit.

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USSR

ANTIK, A. P., ARSHAVSKIY, V. V., and ROZENSHTEYN, G. Sh., Moscow Scientific Research Institute of Psychiatry, Ministry of Public Health, RSFSR

""II. The Role of Motivation Centers in the Control of Convulsive Brain Activity"

Moscow, Biofizika, Vol 17, No 4, 1972, pp 681-686

Abstract: The second part of an experimental study of a control model of convulsive brain activity, conducted in 1968-1969, is presented. The first part was published in the previous issue of this journal. The present article contains experimental material obtained from cats, rabbits, and rats, and from experimental corazole and audiogenic models of convulsive activity. This material confirms the basic results of a qualitative model of epilepsy; these can be reduced to the following. Epileptic activity originates during a delay in "media reversion," when high-amplitude potentials appear in the cortex; these are signals announcing the approach of the system to a "dangerous" state. This state arises because the organism receives an additional flow of impulses into the "negative" motivation centers, and a decrease in the flow of impulses into the "positive" centers. Electrical stimulation of the "negative" zones of the hypothalamus brings about the development and

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ANTIK, A. P., et al., Biofizika, Vol 17, No 4, 1972, pp 681-686

amplification of convulsive discharges in the cortex. The suppression of the convulsive activity in the cortex is linked to the creation of an additional flow of impulses in the "positive" motivation centers and a weakening of pulsation in the "negative" centers. Stimulation of "positive" zones of the hypothalamus brings about the weakening and cessation of convulsive activity in the cortex.

USSR UDC 612

ARSHAVSKIY, Yu. I., Institute of Problems of Information Transmission, Academy of Sciences USSR, Moscow

"Organization of Afferent Connections in the Cerebellar Cortex"

Moscow, Uspekhi Fiziologicheskikh Nauk, No 2, 1972, pp 24-53

Abstract: Analysis of morphological and electrophysiological data reveals that signals reach the cerebellar cortex from various receptors and central structures via three different channels: (a) rapidly conducting, topographically organized pathways ending as moss fibers; (b) diffuse pathways passing through the reticular nuclei of the brain stem, which also end as moss fibers; (c) pathways that pass through the inferior olives, which end as climbing fibers. The functional differences between the two channels that end as moss fibers are examined with reference to spinocerebellar connections. Only the rapidly conducting pathways act directly on the output neurons of the cerebellar cortex. The reticular entry performs a purely regulatory role. Through the interneurons of the cerebellar cortex it modulates the signals arriving via the fibers of the rapidly conducting pathways.

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USSR UDC 621.311.21.001.42.001.57

KRIVCHENKO, G. I., ARSHENEVSKIY, N. N., KVYATKOVSKAYA, Ye. V.

"Studies of the Nonsteady State Operating Conditions of Hydroelectric Power Plants"

Sb. tr. po gidrotekhn. i gidrostr-vu. (Collected Works on Hydroengineering and Hydropower Construction), Moscow, Nauka Press, 1970, pp 192-205 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 D133)

Translation: The procedure for calculating the tangent processes and selecting optimal hydroturbine regulating conditions was improved on the basis of natural and model studies of the behavior of hydroturbines in a broad range of operating conditions, including running up and running down. In a number of cases, application of this procedure permits proof of the possibility of constructing closed-delivery conduits without UR with inertial constants up to 4-6 seconds and more. Examples of hydroelectric power plants are presetned (Nurek, Charvak, Kuban'-Kalausskiye, and others) providing a basis for doing away with UR. In selecting the turbine regulating conditions and designating the limiting rate of variation of opening of the distributor, it is proposed that the turbine characteristics be used considering the

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KRIVCHENKO, G. I., et al., Sb. tr. po gidrotekhn. i gidrostr-vu. (Collected Works on Hydroengineering and Hydropower Construction), Moscow, Nauka Press, 1970, pp 192-205 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 D133)

hydraulic impact for the given law of variation of the opening with time. As applied to the underground version of the Toktogul Hydroelectric Power Plant, a procedure is described for determining the instantaneous pressure diagrams under the runner during the entire process of nonsteady state operating conditions. The diagrams obtained make it possible to establish the deep vacuum regions for individual points in time. For hydroelectric power plants with long closed delivery conduits a procedure and research results are presented with respect to establishing the possible deviations caused by the nonstationarity of the operating conditions. For hydroelectric power plants with adjustable blade turbines, variation of the direction of the axial force on the runner, occurrences of deep vacuum under the top of the turbine and the possibility of discontinuity of the flow beyond the distributor and the runner and significant accelerating rpm are considered. There are 45 illustrations and an 18-entry bibliography.

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USSR UDC 537.312.62

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOMAROVSKIKH, N. I., LAVRISHCHEV, V. P., LAPIR, G. M., MAZITOV, R. K.

"Film Cryotrons Based on Au-Pb Intermetallic Compounds"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 3(29), pp 92-97 (from RZh-Radiotekhnika, No 12, Dec 71, Abstract No 12D691)

Translation: The paper describes the manufacturing technique and results of an experimental study of a new type of film cryotron having a diode of intermetallic compounds of gold with lead, and a gate and passive lines of lead. Basic electrophysical indices for the proposed type of cryotron are higher and less sensitive to deviations from given technological conditions than for conventional tin-lead cryotrons. Resumé.

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USSR UDC 621.396.6-181.48(088.8)

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOMAROVSKIKH, N. I., LAVRISHCHEV, V. P., LAPIR, G. M., MAZITOV, R. K., OLEYNIKOVA, V. A.

"A Method of Making Diodes for Thin-Film Cryotrons"

USSR Author's Certificate No 297129, filed 16 Oct 69, published 6 Apr 71 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11V368 P)

Translation: The proposed method for making diodes for thin-film cryotrons is based on sequential application of films of gold and a superconducting metal. As a distinguishing feature of the patent, a lead film with subsequent annealing at a temperature of 100-120°C is used as the superconducting metal to improve the technique of making the cryotronic integrated microcircuits, to increase speed, and to make the output signal more reliable. Resumé.

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USSR UDC: 621.318.57

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOMAROVSKIKH, N. I., LAVRISHCHEV, V. P., LAPIR, G. M., MAZITOV, R. K., OLEYNIKOVA, V. A.

"A Method of Making Diodes for Thin-Film Cryotrons"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 9, Mar 71, Author's Certificate No 297129, Division H, filed 16 Oct 69, published 2 Mar 71, p 176

Translation: This Author's Certificate introduces a method of making diodes for thin-film cryotrons. The procedure is based on sequential application of gold and superconducting metal films. As a distinguishing feature of the patent, the technology of making cryotron integrated circuits is improved and the speed and output signal voltage of the cryotrons are increased by using a lead film as the above-mentioned metal with subsequent annealing at 100-120°C.

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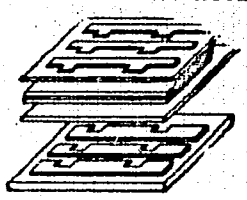
USSR UDC: 621.3.013.7

ARSHINOV, V. I., BERKOVICH, S. Ya., KASATKIN, V. G., LAPIR, G. M., MAZITOV, R. K.

"A Cryotron Thin-Film Integrated Circuit"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyya Obraztsy, Tovarnyye Znaki, No 30, 1970, Soviet Patent No 282433, Class 21, filed 19 Jun 69, p 61

Abstract: This Author's Certificate introduces a cryotron thin-film integrated circuit which contains a shielding film of superconductive material, insulating layers, and layers with cryotrons and hook-up elements. As a distinguishing feature of the patent, the possibility of short circuits between elements through the shielding film is reduced and manufacturing technology is simplified by breaking up the shielding film into sections which are electrically insulated from each other and are located on different sides of the layers which contain the cryotrons and the hook-up elements.



APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200210019-4"

USSR UDC 621.373.826:550.3

ARSHINOV, Yu. F., DONCHENKO, V. A., ZUYEV, V. Ye., KOSTIN, V. V., and SAMOKHVALOV, I. V.

"Propagation of Laser Radiation for λ = 2.36 Microns in Artificial Dispersing Media"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 157-161 (from RZh--Radiotekhnika, No 10, 1972, Abstract 10D439)

Translation: Results are given of a study of the attenuation and inverse scattering of the radiation from a laser using $CaF_2:Dy^{2+}$ (λ = 2.36μ) and He-Ne mixture (λ = 0.63μ) in a medium simulating some types of natural clouds, fogs, and wood smoke. Bibliography of five. A. L.

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USSR

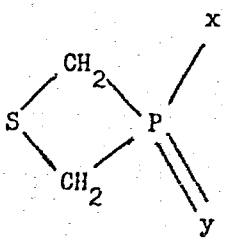
UDC 541.63:547.1'118

ARBUZOV, B. A., ARSHINOVA, R. P., VERESHCHAGIN, A. M., and VUL'FSON, S. G., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzova, Academy of Sciences, USSR, Chemical Institute imeni A. M. Butlerov, Kazakstan State University imeni V. I. Ul'yanova-Lenina

"Steric Configurations Containing Phosphorus Heterocyclics. 3. Gauche Conformation of the Alkoxy Group in 3-Alkoxy-1-thia-3-phosphethanes"

Moscow, Seriya Khimicheskaya, 9, 1973, pp 1964-1967

Abstract: A four-membered ring containing two heteroatoms -- one of S and one of P -- of the type below for the given sets of x and y was examined:



(I) x = OMe, y = O
(II) x = OPh, y = O
(III) x = OMe, y = S
(IV) x = OPh, y = S
(V) x = OC_6H_4-p-NO_2, y = S

USSR

ARBUZOV, B. A., et al., Seriya Khimicheskaya, 9, 1973, pp 1964-1967

The molecules can have either a bent or a flat configuration. The dipole moments and Kerr constants were determined for all five compounds and shown both as graphs and in tables. On the basis of these graphs it was shown that these compounds occur in the bent configuration and have angles of less than 140 to 165°. The phosphoryl or thiophosphoryl group occupies a pseudoequatorial position while the methoxy and phenoxy groups have a gauche orientation.

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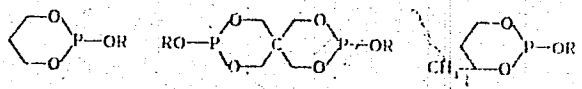
USSR UDC 541.63:541.67:547.1'118:547.8

AR'UZOV, B. A., ARSHINOVA, R. P., VUL'FSON, S. G., MUKMENEV, E. T.

"Steric Structure of Phosphorus-Containing Heterocycles. 4. Axial Arrangement of the Alkoxy Group in 1,3,2-dioxaphosphorinanes by the Dipole Moment Data"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2426-2431

Abstract: A study was made of the conformation of two classes of compounds: 2-alkoxy-1,3,2-dioxaphosphorinanes (I) and the corresponding dialkoxypentaerythitdiphosphites (II)



(I) (II) (III)

(I) R=Et(a), Ph(б); (II) R=Et(a), Ph(б); (III) R=Me(a), n-Pr(б)

Data are compared on the structure of 1,3,2-dioxaphosphorinanes which are derivatives of trimethylene glycol and 1,3-butylene glycol.

The dipole moments are determined for 2-alkoxy and 2-phenoxy-1,3,2-dioxaphosphorinanes and their spiro analogs with a three-coordinated phosphorus

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AR'UZOV, B. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2426-2431

atom. A graphical procedure is proposed for the analysis of the dipole moment data for cyclic compounds. In all of the investigated compounds, conformation of the chair configuration with the axial (or diaxial for the spiro compound) arrangement of the alkoxy group with gosh-orientation of the methoxyl and ethoxyl radicals and with cis-orientation of the phenoxy group. The proposed graphical procedure permitted not only establishment of the steric structure of the spirane molecules but also certain conclusions regarding the structure of the corresponding monocyclic molecules.

USSR

UDC 541.67:547.879

ARBUZOV, B. A., Academician, ARSHINOVA, R. P., GURARIY, L. I., MUKMENEV, E. T., Scientific Research Institute of Chemistry imeni A. M. Butlerov Affiliated with Kazan State University imeni V. I. Ul'yanov-Lenin; Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences of the USSR, Kazan

"Dipole Moments and Kerr Constants of 1,32-Dioxaphospholans"

Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 6, 21 Jun 72, pp 1349-1351

Abstract: The paper is a continuation of research on the stereostructure of heterorings. The authors study conformations of a series of 1,3,2-dioxaphospholans with the tricoordinate phosphorus atom. Four compounds of this type were synthesized by reacting ethylene-1,2-propylene, 2-3butylene and 2,3-dimethyl-2, 3-butylene glycols with phosphorus trichloride and alkyl dichlorophosphites. The dipole moments and Kerr constants were measured in an atmosphere of dry argon. The results show that the usual conformation of the 1,3,2-dioxaphospholan ring is distorted by the spatial interaction of methyl groups which takes place in the case of meso-2-chloro-4,5-dimethyl 1,3,2-dioxaphospholan. This explains the contradictory data in the literature with respect to PMR and gas electronography determinations of the stereostructure of these rings. The authors thank A. N. Vereshchlagin and A. G. Vul'fson for assistance with the work. 1/1

USSR

UDC 541.67:547.879

VERESHCHAGIN, A. N., ARSHINOVA, R. P., VUL'FSON, S. G., CHERKASOV, R. A., and OVCHINNIKOV, V. V.,, Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of Sciences, at Kazan', and Kazan' State University imeni V. I. Ul'yanov-Lenin

"Steric Structure of Phosphorus-Containing Heterocycles. II. Dipole Moments and Kerr Constants of Certain 2-Thiono-1,3,2-Dioxaphosphorinanes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 11, Nov 71, pp 1464-1468

Abstract: Continuing their earlier research on the steric structure of this group of heterocycles, the authors studied four of the 2-thiono-1,3,2-dioxaphosphorinanes with use of the dipole-moment and Kerr-effect methods, along with nuclear magnetic resonance (P^{31}) data. The steric interactions in these four compounds, the Kerr constants of possible structures of compound IV, and the dipole moments of the four, were all determined experimentally. The 2,4-dimethyl- and 2-chloro-2-thiono-1,3,2-dioxaphosphorinanes have chair configuration with the equatorial thionophosphoryl group; the 2-methyl derivative exists in the form of an equilibrium mixture of the axial and equatorial conformers, with predominance ofthe former.

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USSR

UDC 541.67:547.879

ARBUZOV, B. A., ARSHINOVA, R. P., and ZOROASTROVA, V. M., Scientific-Research Institute imeni A. M. Butlerov, under the Kazan' State University imeni V. I. Ul'yanov-Lenin

"Steric Structure of Certain 2-Oxa-Derivatives of 1,3,2-Dioxaphosphorinanes"

Moscow, Doklady Akademii Nauk SSSR, Vol 199, No 5, 11 Aug 71, pp 1061-1062

Abstract: The steric structure of 6-member heterocycles with a phosphorus ring atom is a current object of intensive research, with use of roentgenography and other techniques. However, the dipole-moment method and the Kerr effect have so far not been used systematically in the case of the 2-X-oxa-1,3,2-dioxaphosphoryls, despite the promising prospects of this approach.

The authors measured the dipole moments and Kerr constants of these particular compounds, and studied derivatives of trimethylglycol in the process, measurements being taken in dilute CCl_4. Assuming the existence of these compounds in ring form to be definitely established, they calculated moments and Kerr molar constants with allowance for two possible ring forms -- axial and equatorial. Butyleneglycol derivatives were also studied.

Values for probable variation in the proportions of these two forms were

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ARBUZOV, B. A., et al., Doklady Akademii Nauk SSSR, Vol 199, No 5, 11 Aug 71, pp 1061-1062

arrived at on the basis of the experimental data obtained, and also theoretical figures. One general conclusion reached is that for 2-oxa-derivatives of the 1,3,2-doxaphosphorinanes, phosphorus atom substitutes in the ring are "available" in this ascending order: $H < Cl < CH_3 < CPh_3$. Some measurement data and structural formulas are included in the paper.

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USSR

UDC: 541.67+547.87

ARBUZOV, B. A., and ARSHINOVA, R. P., Scientific Research Institute Imeni A. M. Butlerov at the Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Dipole Moments, Kerr Constants and Conformations of Some 1,3-Dioxaphosphorinanes"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 4, Dec 70, pp 835-836

Abstract: Two groups of compounds were studied: one included 2-chloro-1,3-dioxaphosphorinane-2 (1a), 5,5-dimethyl-2-chloro-1,3-dioxaphosphorinane-2 (1b), and 4-methyl-2-chloro-1,3-dioxaphosphorinane-2 (1c); the other group included 2-methyl-2-thiono-1,3-dioxaphosphorinane-2 (2a), 2,4-dimethyl-2-thiono-1,3-dioxaphosphorinane-2 (2b), 2-chloro-2-thiono-1,3-dioxaphosphorinane-2 (2c), and 2-chloro-2-thiono-4-methyl-1,3-dioxaphosphorinane-2 (2d). The results obtained on dipole moment (D) and molar Kerr constants (mK) are tabulated.

Compound	1a	1b	1c	2a	2b	2c	2d
D	3.47	3.60	3.66	3.90	5.37	5.30	5.55
mK	164	121	215	436	1175	1356	1195

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On the basis of above data it has been concluded that the structures of the 1 group have the P-Cl bond in equatorial orientation, while the compounds in the second group tended to have the P-Cl or P-CH_3 bonds axially oriented.

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1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--REFLECTION EFFECT IN DERIVATIVES OF TETRAMETHYLTETRAHYDROTHIOPYRAN,4,ONE -U-

AUTHOR-(04)-ARBUZOV, B.A., YULDASHEVA, L.K., ARSHINOVA, R.P., ZOLOVA, O.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3),526-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SULFUR COMPOUND, HETEROCYCLIC OXYGEN COMPOUND, DIPOLE MOMENT, SULFUR OXIDE, SULFONE, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0738 STEP NO--UR/0062/70/000/003/0526/0529

CIRC ACCESSION NO--AP0124408

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124408

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPTL. DIPOLE MOMENT VALUE FOR 2,2,6,6,TETRAMETHYLTETRAHYDRO,4,PYRONE IS 1.49 D, SULFOXIDE 1.58 D, SULFONE 2.45 D, TETRAHYDROTHIS,4,PYRONE 1.51 D, AND ITS SULFONE 2.41 D. F ROM THESE DATA IT WAS CONCLUDED THAT ALL THESE COMPDS. HAVE THE PREFERRED CHAIN CONFORMATION. INTRODUCTION OF GEM ME GROUPS IN THE 3 POSITION RELATIVE TO THE CO GROUP CAUSES BUT SLIGHT DEFORMATION OF THE RING. FACILITY: KHIM. INST. IM. BUTLEROVA, KAZAN. GOS. UNIV. IM. UL'YANOVA LENINA, KAZAN, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT7(

TITLE--DIPOLE MOMENT AND CONFORMATION OF 3,5,DIBENZYLIDENE,TETRAHYDRO,4H,THIOPYRAN,4,ONE AND ITS 1,1,DIOXIDE -U-

AUTHOR-(04)-ARBUZOV, B.A., YULDASHEVA, L.K., ARSHINOVA, R.P., BALABANOVA, F.B.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 448-50

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIPOLE MOMENT, SULFONE, IR SPECTRUM, BENZENE DERIVATIVE, HETEROCYCLIC OXYGEN COMPOUND, KETONE, ORGANIC OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0844 STEP NO--UR/0062/70/000/002/0448/0450

CIRC ACCESSION NO--AP0119748

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT7(

CIRC ACCESSION NO--AP0119748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDENSATION OF TETRAHYDRO,4H,THIOPYRAN,4,ONE WITH BZH GAVE THE 3,5,DIBENZYLIDENE DERIV., M. 150-1DEGREES, DIPOLE MOMENT 2.5 D. THE DIPOLE MOMENT OF ITS SULFONE, M. 198-9DEGREES, WAS 3.55 D. THUS, BOTH ARE IN THE "ENVELOPE" CONFORMATION, A CONCLUSION SUPPORTED BY IR SPECTRA. FACILITY: KHIM. INST. IM. BUTLEROVA, KAZAN. GOS. UNIV. IM. UL'YANOVA,LENINA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 541.951.3:547.1'118:541.62

GUBAYDULLIN, R. N., YEGANOV, V. F., ARSHINOVA, R. P., and MUKMENEV, E. T., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov Acad. Sc. USSR, and Chemical Institute Imeni A. M. Butlerov, Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Formation of Isomeric Diphenylpentaerythritol Diphosphites in the Transesterification of Triphenyl Phosphite With Pentaerythritol"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, May 73, pp 1116-1118

Abstract: Using thin layer chromatography, it was shown that the transesterification of triphenyl phosphite with pentaerythritol at 100-120°/10 mm yields 3,9-diphenoxy-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5,5]undecane, m.p. 118-120°C and α-(2,6,7-trioxa-1-phosphabicyclo[2,2,2]octyl-4)-methyldiphenyl phosphite, m.p. 82-84°C. These structures were identified by parallel syntheses.

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USSR UDC 517.537

IBRAGIMOV, I. I., Academician of the Azerbaydzhan SSR Academy of Sciences,
ARSHON, I. S.

"Completeness of Some Systems of Analytical Functions"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 5, 1971, pp 1010-1013

Abstract: The following problem is considered: let two systems

$$\{\varphi_n(z)\},\ \{\psi_n(z)\} \quad (n = 0,1\ldots) \tag{1}$$

regular in some domain $\mathcal{D}$ of functions $\varphi_n(x)$ and $\psi_n(z)$ be given. It is assumed that each of these systems is complete in the domain $\mathcal{D}$, a sequence $\{\nu_s\}$ $(s = 0,1, \ldots)$ of numbers ν_n is given, and a new system $\{f_n(z)\}$ is constructed by the rule

$$\{f_n(z)\} \equiv \{\varphi_n(z)\} \cup \{\psi_{\nu_s}(z)\} \quad (n \neq \nu_s;\ n, s = 0, 1,\ldots). \tag{2}$$

What can be said regarding the domain of completeness of the mixed system

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IBRAGIMOV, I. I., et al., Doklady Adademii Nauk SSSR, Vol 197, No 5, 1971, pp 1010-1013

(2) as a function of the method of selecting the sequence $\{\nu_n\}$ and the nature of the functions making up the generating systems (1)? The comparatively simple case in which $\varphi_n(z) = z^n$ and $\psi_n(z) = z^n F^{(n)}(z)$ is considered, where $F(z)$ is a function which is regular in the circle $|z| \leq r$, $1 < r < \infty$ or it is an integral function. The mixed system has the form

$$\{f_n(z)\} = \{z^n\} \cup \{z^{\nu_s} F^{(\nu_s)}(z)\} \quad (n \neq \nu_s;\ n, s = 0,1,\ldots). \tag{3}$$

Four theorems and some lemmas are proved, and another interesting problem is considered in which $F(z)$ is an integral function of the exponential type and $a_{\{\nu_n\}}$ is the radius of completeness of system (3). The value of

$$a[F] = \inf_{\{\nu_n\}} a_{\{\nu_n\}}$$

is found.

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USSR

UDC: 536.2:536.63

PELETSKIY, V. E., CHEKHOVSKOY, V. Ya., SOVITSKIY, Ye. M., TYLKINA, M. A., AMASOVICH, Ye. S., ARSKAYA, Ye. P., ZAYCHENKO, V. M., PETUKHOV, V. A., Institute of High Temperatures of the Academy of Sciences of the USSR, Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences of the USSR

"Some Physical Properties of a New Alloy in the Nickel-Rhenium-Molybdenum System"

Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 2, Mar/Apr 73, pp 435-436

Abstract: The authors study the heat conduction, coefficient of thermal expansion and resistivity of an alloy in the nickel-rhenium-molybdenum system containing 10 wt.% Re and 15 wt.% Mo. Curves are given showing the temperature dependence of the measured parameters between 100 and 1000°C. The results indicate structural transformation of the alloy in the solid state. Analysis points to the possibility of formation of the so-called K-state observed in the region of solid solutions of the nickel-chromium system with more than 16% chromium. However, a final explanation of the observed anomalies will require further research.

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USSR

UDC 546.284-31:66.093.8

ARSLAMBEKOV, V. A., GORBUNOVA, K. M., KARATEYEVA, V. I., and SMUCHCHENKO, V. YA., Institute of Physical Chemistry, Academy of Sciences USSR

"Properties of SiO_2 Films, Prepared by the Hydrolysis of SiF_4"

Moscow, Neorganicheskiye Materialy, Vol 9, No 12, 1973, pp 2120-2123

Abstract: The precipitation of the SiO_2 films was carried out at temperatures of 550 to 730°C and concentrations of H_2SiF_6 of 13, 21, and 45%. A graph shows the deposition rate as a function of the substrate temperature and the vaporized acid, being a maximum for the highest values of both. Measurement of the breakdown voltage at 15-20 points showed that a film 2.4 μ thick had a breakdown voltage of 7×10^6 v.cm, whereas films 1.7 and 0.83 μ had breakdown voltages of 8×10^6 and 7.5×10^6 v/cm, respectively. Treatment of the surface with organic solvents changed the breakdown voltage somewhat. Curves for the distribution of contact differences in the surface potential φ are also shown. Characteristic differences are observed which may be a function of the heterogeneous distribution of charge in the layers which is in turn a function of the preparation methods.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CHROMATOGRAPHIC ISOLATION AND SEPARATION OF MIXTURES OF ALKALINE EARTH ELEMENTS FROM NATURAL MINERALS -U-
AUTHOR-(03)-ARSLANOVA, S.S., RAKHIMOV, KH.R., SENYAVIN, M.M.

COUNTRY OF INFO--USSR

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SOURCE--UZB. KHIM. ZH. 1970, 14 (2), 12-14

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, CHEMICAL SEPARATION, CALCIUM, STRONTIUM, MAGNESIUM/(U)KUZ ION EXCHANGE RESIN, (U)AV17 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0356 STEP NO--UR/0291/70/014/002/0012/0014

CIRC ACCESSION NO--AP0137460

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137460

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DOLOMITE (0.1 G) WAS CALCINED AT 1000-200DEGREES, FUSED WITH NA SUB2 CO SUB3, DISSOLVED IN H SUB2 O, AND FILTERED. THE FILTRATE WAS TREATED WITH NH SUB3 AND FILTERED. THE ACIDIFIED FILTRATE WAS PASSED THROUGH AV-17 ION EXCHANGER (A STRONG BASIC POLYSTYRENE TYPE) IN OH PRIME NEGATIVE FORM. CELESTINE (0.1 G) WAS FUSED AT 6-700DEGREES WITH NA SUB2 CO SUB3, H SUB2 C SUB2 O SUB4, AND KNO SUB3, DISSOLVED IN H SUB2 O AND FILTERED; 5 ML FILTRATE WAS PLACED ON A COLUMN WITH 3 G CATION EXCHANGER IN NH SUB4 PRIME POSITIVE FORM AND LEFT FOR 12 HR. THEN THE COLUMN WAS WASHED WITH 0.1N NH SUB4 CL AND ELUTED WITH A 0.5PERCENT SOLN. OF (L,HYDROXYPHENYLIMINO)DIACETIC ACID (I) (1 ML-MIN). EVERY FRACTION OF 5 ML WAS IGNITED IN A PT DISH. TIRN. WITH TRILON B GAVE MG WITH ERIOCHROME BLACK T INDICATOR AND CA WITH FLUOREXONE INDICATOR. QUANT. SEPN. OF CA-MG, ELUTED IN THAT ORDER, WAS OBTAINED WITH I, AND THE ORDER MG-CA WITH IMINODIACETIC (II), (BETA HYDROXYETHYLIMINO)DIACETIC (III), AND NITRILOTRIACETIC ACID (IV). SR-CA WAS SEPD. ON KU-2 (A STRONG ACID POLYSTYRENE TYPE EXCHANGER) IN NH SUB4 PRIME POSITIVE FORM, ELUTED IN THAT ORDER BY 0.5PERCENT SOLN. OF I, AND IN THE REVERSE ORDER BY 1.5PERCENT SOLN OF II, OR 0.5PERCENT SOLNS. OF III OR IV. ARTIFICIAL ADMIXTS. OF NA, MG, FE, AND AL DID NOT INTERFERE. FACILITY: TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC 624.07:534.1

ARSON, L. D., MALASHENKO, L. A.

"Statistical Analysis of the Strength and Rigidity of Thin-Walled Systems"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. temat. nauch.-tekhn. sb. (Aircraft Construction and Air Force Engineering. Republic Interdepartmental Thematic Scientific-Technical Collection), 1971, No. 24, pp 53-57 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V454)

Translation: The strength and rigidity of thin-walled systems (shells, plates, thin-walled rods) for a random nature of the external loads, physical characteristics of the material, and thicknesses of the elements in the presence of a correlation between the random value are investigated. Probability theory and mathematical statistics are applied. The average values and the limiting deviations of bends and stresses of plates under transverse bending, of critical stresses under compression shift and local stability of thin-walled profiles, of critical stresses of cylindrical shells under axial compression and the action of radial pressure, of finite bending moments and of temperature effects are found on the basis of theorems concerning mathematical expectation and dispersion of random quantities. The results of the calculations establish

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