"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 621.365.82

ZABORTsEVA, T. A., STEPANOV, A. F., STEPANOV, V. A.

"Evaluation of the Modal Composition of Radiation from Gas Lasers Using the Spatial Coherence Function"

Tr. Ryazan. Radiotekhn. in-ta (Proceedings of the Ryazan' Radiotechnical Institute), No 37, 1972, pp 56-62 (RZh-Fizika, No 9, Sep 73, Abstract No 9D810

Translation: The spatial coherence function of gas laser radiation $|\gamma_{12}|$ x was studied experimentally in a Young interferometer for two experimental geometries (symmetrical and asymmetrical). The object of the investigation was an Ar laser (λ = 514.5 nanometers) with a confocal resonator (base about 0.8 meters), the control of the oscillation mode being achieved by alignment of the resonator mirror. It was shown that $|\gamma_{12}|$ x functions can be used to calculate the ratio of power of the generated modes, with the values the same in the two geometries. For two lines of a He-Ne laser (632.8 and 640.1 nanometers) the distribution of energy in cross-sections of the beam in the near zone and the spatial coherence functions $|\gamma_{12}|$ x were studied as the length of the resonator approached the critical ($R_1 = \infty$, R_2 = 1 meter, $L \rightarrow 1$ meter). It was shown that the $|\gamma_{12}|$ x functions give more accurate information

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ZABORTsEVA, T. A., et al., Tr. Ryazan. Radiotekhn. in-ta, No 37, 1972, pp 56-62

about the modal composition of the radiation than data on the distribution of energy in the cross-section of the beam. Seven bibliographic citations. V.I.R.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 577.37+612.014.428

GULYAYEV, P. I., ZABOTIN, V. I., SHLIPPENBAKH, N. Ya., and GORDIYENKO, V. A., Laboratory of Physiological Cybernetics, Leningrad State University

"Recording the Electric Fields of Insects in Free Flight"

Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 3, 1970, pp 699-701

Abstract: A brief description is given of a screened metal chamber for recording the electric fields of bumblebees, wasps, flies, and mosquitoes. Results of studies of the insects in their natural habitat were the same as those obtained in the screened chamber, despite the absence of artificial conditions and the unlimited freedom enjoyed by the insects. Thus, the proposed screened chamber appears to be a convenient device for investigating triboelectricity and its possible informational role in insects.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC: 51

ZABOTIN, Ya. I.

"On Finding Whole-Number Solutions for Problems of the Optimum Redundancy Type"

V sb. Chisl. metody v tekhn. -ekon. zadachakh (Numerical Methods in Technical and Economic Problems--collection of works), Kazan', Kazan' University, 1971, pp 74-79 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V862)

Translation: Algorithms for finding whole-unmber solutions are proposed which are based on using the principle of dynamic programming in the following two problems:

Problem 1. To find integral non-negative values x_i, $i=1, 2, \ldots, n$ which maximize the function

$$R(x)=\prod_{i=1}^{n} r_i(x_i)$$

and satisfy the inequalities

$$\sum_{i=1}^{n} w_{ji}(x_i) \leq v_j, \; j=1, 2, \ldots, m.$$

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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ZABOTIN, Ya. I., Chisl. metody v tekhn.-ekon. zadachakh, Kazan', Kazan' University, 1971, pp 74-79

where $x=(x_1, x_2, \ldots, x_n)$, $r_i(x_i)$, $w_{ji}(x_i)$ are monotonically increasing non--negative functions defined on the non-negative half-axes $x_i \geq 0$.

Problem 2. It is required to find the integral values $x_i \geq 0$ which minimize

$$\sum_{i=1}^{n} w_i(x_i)$$

under the condition

$$\prod_{i=1}^{n} r_i(x_i) > R_0,$$

where $w_i(x_i)$ are monotonically increasing functions, $w_i(x_i)=0$ only when $x_i=0$, $r_i(x_i)$ are monotonically increasing positive functions, R_0 is a positive constant. From the article.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC: 51

ZABOTIN, Ya. I., KHABIBULLIN, R. F.

"Quasimonotonic Functions and the Problem of Quasimonotonic Programming"

V sb. Chisl. metody v tekhn.-ekon. zadachakh (Numerical Methods in Technical and Economic Problems), Kazan', Kazan' University, 1971, pp 91-98 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V823)

Translation: Functions are studied which are simultaneously quasiconcave and quasiconvex. Properties of such functions are established which put the problem of mathematical programming with such functions in the category of a direct generalization of the problem of linear programming. The function $f(x)$ defined on the convex set $E \subset R_n$ is called quasimonotonic on E if the inequalities $\min\{f(x_1), f(x_2)\} < f(\lambda x_1 + (1-\lambda) x_2) < \max\{f(x_1), f(x_2)\}$ for any $0 < \lambda < 1$ are satisfied for any two distinct points $x_1, x_2 \in E$. From the article.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC: 51

ZABOTIN, Ya. I., KHABIBULLIN, R. F.

"Some Classes of Quasiconcave Functions"

V sb. Chisl. metody v tekhn.-ekon. zadachekh (Numerical Methods in Technical and Economic Problems--collection of works), Kazan', Kazan' University, 1971, pp 80-90 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V822)

Translation: Methods are indicated for constructing quasiconcave (quasiconvex) functions and narrower classes of concave (convex) and quasimonotonic functions on some convex set . From the introduction.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 537.533.3

FALOV, A. F. and ZABOYEV, A. I.

"Ion Beam Focusing in Two-Dimensional Magnetic Fields"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 3, Mar 70, pp 538-550

Abstract: An analytical theory of the horizontal focusing up to the third order inclusively over horizontal dispersion angles of a beam in a homogeneous two-dimensional magnetic field is developed. It is noted that shortcomings in existing charged particle separators stem chiefly from the fact that a theory of these devices has not been developed, resulting in the magnetic fields and their designs being selected empirically. These mass separators do not have sufficiently high dispersion for separating any heavy isotopes, since a general theory for the class of fields used was absent: initially the magnetic field in the middle plane (z=0) drops constantly and then monotonically under a change in one coordinate. The present article solves the problem of finding analytical expressions for magnetic fields of this class which provide focusing up to the third order. The class of focusing magnetic fields (independent of x) which are generally nonmonotonic functions of y in the plane z = 0 is obtained. Calculations which will be published in the near future have shown that representations characterized by

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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FALOV, A. F. and ZABOYEV, A. I., Zhurnal tekhnicheskoy fiziki, Vol. 40, No. 3, Mar 70, pp 538-550

small horizontal and vertical aberations are obtained in certain fields of this type in the focal plane. Computational formulas are obtained which can be used to design high-yield mass separators which are characterized by a high dispersion; the formulas can also be used to design alpha and beta spectrometers with high resolution and transmission.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 669.721.48(088.8)

BIRYUKOV, L. V., MIRONOV, A. M., SERGEYEV, V. V., POLYAKOV, Yu. A., and ZABOYEV, Yu. I.

"Method of Processing Wastes"

USSR Author's Certificate No 273441, Filed 13/08/66, Published 7/09/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G190 P)

Translation: A method is suggested for processing wastes from the production of Mg to carnallite and Cl, including absorption of hydrogen chloride by water, absorption of chlorine by lime producing HCl and $CaCl_2$, decomposition of the calcium chloride by the hydrochloric acid, producing concentrated Cl_2 and a $CaCl_2$ solution, addition of MgO and carbonization, separation of the $MgCl_2$ solution produced from the $CaCO_3$, addition of spent electrolyte, and evaporation and dehydration of the solution to separate the carnallite. To increase the extraction of concentrated Cl_2, the chlorinated CaO is decomposed at pH 2-3 at a residual pressure in the apparatus of 10-20 mm Hg, while the spent electrolyte is introduced into the $MgCl_2$ solution in melted form by spraying.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 517.9

ZABREYKO, P. P., and STRYGINA, S. O., Voronezh State Pedagogical Institute, Yaroslavl' State University

"On Periodic Solutions of Evolutional Equations"

Moscow, Matematicheskiye Zametki, Vol 9, No 6, Jun 71, pp 651-662

Abstract: The article extends L. CESARI's method to cover a very general class of evolutional equations. Continuous ω-periodic solutions of a differential equation with a Volterra operator are considered. A theorem is formulated and proved that the rotation of the shift operator field coincides with the rotation of the CESARI field on the boundaries of regions with an identical core. The Galerkin method for the solution of operator equations is considered.

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1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ELASTOMER OSCILLATORS -U-

AUTHOR-(03)-ZABREYKO, P.P., KRASNOSELSKIY, M.A., LIFSHITS, YE.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY ADADEMII NAUK SSSR, VOL 190, NO 2, 1970, PP 266-268

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELASTOMER, OSCILLATOR THEORY, ELASTIC MODULUS, LIPSCHITZ CONSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0503 STEP NO--UR/0020/70/190/002/0266/0268

CIRC ACCESSION NO--AT0048748

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0048748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EQUATION FOR THE OSCILLATIONS OF A POINT MASS ON A ONE DIMENSIONAL ELASTOMER IS STUDIED. IF X(T) IS THE COORDINATE OF AN OSCILLATING POINT N OF MASS M AND THE FOLLOWING FORCES ACT ON THE POINT N AT TIME T: A VARIABLE EXTERNAL FORCE F(T), FRICTION, THE STRESS OF THE ELASTIC ELEMENT GIVEN BY HOOK'S LAW, AND THE STRESS PHI OF THE ELASTOMER, THE MOTION OF THE POINT N IS EXPRESSED BY AN EQUATION (SHOWN ON MICROFILM). THE STRESS OF THE ELASTOMER IS GIVEN BY A FORMULA (SHOWN ON MICROFILM) WHERE F(A, Z) IS A FUNCTION DESCRIBING THE STRESS OF AN INFINITESIMAL ELEMENT OF THE ELASTOMER AND MU IS A MEASURE DESCRIBING THE DISTRIBUTION OF THE ELASTIC MODULUS WITH RESPECT TO THE PARAMETER ALPHA, THEOREMS ARE PROVED STATING THE CONDITIONS UNDER WHICH AN EQUATION (SHOWN ON MICROFILM) HAS A UNIQUE SOLUTION. THE THEOREMS HOLD WHEN PHI IS DETERMINED BY THE FORMULA IF IT IS ASSUMED THAT THE NONLINEAR FUNCTION SATISFIES THE LIPSCHITZ CONDITION WITH RESPECT TO THE VARIABLE.

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Miscellaneous

USSR

UDC 517.9+539.214

~~ZABREYKO, P.~~ P., KRASNOSEL'SKIY, M. A. and LIFSHITS, YE. A., Voronezh State University, Institute of Automation and Telemechanics (Technical Cybernetics), Academy of Sciences USSR, Moscow

"Elastomer Oscillators"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 2, 1970, pp 266-268

Abstract: The equation for the oscillations of a point mass on a one-dimensional elastomer is studied. If x(t) is the coordinate of an oscillating point N of mass m and the following forces act on the point N at time T: a variable external force f(t), friction, the stress of the elastic element given by Hook's law, and the stress Φ of the elastomer, the motion of the point N is expressed by the equation

$$m\, d^2x/dt^2 + b\, dx/dt + Ex + \Phi = f(t).$$

If the stress of the elastomer is given by the formula

$$\Phi = \int_M F\{\alpha, \Gamma[x\ \ l_-(\alpha),\ l_+(\alpha),\ l_0(\alpha)](t)\} d_\mu(\alpha), \qquad (1)$$

where F(a, Z) is a function describing the stress of an infinitesimal element

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USSR

ZABREYKO, P. P., et al, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp 266-268

of the elastomer and μ is a measure describing the distribution of the elastic modulus with respect to the parameter α, theorems are proved stating the conditions under which the equation

$$m\, d^2x/dt^2 + b\, dx/dt + Ex + \int_M \Gamma[x\, l_-(\alpha), l_+(\alpha),$$

$$l_0(\alpha)](t)d_\mu(\alpha)$$

has a unique solution. The theorems hold when Φ is determined by formula (1) if it is assumed that the nonlinear function $F(\alpha, l)$ satisfies the Lipschitz condition with respect to the variable l.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--EFFECT OF ADRENERGIC SUBSTANCES ON THE DEVELOPMENT OF RESERPINE INDUCED DYSTROPHY OF THE STOMACH WALL ON THE LEVEL OF CATECHOL AMINES IN

AUTHOR--ZABRODIN, O.N.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 71-3

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENERGIC DRUG, RESERPINE, CATECHOLAMINE, RAT, DIGESTIVE SYSTEM, STOMACH, NORADRENALIN, ADRENALINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1668 STEP NO--UR/0390/70/033/001/0071/0073

CIRC ACCESSION NO--AP0103434

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103434

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ORNID ADMINISTERED I.P. TO RATS AT 5 MG-KG PREVENTED DEVELOPMENT OF RESERPINE (5 MG-KG I.P.) INDUCED DYSTROPHY IN THE STOMACH WALLS AND PREVENTED DEPLETION OF NORADRENALINE AND ADRENALINE RESERVES. HEXONIUM SIMILARLY ADMINISTERED AT 10 MG-KG DID NOT PREVENT RESERPINE ULCERS IN THE STOMACH WALL OR THE DECREASE IN NORADRENALINE RESERVES. SYMPATHOLYTIN AT 5 MG-KG INCREASED THE AMT. OF DESTRUCTION IN THE STOMACH WALL AND DID NOT PREVENT LOSS OF CATECHOL AMINES.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 619:616.981.42-036.2:636.294

ZABRODIN, V. A., Candidate of Veterinary Science

"Natural Focality of Brucellosis in the North Yenisei Region"

Novosibirsk, Sibirskiy Vestnik Sel'skokhozyaystvennoy Nauki, No 4, 1972, pp 84-92

Abstract: Clinical, pathoanatomical, serological, and bacteriological studies in the North Yenisei Region of the USSR have revealed increasingly frequent epizootics of brucellosis among wild reindeer (Rangifer tarandus) in recent years. The similarity between wild and domesticated reindeer with respect to clinical manifestations, pathological changes, site of the causative agent, and high rate of infection of the wild reindeer (about 33% of a total of more than 300,000 animals) suggest that they are the main carriers of the disease in this region. Brucellosis was first detected among wild reindeer in 1960, but it had been recorded in domesticated animals since 1948. Hence it would appear that the latter were the original source of the disease. Transmission is facilitated by numerous transient contacts between the two groups of animals during migrations, at water barriers, and on summer pastures.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 619:616.981.45:591.613

PETUKHOVA, O. S., PINIGIN, A. F., ZABRODIN, V. A., VAGINA, L. A., and ZABRODINA, YE. F., Scientific Research Institute of Agriculture of the Far North

"Isolation of Brucella From Wild Animals"

Moscow, Veterinariya, No 4, 1971, pp 41-42

Abstract: In 1968-1970 in the Taymyr National District of Krasnoyarskiy Kray (Central Siberia), 41 Brucella cultures were isolated from indigenous wild animals: 15 from wild reindeer, 15 from wolves, 10 from polar foxes, and 1 from a wolverine. All these strains grew under aerobic conditions and in most cultural and morphological properties were identical to those isolated from domestic animals, reindeer in particular. While the former tended to be more resistant to penicillin than the latter, they were generally less virulent. In Siberian foci of brucellosis, wild reindeer are in frequent contact with domestic animals and apparently become readily infected by them.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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UDC: 911.3.616.981.42(47+57)

ASLANYAN, R. G., KAYTMAZOVA, D. S., KURDINA, D. S., ZABRODIN, V. A.

"Natural Foci of Brucellosis"

V sb. Materialy SV Vses, S'ezda epidemiologov, Mikrobiologov i infeksionistov, Tezisy dokl. Ch. I. (Proceedings of the 15th All Union Conference of Epidemiologists, Microbiologists and Specialists in Infectious Diseases, Report Theses Part I--collection of works) Moscow, 1970, pp 112-113 (from RZh-Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.113, by V. Maslovskaya)

Translation: Brucellosis infection has been observed in the last few years among wild animals of the USSR Far North. Instudying 1,437 wild animals and fur-gearing animals from farms (wild reindeer, polar wolf, polar fox, wolverine, muskrat, sable and others), 32 brucellosis cultures were isolated. They were all identical to cultures isolated from domesticated reindeer, i. e. of the biotype Brucella suis. The high incidence of brucellosis in the polar wolf (9.2%) furnishes indirect proof of the significant distribution of this infection among reindeer. Thus the presence of brucellosis infection among wild animals and murine rodents acquires great epizootiological and epidemiological significance, considering the constant contact of wild reindeer with domesticated deer, and their commercial significance.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 616.981.42

PINIGIN, A. F., Professor, ZABRODIN, V. A., Candidate of Veterinary Sciences, Scientific Research Institute of Agriculture of the Far North

"Natural Foci of Brucellosis"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 7, Jul 70, pp 96-99

Abstract: Some 61 wildlife species have been found to be susceptible to brucellosis. Of these 27 were infected in the natural state and 34 were sensitive to experimental infection. About 20 species of blood-sucking arthropods which were infected with brucellosis under natural conditions have been recorded. To determine the spread of brucellosis among wild animals in Eastern Siberia and the Far East, a bacteriological study was made of about 1,500 mammals, 100 birds, and more than 6,250 Ixodes ticks. Long-tailed susliks were studied by serological methods. The animals were divided into two groups, those from brucellosis foci in cattle, sheep and pigs and those from foci of brucellosis in reindeer. It was found that, in natural foci of brucellosis north of Krasnoyarskiy Kray, the wild northern reindeer which are carriers of this infection transmit it to wolves, polar foxes, and wolverines.

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1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--BRUCELLOSIS AMONG WILD ANIMALS OF THE POLAR REGION -U-

AUTHOR--ZABRODIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--VETERINARIYA, 1970, NR 1, PP 56-57

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BRUCELLOSIS, ANIMAL DISEASE, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1379 STEP NO--UR/0346/70/000/001/0056/0057

CIRC ACCESSION NO--AP0136733

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136733

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TOTAL OF 24 SPECIES OF WILD ANIMALS, INCLUDING RED AND SILVER FOXES AND THE STEPPE POLECAT, ARE KNOWN BRUCELLA CARRIERS IN KAZAKHSTAN, TURKMEN SSR, AND PLAND AND BULGARIA. BRUCELLOSIS AMONG 110 TUNDRA WOLVES IN THE TAYMYR NATIONAL DISTRICT WAS STUDIED IN 1960, 1961, 1967 AND 1968. BRUCELLA CULTURES WERE ISOLATED IN 1967 AND 1868 (EIGHT ANIMALS). BRUCELLA CULTURES WERE ISOLATED FROM THE LYMPH NODES AFTER 5-25 DAYS OF INCUBATION. CULTURES WERE AGGLUTINATED WITH ANTIMELITENSIS SERUM, BUT WERE MUCH LESS VIRULENT FOR GUINEA PIGS THAN STANDARD SHEEP STRAINS. THE TAYMYR AREA IS PRESENTLY SAFE WITH RESPECT TO BRUCELLOSIS OF CATTLE AND SWINE, BUT FOCI EXIST AMONG DOMESTIC AND WILD REINDEER. REINDEER ARE THE MAIN WINTER AND SPRING FOOD OF THE TUNDRA WOLF, AND THUS MUST BE THE MAIN SOURCE OF INFECTION. FACILITY: NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT SEL'SKOGO KHOZYAYSTVA KRAYNEGO SEVERA.

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ZABRODIN, Yu. M.

SO: JPRS 53103
12 May 71

SOME PROBLEMS IN ANALYZING HUMAN BEHAVIOR
DURING RECEPTION OF WEAK SIGNALS

Yu. M. Zabrodin (psychology) pp 33-38

Characteristics of Human Signal Reception

Research on detection of weak signals, in the widest sense of the term, is a contemporary development of classical experimental research on absolute perception thresholds, and it includes more recent research on determining the so-called "operative thresholds."

Employing modern terminology, all perceptual processes can be called the processes of reception and primary human processing of incoming information. The first step of the process of information reception consists of detecting a useful signal in the environment among all the possible noise. By its origin this noise can be external -- background noise, which can be interpreted as noise in the transmission channel; it can be external but inseparably combined with signal processes (its presence is based on the physical nature of the signal carrier itself or on the internal features of the signal generator); and, finally, it can be internal, connected with specific features of man, the receiver of the signals.

A review and detailed analysis of research dealing with this problem leads us to the conviction that the boundaries of receptive fields, which are determined under the most varied conditions (by varied methods for measuring thresholds), do not correspond to those real boundaries which characterize the reflective capability of our receptor organs. These real boundaries would better be defined as ideal since they are truly limiting, but they are boundaries that are not attainable in realistic conditions. (Using classical terminology, these ideal boundaries can be called true thresholds). Disbelief of measured threshold values is based not [illegible] on the significant variability of the data made available, but on the simple fact that in such research, with rare exceptions, consideration is not made of the effect of all types of noise -- that is, it is assumed that the communication channel is noiseless and in this sense "ideal." An [illegible]tion of "idealness" of the channel cannot be considered [illegible] in research on very weak signals.

We can define psychophysics of thresholds as a comparatively narrow field of research dealing with the problem of initial interaction between the real medium (physical, external signals) and the human receptor system. With such a definition the problem arises of studying the material

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 621.314.57

ZABRODIN, YU. S.

"Commutation Processes in Autonomous Voltage Inverters"

Dokl. nauchno--tekhn. konferentsii po itogam nauchno--issled. rabot za 1968--1969gg. Mosk. energ. in-t, 1970, g. Sekts. Elektron. tekhniki. Podsekts. Prom. elektroniki (Report of the Scientific--Technical Conference on the Results of Scientific--Research Work during 1968--1969. Moscow Power Institute, 1970. Electronic Technology Section. Industrial Electronics Subsection), Moscow, 1969, pp 21-31 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5B548)

Translation: The characteristics given for forced commutation are cited as an example of circuits for a commutating unit. Commutation associated with the application of a reverse voltage to a blocking thyristor is considered, and commutation without application of reverse voltage. Computed curves are presented which make it possible to determine the blocking time for various circuits for forced commutation, fulfilled in LC--elements and with various coefficients characterizing the load. Also presented is a computation of the circuit elements, on the basis of conditions of optimum use of the energy necessary for conducting commutation. 4 ill. 1 tab. 6 ref. I. R.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 619:616.981.45:591.613

PETUKHOVA, O. S., PINIGIN, A. F., ZABRODIN, V. A., VAGINA, L. A., and ZABRODINA, YE. F., Scientific Research Institute of Agriculture of the Far North

"Isolation of Brucella From Wild Animals"

Moscow, Veterinariya, No 4, 1971, pp 41-42

Abstract: In 1968-1970 in the Taymyr National District of Krasnoyarskiy Kray (Central Siberia), 41 Brucella cultures were isolated from indigenous wild animals: 15 from wild reindeer, 15 from wolves, 10 from polar foxes, and 1 from a wolverine. All these strains grew under aerobic conditions and in most cultural and morphological properties were identical to those isolated from domestic animals, reindeer in particular. While the former tended to be more resistant to penicillin than the latter, they were generally less virulent. In Siberian foci of brucellosis, wild reindeer are in frequent contact with domestic animals and apparently become readily infected by them.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC: 669.29.295:669.094.3:620.17

KORNILOV, I. I., BORISKINA, N. G., ZABRODSKAYA, M. N., BRYNZA, A. P., Institute of Metallurgy imeni A. A. Baykov

"Influence of Long-term Oxidation on the Mechanical Properties of Titanium"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1973, pp 5-6.

Abstract: This work presents a study of the dependence of the mechanical properties of VT1-0 titanium on temperature of oxidation in air (from 600 to 800° C) and holding time (from 25 to 750 hours). Strength, ductility and impact toughness were studied using two to three parallel specimens at room temperature. It is established that long-term oxidation at 600° C, forming a shining oxide film of dark-grey color, causes no significant increase in strength or yield point, while relative elongation at rupture does not change at all.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 620.193.41

KORNILOV, I. P., BRYNZA, A. P., BORISKINA, N. G., and ZABRODSKAYA, M. N., Dnepropetrovsk State University and Institute of Metallurgy, Academy of Sciences USSR

"Effect of Long-Time Oxidation at 600°C on the Corrosion and Mechanical Properties of Titanium"

Moscow, Zashchita Metallov, Vol 9, No 6, 1973, pp 705-707

Abstract: VT1-0 titanium samples were heated at 600°C for periods of 25 to 1000 hours, cooled and weighed. Depth of oxidation penetration was measured by microhardness. Corrosion behavior was determined by placing samples in boiling solutions of 10% H_2SO_4, 1% oxalic acid, and 20% HCl for six hours and in 40% H_2SO_4 at 20°C for 2,250 hours. Up to 1000 hours the oxidation process was found to follow the parabolic law and the oxide film grew to 20 microns in thickness. Samples oxidized for 500-1000 hours possessed good corrosion resistance where the rate of corrosion in 10% H_2SO_4 was almost 300 times less than the unoxidized samples. Samples oxidized at 600°C for 25-1000 hours were thoroughly stable at 20°C in 40% H_2SO_4 for the test time of 2,550 hours. 2 figures, 1 table, 6 bibliographic references.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 620.193.51669.295

KORNILOV, I. I., BRYNZA, A. P., BORISKINA, N. G., and ZABRODSKAYA, M. N., Academy of Sciences USSR, Institute of Metallurgy imeni A. A. Baykov

"Investigation of the Kinetics of Prolonged Atmospheric Oxidation of Titanium"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 77-79

Abstract: A study was made of the kinetics of prolonged (25-1000 hrs) atmospheric oxidation of technically pure titanium (VT1-0 brand) at 700 and 800°. The parabolic mass increase with time in atmospheric oxidation at 700-800°, maintained during the full investigation time, is satisfactorily described by the exponential equations $\Delta q^{1.7} = 7.3 \cdot 10^{-7} \tau$ and $\Delta q^{1.4} = 7.2 \cdot 10^{-5} \tau$, for 700 and 800°, respectively. The oxide film developing on titanium at 700° becomes brittle after 500-1000 hrs of oxidation and it crumbles with cooling. At 800° and over 250 hrs of oxidation, the scale is firmly bound to the base and, in all probability, sufficiently dense diffusion layers between the titanium and its scale are formed. The character of the microhardness dependence on the depth of the oxidized layer is discussed by reference to diagrams of gas-saturated layers of titanium at 700 and 800°. Two figures, one table, fourteen bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ELECTRIC CURRENT THROUGH A FLUIDIZED BED OF CONDUCTING PARTICLES -U-

AUTHOR-(03)-ZHELTOV, A.I., ZABRODSKIY, S.S., BORODULYA, V.A.

COUNTRY OF INFO--USSR

SOURCE--INZHENERNO FIZIC HESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 64-67

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC RESISTANCE, ELECTRIC CURRENT, FLUIDIZED BED, GRAPHITE, PARTICLE PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1722 STEP NO--UR/0170/70/018/001/0064/0067

CIRC ACCESSION NO--AP0113700

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0118700 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIG. 1. SPECIFIC ELECTRIC RESISTANCE (OHM CM) OF FLUIDIZED BED OF GRAPHITE PARTICLES 0.1-0.16 MM VERSUS DENSITY OF CURRENT (A-CM PRIME2) WITH EXPANSION OF 1.2: 1, ARGON, 20DEGREESC; 2, HELIUM, 2000DEGREESC; 3, ARGON, 2000DEGREESC. FIG. 2. SCHEME OF EXPERIMENTAL INSTALLATION: 1, CHAMOTTE; 2, ELECTRODES; 3, ALUMINUM OXIDE FILLING; 4, GAS DISTRIBUTOR; 5, FLUIDIZED BED. FIG. 3. COMPARISON OF RELATIONSHIPS P EQUALS F(I) FOR GRAPHITE PARTICLES 0.16-0.2 MM IN DIA WITH EXPANSION 1.1 FOR RECTANGULAR (LIGHT) AND CYLINDRICAL (DARK POINTS) INSTALLATIONS, RESPECTIVELY (P, OHM. CM; I, A-CM PRIME2): 1, TEMPERATURE 20 DEGREESC; 2, TEMPERATURE 1000 DEGREESC. FIG. 4. TEMPERATURE DEPENDENCE OF AMPLITUDE (PERCENT) OF CURRENT FLUCTUATIONS FOR PARTICLES 0.16-0.2 MM IN DIA WITH EXPANSION 1.1: 1, RECTANGULAR INSTALLATION; 2, CYLINDRICAL INSTALLATION. THE DEPENDENCE OF SPECIFIC ELECTRIC RESISTANCE OF A FLUIDIZED BED OF CONDUCTING PARTICLES ON CURRENT DENSITY IS STUDIED. ELECTRODYNAMIC MECHANISM OF THE RELATIONSHIP S EQUALS F (I) IS DESCRIBED AND IT IS SHOWN THAT WITH INCREASING TEMPERATURE THE AMPLITUDE AND FREQUENCY OF ELECTRIC CURRENT FLUCTUATIONS DECREASE WHICH DEMONSTRATES LOWER FREQUENCY OF GAS BUBBLE MOTION.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC: 51

ASHEROV, A. T. and ZABRODSKIY, V. A.

"Control of the Production Process in an Automated Control System"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Systems and Instruments, Republic Interdepartmental Thematic Scientific-Technical Collection) No 26, 1973, pp 42-52 (from RZh--Matematika, No 7, 1973, Abstract No 7V554)

Translation: The problem of the combined optimization of production control processes and the choice of control from the results of a prognosis for fulfilling a specified plan is formulated for conditions for automating a system of controlling an enterprise. Control of the start of production is considered to be a controllable Markov process. The structure of the transition interval, of the income, and of the control, is considered; a solution is given to the problem of the optimal control strategy and prognosis by the method of dynamic programming. Possible applications are discussed. Authors' abstract

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

Acc. Nr: AP0052540 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0459

101188j High elasticity of 1,4-polybutadienes of different microtacticity. Malkin, A. Ya.; Kulichikhin, V. G.; Zabugina, M. P.; Vinogradov, G. V. (Inst. Neftekhim. Sin. im. Topicheva, Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 120-8 (Russ). The viscosity changes, viscoelastic deformation (γ) vs. shear rate ($d\gamma/dt$), γ vs. mol. wt., γ vs. shear stress, elasticity modulus vs. shear stress, the effect of 1,4-cis units content on the elasticity modulus, and related rheol. properties of 1,4-polybutadienes (I) were studied at 50°, 10^{-4}-10^{2} sec^{-1} $d\gamma/dt$, and 5×10^{3}-10^{-3} P viscosity ranges. Low mol. wt. I did not obey Hooke's shear law. There was a sharp difference in rheol. properties of I below and above a crit. mol. wt. value, the magnitude of which depended on the tacticity and on $d\gamma/dt$. In the low $d\gamma/dt$ region the above relations agreed with A. S. Lodge's theory (1964). Non-Newtonian flow begins after reaching the crit. mol. wt. and the crit. $d\gamma/dt$.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--POLYADDUCTS OF DIFURAN COMPOUNDS -U-

AUTHOR-(04)-BERLIN, A.A., BUDEVSKA, KH., MIKHAYLOV, N., ZABUNOVA, O.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(4), 277-80

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--HEAT RESISTANT PLASTIC, FURAN, PHTHALATE, AZINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1245 STEP NO--UR/0460/70/012/004/0277/0280

CIRC ACCESSION NO--AP0134919

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134919

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTIVE POLYADDUCTS WERE PREPD. FROM DIFURFURYL TEREPHTHALATE OR FURFURAL AZINE AND BISDIENOPHILES, SUCH AS N,NPRIME,HEXAMETHYLENEDIMALEIMIDE (DIELS-ALDER REACTION). THE POLYADDUCTS WERE HEATED IN VACUO (10 PRIMENEGATIVE3 -10 PRIMENEGATIVE4 MM) WITH OR WITHOUT HYDROQUINONE AT 150DEGREES TO GIVE CROSSLINKED, HEAT RESISTANT POLYMERS. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REACTIONS OF ALPHA CHLOROETHYL TERT BUTYL PEROXIDE WITH ORGANOMAGNESIUM COMPOUNDS -U-

AUTHOR-(03)-RAZUVAYEV, G.A., DODONOV, V.A., ZABURDYAYEVA, S.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 657-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATED ORGANIC COMPOUND, ORGANIC PEROXIDE, ORGANOMAGNESIUM COMPOUND, CHEMICAL REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2034 STEP NO--UR/0366/70/006/004/0657/0658

CIRC ACCESSION NO--AP0125622

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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UNCLASSIFIED

CIRC ACCESSION NO--AP0125622 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF TERT BUOOCHMECL WITH RMGCL (R IS ME, BU, CYCLOHEXYL, PHCH SUB2, OR PH) IN ET SUB2 O SOLN. GAVE 50-5PERCENT TERT BUOOCHMER.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

ZABURKIN, Ye. M.

JPRS 55320
1 Mar 72

UDC: 612.015.641-06:612.766.1

CHANGES IN SOME INDICES OF PYRIDOXINE AND NICTONIC ACID METABOLISM UNDER PHYSICAL STRESS

[Article by Ye.M. Zaburkin, A.A. Minkh, Institute of Nutrition, USSR Academy of Medical Sciences, Central Institute of Physical Culture, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 1, 1972, pp 60-65]

In modern athletics rather high physical loads are used which induce significant changes in the functional state of the body, which are greater in many respects than those known in the earlier literature. Quite often there are two training periods a day; in contests and when training for them athletes perform 2-3 times a day in many types of sports, and this presents great demands to the body and makes it necessary to utilize potential means of expanding the range of adaptation to considerable exercise.

The nutrition factor plays a considerable part in broadening the adaptational capabilities of the organism (A.A. Pokrovskiy; A.A. Minkh, 1967). In this respect, investigation of the role of different vitamins in the process of athletic training is quite interesting. In studies dealing with supply and demand of vitamins for athletes during athletic and heavy physical exercise attention has been focussed mainly on vitamins A (I.M. Borisov et al., 1971), B_1 (M.A. Vytchikova), B_{12} (Yu.L. Karpukhina et al., 1967), and C (Carlile). On the basis of the data submitted by these authors, one could think that the body's vitamin requirements increase when engaged in athletics. In view of the positive correlation between metabolism of vitamins (T. Terruan), it is interesting to investigate the influence of physical loads on indices of metabolism of other vitamins.

As we know, the extent of action of exogenous factors (climate, season, type of activity, diet) has a significant effect on metabolism of vitamins B_6 and PP (V.V. Yefremov, 1969, 1970; Yu.F. Udalov et al.; O.V. Maksyutinskaya et al.). Physiological stress factors do not alter the vitamin requirements to the same degree. Determination of changes in pyridoxine and nicotinic acid metabolism under the influence of physical stress is of interest for establishing norms for these vitamins in the diet during periods of intensive athletic training.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 621.391.2

ZACHEPITSKIY, A. A., MARESKIN, V. M., PAKHOMOV, YU. I.

"Detection of Weak Signals Against a Background of Narrow Band Noise"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2055-2063

Abstract: A study was made of the problem of detecting a weak signal against a background of narrow band noise. The structure of the optimal detector was determined for a class of nonstationary nongaussian noise, and its efficiency was evaluated. The algorithm is defined for optimal detection of weak signals and narrow band noise as a nonlinear inertialess transformation and matched processing of a discrete sample of quadrature components of the input process. The optimal processing algorithm is also presented for noise distribution in polar coordinates. Some examples of gaussian nonstationary noise are also considered.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC: 621.391.8

ZACHEPITSKIY, A. A., KLETSKINA, G. L., PAKHOMOV, Yu. I.

"Discrimination of Two Linear Frequency-Modulated Pulse Signals in a Circuit Comprised of a Limiter and a Matched Filter"

Kiev, IVUZ: Radioelektronika, Vol 15, No 3, Mar 72, pp 350-356

Abstract: It is assumed that the sum of two narrow-band signals which are partially time-coincident acts on the input of a circuit made up of a nonlinear element and a matched filter connected in series. Expressions are found for the signals leaving the output of the linear element and at the output of the matched filter. It is shown that clipping leads to distortion of the principal signals and to additional satellite signals which are displaced in time relative to the principal signals. Estimates are given for the parameters of these signals with various degrees of overlap, and the results of experiments are presented. As a whole, the qualitative effects and quantitative laws of the theory were confirmed by the experimental results.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC: 621.791.011:669.295

POLYAKOV, D. A. (Cand. of Techn. Sciences), ABRAMOVA, V. N. (Engineer), SEDYKH, K. V. (Engineer), ZYKOV, YE. V. (Engineer), and ZACHESOVA, O. A. (Engineer)

"Weldability of the Cast VT14L Titanium Alloy"

Moscow, Svarochnoye proizvodstvo, Oct 71, no 10, pp 22-24

Abstract: This study has been prompted by problems related to replacement of stamping and forging in the fabrication of parts from quench-hardened VT14 alloy with castings from the VT14L alloy. It is shown that the welding technology of VT14L alloy and its combinations with the formable VT14 alloy is practically no different from that of VT14 and other well known titanium alloys. In argon-arc welding of VT14L as annealed and of that in combination with VT14 as hardened (aging after welding) or in welding of both as annealed and as aged, the welds feature a strength equal to the VT14L base metal, while plasticity and impact toughness of the welds are much lower than those of the base metal. Both the plasticity and impact toughness

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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POLYAKOV, D. A. (Cand. of Techn. Sciences), et al, Svarochnoye proizvodstvo, Oct 71, no 10, pp 22-24

may be considerably increased by annealing. In resistance spot welding optimum properties of welds of VT14L plus VT14 alloys are ensured by quenching and aging the plates prior to welding without quench-hardening the weld. Tables in the original article cite data on the mechanical properties of base materials VT14L and VT14 alloys used per se and data on the mechanical properties of welds from VT14L-VT14 combinations in a variety of states, data on the strength of spot welds in shearing tests and as well as those after holding at 300°C, and finally strength properties of welds after annealing in repeated static loading.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC: 621.391

ZADDE, G. O., SKOROSPELOV, G. A.

"On Describing Radio Communication Channels With Randomly Varying Parameters With Regard to the Polarization Structure of the Field"

Tr. Sib. Fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 278-281 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A30)

Translation: A communications channel is treated as a linear eight-pole network with randomly varying parameters as a basis for introducing a correlation matrix which characterizes the statistical properties of the channel. Relations between the polarization parameters of the signal at the input and output of the communications channel are written out in terms of the elements of this matrix. Separate consideration is given to the characteristics of a radar channel. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC: 53.082.52

ARTYSHEVSKIY, P. P., ZADDE, V. V., ZAYTSEVA, A. K., ZATULOVSKIY, L. M., KRAVETSKIY, D. Ya., STREL'TSOVA, V. I., CHAYKIN, P. M., All-Union Scientific Research Institute of Electrothermal Equipment

"Photovoltaic Cells Made From Silicon Crystals With Special Cross Sectional Shapes Grown by the Stepanov Method"

Moscow, Izv. AN SSSR: Ser. Fizicheskaya, Vol 36, No 3, Mar 72, pp 522-524

Abstract: A previously described method (Artyshevskiy, P. P. et al., Izv. AN SSSR: Ser. Fiz., Vol 35, 1971, p 469) was used for growing noncylindrical silicon crystals to be tested in solar batteries. Polycrystal and single crystal specimens of *p*-conductivity with resistivity ranging from 0.1 to 15 Ω·cm were grown, cut transversely into thin plates and polished on one face. The *pn* junction was made by phosphorus diffusion. The finished cells had an area of 0.8-1.2 sq. cm. Cells made from polycrystals had higher efficiency than Czochralski cells. The shunt resistance of the polycrystals was high, showing high purity of the semiconductor material. The load characteristics of cells made from single crystals were not as good as those of the polycrystal cells, which was attributed

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

ARTYSHEVSKIY, P. P. et al., IAN SSSR: Ser. Fiz., V 36, 1972, pp 522-524

to the low purity of the single crystal material as evidenced by low shunt resistance. This same index shows that contamination is a random factor rather than being due to the method of crystal growing. On the whole, the results show that photovoltaic cells made from noncylindrical crystal rods are at least as good as cells made from Czochralski crystals.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 621.791.72:669.15-194

KASATKIN, B. S., Doctor of Technical Sciences, KOVBASENKO, S. N., Engineer, NAZARENKO, O. K., Candidate of Technical Sciences, ZADERIY, B. A., Engineer, and ZHIVAGA, L. I., Engineer, Electric Welding Institute imeni Ye. O. Paton of the Academy of Sciences UkrSSR

"Electron-Beam Welding of Low-Alloy 14Kh2GMR Steel"

Kiev, Avtomaticheskaya Svarka, No 7(244), Jul 73, pp 4-8

Abstract: A study was made of the characteristics of electron--beam welding of high-strength low-alloy 14Kh2GMR steel plates, 100 x 100 x8mm, at various heating conditions. High welding rates and small heating and cooling times result in size reduction of the metal structure in the thermal influence zone; this has a favorable effect on the strength and the impact ductility of the welded joint. At relatively high cooling rates, the joints do not show a tendency to the development of cold cracks. The mechanical properties of electron-beam welded joints are equal in quality to the initial material. The wide potentialities in varying the heat conditions in electron-beam welding make this

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

KASATKIN, B. S., et al., Avtomaticheskaya Svarka, No 7 (244), Jul 73, pp 4-8

welding method promising for industrial use in producing metal constructions from high-strength bainite steels. Recommendations are given for selecting optimum welding conditions for heat-treated low-alloy steels. Five figures, one table, seven bibliographic references.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 030. UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--THE EFFECT OF ARC DISCHARGE PARAMETERS UPON THE FORM OF PLASMA CLOUD IN A D.C. ARC WITH NON-UNIFORM MAGNETIC FIELD -U-

AUTHOR-(02)-KHARIZANOV, YU., ZADGORSKA, Z.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKLAD. SPEKTROSK (USSR), VOL. 12, NO. 4, P. 610-14 (APRIL 1970)

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ARC DISCHARGE, ELECTROMAGNET, PARAMETER, PLASMA PHYSICS, SPECTRAL LINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1116 STEP NO--UR/0368/70/012/004/0610/0614

CIRC ACCESSION NO--AP0136536

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136536

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPERIMENTS WERE CARRIED OUT BY PLACING THE ELECTROMAGNET UNDERNEATH THE LOWER ELECTRODE, AND VARYING THE FIELD INTENSITY. AT THE SAME TIME, THE DIAMETER OF THE TIP OF THE LATTER ELECTRODE WAS ALSO CHANGED FROM 3 TO 14MM, THE LARGER SIZES INCLUDING A SPHERICAL CAVITY. THE SUPERIMPOSITION OF THE MAGNETIC FIELD RESULTS IN TWIST OF THE ARC LINE WITH NO CHANGES IN CASE OF ALTERATION OF THE ARC CURRENT. THE TWIST OF THE ARC LINE IS ACCENTUATED BY SHORTENING THE INTERELECTRODE DISTANCE, WHEREAS DECREASE OF CATHODE DIAMETER AND INCREASE OF ANODE DIAMETER PROMOTE THE FORMATION OF PLASMA CLOUD. AS A RESULT, HIGHER INTENSITY OF LINES IS ACHIEVED. THE COMPARISON OF DATA ALLOWS THE SYMMETRICAL CLOUD AS AN OPTIMUM FOR THE INTENSIFICATION OF SPECTRAL LINES TO BE RECOMMENDED.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC: 534.86

DIANOV, D. B., ZADIRIYENKO, I. M.

"Effect of Acoustically Soft Screens on Some Parameters of Broad-Band Cylindrical Converters With External Transition Regions"

Moscow, Izv. Leningr. elektrotekhn. in-ta (News of the Leningrad Electrical Engineering Institute), No 112, 1972, pp 15-18 (from RZh--Fizika, No 4, 1973, Abstract No 4Zh667)

Translation: Experimental investigations of the directed radiation of broad-band cylindrical converters are described. Measurements are made of test radiators consisting of three radially polarized, piezoceramic rings with an external transition region in the form of a cylinder of plexiglass with a wall thickness equal to a quarter of the longitudinal wavelength in the region at the radially resonant frequency of the piezo ring. The direction of the radiation is provided by acoustical screens of porous, sound-reflecting resins 5 and 10 mm thick. The screening angle was varied at steps of 30° in a $30\text{-}315^{\circ}$ range. It was found that for small screening angles, the pass band of the converter narrowed. It is concluded that the change in shape of the frequency characteristic as a function of the screening angle is complex. Measurements of the frequency characteristic for the ratio of the sound pressure to the square

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

DIANOV, D. B., ZADIRIYENKO, I. M., Izv. Leningr. elektrotekhn. in-ta, No 112, 1972, pp 15-18

root of the electrical power required by the converter as a function of the screening angle showed a maximum for 240° at the frequency of the low-frequency maximum of the radiator sound pressure without the screen and the transmission layer. Measurement of the directional characteristic showed that for this type of converter, the optimum screening angle from the viewpoint of stability in the form of the directional characteristic and a sufficiently high level of sound pressure should be 240°. Ye. B. Kudashev

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

Inorganic Compounds

USSR UDC 548.736:546.791.4'16

ZADNEPROVSKIY, G. M., and BORISOV, S. V., Institute of Chemistry of the Far-Eastern Scientific Center, Academy of Sciences USSR, Vladivostok, Institute of Inorganic Chemistry, Siberian Branch, Academy of Ac., USSR, Novosibirsk

"Crystalline Structure of $UF_4 \cdot 2.5\ H_2O$"

Moscow, Zhurnal Strukturnoy Khimii, Vol 12, No 5, Sep-Oct 71, pp 831-839

Abstract: The crystal structure of $UF_4 \cdot 2.5\ H_2O$ was determined from 44 single reflexes of a powder roentgenograph (difractometer DRON-1, λ CuKα) using NMR data to identify the F^- and O^{2-} anions. The positions of U_1F and O atoms in the rhombic (Pnam) elementary nucleus, in which a= 12.7568 (3), b= 11.140 (3), c= 7.060 (9) Å, and Z= 8 were refined to R= 0.150. U-nonahedrals -- tetragonal antiprisms with centralized base -- form polyhedrals along the band with riffles and apexes between them; between the individual bands only apexes are formed. In a tridimensional skeleton of bands channels occur along the [001] filled with water molecules. U_2 is surrounded with 9F located at a distance of 2.39 Å, and U_1 -- with 5F at a distance of 2.29 Å

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

ZADNEPROVSKIY, G. M., and BORISOV, S. V., Zhurnal Strukturnoy Khimii, Vol 12, No 5, Sep-Oct 71, pp 831-839

and 4 O at 2.63-2,84 Å. Possible directions of hydrogen bonds are discussed. The structure agrees with NMR and IR spectroscopical data.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--HYDRATED MERCURY AND CADMIUM FLUORIDES -U-

AUTHOR-(05)-POLISHCHUK, S.A., KHMELEVA, M.G., ZADNEPROVSKIY, G.M., KAIDALOVA, T.A., KUPTSOVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--J. LESS-COMMON METALS 1970, 21(1), 63-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MERCURY COMPOUND, CADMIUM COMPOUND, FLUORIDE, THERMOGRAVIMETRIC ANALYSIS, HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0939 STEP NO--NE/0000/70/021/001/0063/0069

CIRC ACCESSION NO--AP0133025

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133025

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. RELATIONS IN THE HGO-HF-H SUB2 O SYSTEM WERE INVESTIGATED AT 25DEGREES IN THE 5-75PERCENT HF CONCN. RANGE. THE COMPN OF THE SOLID PHASES FORMED WAS ESTABLISHED BY THE USE OF SCHREINEMAKER'S METHOD. TWO COMPDS. WERE ISOLATED: HGF SUB2 .2H SUB2 O, AND ITS HYDROLYSIS PRODUCT, HGOHF. IN THE CDOHF-H SUB2 O SYSTEM, CDF SUB2 .2H SUB2 O WAS ISOLATED AT SMALER THAN O. EQUAL TO 10PERCENT HF CONCN. ONLY. THE COMPDS. OBTAINED WERE INVESTIGATED BY SEVERAL PHYSICOCHEM. METHODS. THERMOGRAVIMETRIC ANAL. SHOWED A LOW THERMAL STABILITY OF HGF SUB2 .2H SUB2 O AND CDF SUB2 .2H SUB2 O. THEIR SPECTRA INDICATED THE PRESENCE OF STRONG H BONDS IN THESE HYDRATES. BY THE USE OF X RAY POWDER TECHNIQUES, THE 2 HYDRATES WERE SHOWN TO BE ISOTYPICAL AND PRESUMABLY, ISOSTRUCTURAL. THEY ARE ORTHORHOMBIC, WITH SPACE GROUPS PNMM OR PNM2 SUB2, AND 8 FORMULA UNITS PER UNIT CELL, WITH CELL PARAMETERS: A 9.931 PLUS OR MINUS 0.003, B 7.078 PLUS OR MINUS 0.002, C 8.767 PLUS OR MINUS 0.003 ANGSTROM FOR CDF SUB2 .2H SUB2 O AND A 10.002 PLUS OR MINUS 0.002, B 7.151 PLUS OR MINUS 0.001, C 8.891 PLUS OR MINUS 0.001 ANGSTROM FOR HGF SUB2 .2H SUB2 O.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 669.71.053.4.094

FATEYEVA, Z. T., KABUL'NIKOVA, S. L., ZADNEYEVA, V. M.

"Solubility of Iron Sulfate in Acid Solutions of Aluminum Sulfate with Acidity 200-550 g/l"

Nauch. Tr. Kazakhsk. Politekhn. In-t. [Scientific Writings of Kazakh Polytechnical Institute], Alma-Ata, 1971, pp 560-565, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G215 by G. Svodtseva).

Translation: When the sulfates of Al and Fe are simultaneously present in sulfuric acid solutions produced in the sulfuric acid method of processing of alumina-containing materials to Al_2O_3, their behavior in the solutions must be studied as a function of various factors. The solubility of $Fe_2(SO_4)_3$ in acid solutions of $Al_2SO_4)_3$ is studied with acidity 200-550 g/l at 18-20°. The solubility of $Fe_2(SO_4)_3$ in the quaternary system Al_2O_3-Fe_2O_3-H_2SO_4-H_2O depends on the quantity of solid phase taken for solution. The acidity of the final solutions of Fe and Al sulfates has a significant influence on their mutual solubility. The maximum solubility of $Al_2(SO_4)_3$ with an acidity of the solution of 200 g/l is between 40-50 g/l as Al_2O_3, that of Fe sulfates reaches

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 669.71.053.4.094

FATEYEVA, Z. T., KABUL'NIKOVA, S. L., ZADNEYEVA, V. M., Nauch. tr. Kazakhsk. Politech. In-t., Alma-Ata, 1971, pp 560-565.

130-138 g/l as Fe_2O_3. With an acidity of 300 g/l H_2SO_4, the content of Al_2O_3 drops to 25-30 g/l, that of Fe_2O_3 to 100 g/l. Increasing the acidity to 400-430 g/l practically does not change the solubility of $Al_2(SO_4)_3$, while it sharply decreases the solubility of Fe to 30-50 g/l as Fe_2O_3. The solubility of $Al_2(SO_4)_3$ drops with acidity 450-550 g/l to 17-20 g/l Al_2O_3, that of $Fe_2(SO_4)_3$ to 25-29 g/l with an acidity of 500 g/l and 10-11 g/l with an acidity of 550 g/l. 6 Figures.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 669.71.053:4.094

ZADNEYEVA, V. M., FATEYEVA, Z. T., KABUL'NIKOVA, S. L.

"Solubility of Ferrous Sulfate in Sulfate Solutions of Aluminum Sulfate with Acidity 200-500 g/l"

Nauch. tr. Kazakhsk. Politekhn. In-t. [Scientific Writings of Kazakh Polytechnical Institute], Alma-Ata, 1971, pp 570-573, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G216 by G. Svodtseva).

Translation: The solubility of $FeSO_4$ in sulfate solutions of $Al_2(SO_4)_3$ is studied with acidity 200-500 g/l, temperature 18-20°. The dissolution of $FeSO_4$ in $Al_2(SO_4)_3$ solutions depends on the quantity of solid phase taken for solution, i.e., occurs by the colloid path. However, dissolution is possible, particularly in solutions with acidity 200-300 g/l, with relatively small quantities of $FeSO_4$ in the solid phase; further increases lead to cementation of the entire mass of the solution and make separation of the solid from the liquid impossible. As the concentration of H_2SO_4 in the solution increases to 400-470 g/l, the influence of the quantity of solid phase is significantly

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

UDC 669.71.053:4.094

ZADNEYEVA, V. M., FATEYEVA, Z. T., KABUL'NIKOVA, S. L., Nauch. tr. Kazakhsk. Politekhn. In-t., Alma-Ata, 1971, pp 570-573.

less and at concentrations of 500 g/l, it has practically no influence on the quantity of $FeSO_4$ which goes over into solution. 4 Tables.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--VARIETY DIFFERENCES IN THE REACTION OF WINTER WHEAT TO THE USE OF CHLOROCHOLINE CHLORIDE IN THE UKRAINIAN STEPPE -U-

AUTHOR-(03)-ZADONTSEV, A.I., PIKUSH, G.R., PYKHTIN, N.I.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (3), 99-109

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--WHEAT, CHLORIDE, HERBICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0153 STEP NO--UR/0485/70/000/003/0099/0109

CIRC ACCESSION NO--AP0123924

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AP0123924 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ODESSA 3, BEZOSTAYA 1, AND MIRONOVSKAYA 808 WINTER WHEAT VIARETIES WERE SPRAYED WITH CHLOROCHOLINE CHLORIDE (I) AT 4, 8, OR 16 KG-HA. SPRAYING DURING FALL TILLERING RESULTED IN LARGER LEAVES IN THE FALL, BUT SMALLER ONES IN THE SPRING. I HAD GREATER INTERNODAL AND STEM SHORTENING EFFECTS WHE SPRAYED EARLIER OR IN LARGER DOSES. SPRYAING OF I DURING SPRING TILLERING STRENGTHENED THE EFFECT ON THE LOWER INTERNODES. THIS INCREASED THE ODESSA 3 CROP, INCE IT HAD TH ELASE RESIST ANCE TTO LODGING, AND TO A LESS EXTENT INCREASED THE MIRONOVVSKAYA 808 CROP, WHICH HAD GREATER RESISTANCE. THE BEZOSTAYA 1 CROP WAS NOT AFFECTED, SINCE IT WAS VERY RESISTANT TO LODGING. I REDUCED THE SPIKE SIZE IN ALL VARIETIES, AND INCREASED THE LENGTH, BUT DECREASED THE D., OF THE WHEAT GRAINS. FACILITY: VSES. NAUCH.-ISSLED. INST. KUKURUZY, DNEPROPETROVSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 005 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEEPENING OF THE TILLERING NODE AND INCREASE OF THE PRODUCTIVITY OF WINTER WHEAT TREATED WITH CHLOROCHOLINE CHLORIDE -U-

AUTHOR-(03)-ZADONTSEV, A.I., PIKUSH, G.R., GRINCHENKO, A.L.

COUNTRY OF INFO--USSR

SOURCE--VESTN. SEL'SKOKHOZ. NAUKI (MOSCOW) 1970, 15(1), 26-32

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--WHEAT, CHLORIDE, PLANT GROWTH REGULATOR, AGRICULTURAL CROP YIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0402 STEP NO--UR/9091/70/015/001/0026/0032

CIRC ACCESSION NO--AP0122582

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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UNCLASSIFIED

CIRC ACCESSION NO--AP0122582 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEEDS OF WINTER WHEAT WERE SOAKED 2.5-4 HR IN 5-10PERCENT SOLN. OF CCC, DRIED IN THE SHADE, AND SOWN AT 3 DIFFERENT DATES, EARLY (AUGUST 5), OPTIMAL (SEPT. 5), AND LATE (SEPT. 25). ON THE SHOOTS FROM TREATED SEED, THE UNDERGROUND INTERNODE BELOW THE NARROW BAND, MARKING THE POINT OF DEVELOPMENT OF THE TILLERING NODE, HAS CURTAILED IN LENGTH, AND THE EMBRYONIC TILLERING NODE REMAINED AT A LOWER DEPTH IN THE SOIL (2-3 CM.) THAN FOR CONTROL PLANTS. THIS PROTECTED THE NODE FROM SUDDEN CHANGES OF TEMP., AND ALLOWED IT TO BECOME ACCLIMATIZED GRADUALLY TO REDN. OF TEMP. IN THE WINTER. PLANTS FROM TREATED SEED HAD THUS A GREATER SURVIVAL RATE IN WINTER, SHOWED MORE VIGOROUS GROWTH IN SPRING AND SUMMER, AND GAVE AN INCREASED YIELD OF GRAIN. THE INCREASE WAS SMALLER, THE EARLIER THE DATE OF SOWING; 60 DAYS OF STORAGE OF THE TREATED SEED BEFORE SOWING HAD NO ADVERSE EFFECT.

FACILITY: VSES. INST. KUKURUZY, DNEPROPETROVSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 541.15

BUGAYENKO, L. T., ZADOR, E., BELEVSKIY, V. N., GOLUBEV, V. B., Moscow State University imeni M. V. Lomonosov, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR

"Isotope Effect in Radiolysis of Frozen Aqueous Solutions of Acids"

Moscow, Khimiya Vysokikh Energiy, Vol 4, No 5, Sep-Oct 70, pp 468-469

Abstract: The article describes results of a study of the isotopic enrichment of atomic hydrogen in frozen solutions of perchloric (2.4 M) and sulfuric (3.9 M) acids. Within the accuracy limits of relative EPR measurements (20 percent) the isotopic enrichment factor is practically constant over the entire investigated range of isotopic composition and equals 2.0±0.4, which is considerably lower than in liquid solutions.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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USSR

UDC 612.62

TARAKHOVS'KIY, M. L., SAMBROSKA, E. P., MEDVEDEV, B. M., ZADOROZHNA, T. D., OKHRONCHUK, B. V., and LIKHTENSHTEYN, Ye. M., Experimental Department, Kiev Institute of Pediatrics, Obstetrics and Gynecology, and Physiology Laboratory, All Union Institute of Hygiene and Toxicology of Pesticides and Plastics

"The Effect of Permanent and Alternating Magnetic Fields on Some Physiological Functions and Metabolic Processes in White Rats"

Kiev, Fiziologicheskiy Zhurnal, No 4, 1971, pp 452-459

Abstract: Exposure of rats for one month to permanent and alternating magnetic fields (130 to 140 oersteds) significantly altered ovarian function, blood proteins, hemoglobin, erythrocytes, and hematocrit index. Morphological changes in the ovaries, liver, and adrenal glands were more pronounced after the action of the alternating magnetic field. Other quantitative and qualitative changes suggest that the mechanism of action of the two types of magnetic fields differs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

Mechanical Properties

USSR

UDC 669.14.018.298.621.78

ZADOROZHNAYA, L. K., DOBRUSKINA, Sh. R., KURMANOV, M. I., Ukrainian Institute of Metals

"Properties of Steel Hardened by Alloying or Heat Treatment"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, 1972, pp 47-50.

Abstract: This work compares the mechanical properties of steels heat treated to a strength of over 60 kg/mm^2 and additionally alloyed hot forged steel of the same strength. In steels type 3sp, 18G2, 19G and 14KhGS in the heat treated state with identical tensile strength, all other mechanical characteristics are equal. With identical strength, heat treated and hot forged steels have different ratios of mechanical characteristics. As tensile strength increases, the yield point increases rapidly in heat treated steels, more slowly in hot forged steels. Relative elongation is somewhat higher in hot forged steels; impact toughness is somewhat higher in heat treated steels.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

ZADOROZHNAYA, V. I.

"Application of the Simplex Method for Solution of the Assortment Problem for a Group of Enterprises"

Mash. Obrabotka Ekon. Inform. [Machine Processing of Economic Information -- Collection of Works], Moscow, 1971, pp 182-189, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V474).

NO ABSTRACT.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

ZADOROZHNAYA, V. I.

"Optimal Calculation of Production Capacity Using a Simplex Method and Computers"

Mash. Obrabotka Ekon. Inform. [Machine Processing of Economic Information -- Collection of Works], Moscow, 1971, pp 159-170, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V475).

NO ABSTRACT.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

UNCLASSIFIED

TITLE--PYRAMIDAL INFLUENCES ON INTERNEURONS OF SPINAL REFLEX ARCS IN CAT -L-

PROCESSING DATE--03JUL70

AUTHOR--ZAGORODNYY, A.G., VASILENKO, D.A., KOSTYUK, P.G.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA,1970, VOL 2, NR 1, PP 17-25

DATE PUBLISHED--------70

23
5
28

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CAT, CEREBRAL CORTEX, REFLEX, ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FEED/FRAME--1977/0579

STEP NO--UR/0660/70/002/001/0017/0025

CIRC ACCESSION NO--AP0044106

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

Acc. Nr: AP0044106

Ref. Code: UR 0660

PRIMARY SOURCE: Neyrofiziologiya, 1970, Vol 2, Nr 1, pp 17-25

PYRAMIDAL INFLUENCES ON INTERNEURONS OF SPINAL REFLEX ARCS IN CAT

A. G. Zadorozhny, D. A. Vasilenko, P. G. Kostyuk

The A. A. Bogomoletz Institute of Physiology, Academy of Sciences, Ukrainian SSR, Kiev

Summary

Microelectrode investigations of effects produced in lumbar segmentary interneurons by electrical stimulation of sensorimotor cortex were performed in cats. Interneurons activated by FRA received excitatory action from cortex. Corticofugal influences were also predominantly excitatory in interneurons activated exclusively either by high threshold muscle or high threshold cutaneous afferents, but in few units pure inhibitory and mixed reactions were observed. Interneurons excited only by low threshold muscle or cutaneous afferents received very weak pyramidal influences or were out of them.

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REEL/FRAME 19770579

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

AP0044106

Mean latencies of corticaly evoked EPSP's and spikes were calculated for the above-mentioned groups of interneurons. They were 11.8±2.6 msec and 20.1±1.8 msec in FRA neurons; 15.5±3.6 msec and 16.3±2.2 msec for neurons activated only by high threshold muscle afferents; 11.8±2.6 msec and 18.3±1.4 msec for units activated only by high threshold cutaneous afferents.

Possible pathways of corticofugal influences on spinal interneurons and functional significance of such influences are discussed.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

ZADOROZHNYY, B.

MEDICINE

28 May 71 68 FTD:SOVIET SCIENCE

USSR

UZUNOV, I. B., and ROGOVA, T. I., Zashchita Rastenii, No 6, 1970, pp 54-55

Subramaniya (India), Franklin Morales (Costa Rica), Mansour Yusef and Halil Yasuf (Syria), and others have devoted their theses to the biology of pests and pathogens and to working out measures for their control on citrus plants, cotton, tobacco, peanuts, castor oil plants, and corn. A total of nearly 30 graduates have defended theses on plant protection. Now Mgeni Ali is head of the Plant Protection Service in Tanzania and Eben Fransoa is teaching phytopathology at the Agricultural College in Burundi; Ker-Seknok in Cambodia, Nkudzho David in Cameroon, Robert Mulli in Kenya, and Moses Movoludzhi in Nigeria are engaged in scientific work....

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71. USSR

ZADOROZHNYY, B., Professor and Rector of the Khar'kov Medical Institute

"Experience Suggests Conclusions"

Moscow, Meditsinskaya Gazeta, 8 Jan 71, p 3

Excerpts: In 1967, our Institute was one of the first four in the country to switch to training doctors, who were specialists in particular branches of medicine, through internship.

During this time the Institute, the oblast department of health, and the basic treatment institutions have accumulated a certain experience in organizational and teaching methods work with interns, have tested model plans, and have introduced a number of corrections and proposals approved by the USSR Ministry of Health.

Intern training is done in large, base treatment institutions where diagnosis is well arranged, where contemporary instrument, X-ray, clinical, and biochemical laboratory methods of research are used, and where patients receive skilled treatment. Intern leaders are ordinarily experienced specialists.

For control and offering scientific methods aid to intern leaders, the Institute secured a chair for each base treatment institution. Systematic control and

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USSR

ZADOROZHNYY, B., Meditsinskaya Gazeta, 8 Jan 71, p 3

checking over the course of internship in each base treatment institution is assigned to a permanent teacher, which permits him to actively follow the quality of intern training and the performance of individual plans by them. It seems to be advisable to include this base teacher (professor, docent) in the commission for receiving exams from interns of that base institution which he served as intern leader.

The Institute informs oblast departments of health and base treatment institutions of the travel schedules of the teaching staff.

Ordinarily, we organize trips by brigades of teachers to oblast centers for the specialities, which makes it possible to conduct a conference in the local area, read comprehensive lectures, conduct demonstration review of patients, etc.

In agreement with the internship leaders for doctors serving probationary periods in Kharkov hospitals, the heads of chairs read the school course of lectures on the most complex and urgent problems of theoretical and clinical medicine.

Ten-day seminars held each year in the chairs of the Institute are very useful for internship leaders, as are institute conferences.

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USSR

ZADOROZHNYY, B., Meditsinskaya Gazeta, 8 Jan 71, p 3

At the scientific methods conference on questions of internship held in May of 1970, representatives of the Kharkov, Poltava, and Sumy departments of health noted that the quality of medical aid has risen in those treatment institutions where doctors who have completed internship are working. Fewer urgent calls are now being received from the rayons in which they work, and there are no cases of patients who have not been fully studied being sent to oblast institutions....

Considering that a considerable number of the higher medical educational institutions of the republic switched, during the past year, to training doctors through internship, the Ukrainian Ministry of Health limited the number of oblasts assigned to each institution. This is a very correct decision. Where our institute formerly provided guidance for interns of 15 oblasts, in 1970 it was only three (3).

This makes it possible to concentrate attention on the quality of intern training, to more fully involve the collective of professors in controlling and checking education and providing the necessary scientific methods help, and to spend less time and means on official trips by heads of departments and docents.

It is necessary to straighten out intern training for various departments.

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USSR

ZADORCHNYY, B., Meditsinskaya Gazeta, 8 Jan 71, p 3

Can we tolerate, for example, the fact that resorts of the All-Union Central Council of Trade Unions (Kul'dur and the Far Eastern Territorial Council), and the Eastern Siberia and Magadan administrations of the Ministry of Civil Aviation did not pay interns their wages for two or three months?

It is necessary to devote constant attention to problems of interns' daily life. The majority of them live in private apartments. Oblast departments of health should outfit dormitories for intern doctors at the oblast and large city hospitals, making it possible for them to take part in treating patients at any time of the day or night. It would be desirable for the republic ministries of health and oblast departments of health to take greater care in supplying base treatment institutions where interns are studying with modern treatment diagnostic apparatus.

It seems it would be advisable to hold an all-union conference on questions of organizing internship and scientific methods work, at which higher educational institutions and oblast departments of health would exchange operating know-how.

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72. USSR

RADAUTEAN, S., Corresponding Member of the Moldavian Academy of Sciences, Rector of Kishinev Polytechnic Institute

"Engineers of 1975"

Moscow, Pravda, 27 Mar 71, p 3

Translation: During the years of the Five-Year Plan, 2.6 million specialists with higher education were trained. The first higher technical educational institution of Moldavia, the Kishinev Polytechnic Institute imeni S. Lazo, made its contribution to this. It was set up in an area where, not so long ago, there was not a single higher educational institution. Our Institute currently teaches 23 specializations to 10,000 students and graduate students. The Institute has grown rapidly. Leading higher technical educational institutions of Moscow, Leningrad, Kiev, Minsk, and other cities helped. More than 200 experienced teachers came from other union republics to work for us. During these years, 5,000 engineers were trained.

In the draft of the Directives of the Twenty-Fourth CPSU Congress, provision is made for further development of higher education in accordance with the demands of scientific-technical progress.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

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USSR UDC:622.7:321.9.004

AKOPOVA, K. S., DOKSHINA, I. D., TYUTYUNNIK, N. D., YAKUBOVICH, I. A., ZADOROZHNYY, V. G., BELOGAY, P. D., DEGTYARENKO, A. V., TISHCHENKO, A. G.

"Use of Ultrasound in Enrichment of Titanium-Zirconium Deposits"

Moscow, Tsvetnyye Metally, No. 11, Nov 70, pp. 86-89

Abstract: A method has been developed for application of acoustical oscillations to minerals to change their surface properties before enrichment. This article presents results of an investigation of the influence of ultrasonics on the minerals in titanium-zirconium placer deposits. It has been established that 1-3 minutes action of ultrasound at 20 Khz and an intensity of 3.8 W/cm^2 greatly activates the flotation of minerals by the flotation oil. The yield of minerals in the foam product increases as follows: zirconium from 18.6 to 98.9%, rutile from 3.0 to 97.5%, ilmenite from 0 to 94%, staurolite from 0 to 90%. The expenditure of collectors is also reduced and the flotation properties of minerals from different deposits are made more similar.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REMOVAL OF UNPOLYMERIZED NONOMERS FROM LATEXES -U-

AUTHOR-(05)-KIL, T.A., ZADORSKIY, V.H., LUKYANOVA, I.P., SHVETSOV, N.V., VOLKOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,382

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, DISTILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0836 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136270

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136270

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH N.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-

AUTHOR-(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., VOLKOVA, N.I., KENZHETAYEVA, V.D.

COUNTRY OF INFO--USSR

Z

SOURCE--U.S.S.R. 265,431

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, BUTADIENE, INDUSTRIAL BYPRODUCT, UNSATURATED HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1425 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128824

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128824

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH THE ETHER PART OF A PIPERYLENE FRACTION (BY PRODUCT OF 1,3,BUTADIENE PRODUCTION AS DESCRIBED BY S. V. LEBEDEV).

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-

AUTHOR-(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., YOLKOVA, N.I., KENZHETAYEVA, V.D.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265, 430

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--MONOMER, LATEX, DISTILLATION, FREON, CHEMICAL PATENT, CHEMICAL SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1424 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128823

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128823

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED FROM LATEXES BY DISTG. THEM WITH H SUB2 O VAPOR MIXED WITH FREON 12.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 691.31:539.376

ZADOYAN, M. A., MURADYAN, L. M., Yerevan Polytechnical Institute imeni K. Marks

"On the Nonlinear Creep of Concrete at High Temperatures"

Yerevan, Izvestiya Akademii nauk Armyanskoy SSR, Seriya tekhnicheskikh nauk, No. 4, 1971, pp 13-22

Abstract: Extension of the theory of an elastic-creep body of Maslov-Arutyunyan for high temperatures when the measure of the creep and the elasticity modulus are highly dependent on temperature is discussed. The experimental results of V. A. Kharlamov concerning the creep of concrete at high temperatures are described and the creep kernel is constructed. Relationships between stress and deformation are constructed considering high temperatures in the instantaneous deformation modulus and the creep deformation are derived by assuming the creep is known as a function of age, temperature, and stress. Also derived are relationships between lengthening and forces and curvatures and moments. The problem of the stress state of a rod with fastened ends that is under the effect of time-variable temperature is discussed in detail. The "Razdan-3" computer was used in the calculations.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 669.017.1:539.56.001.5

NIKITIN, V. N., LITVINENKO, D. A., and ZADUBROVSKIY, A. T.

"Estimate of Tendency of Steel to Brittle Rupture by Method of Rupture Testing of Specimens With Circular Notch at Liquid Nitrogen Temperature"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 187-190

Translation: A new method is used to estimate the tendency of low-alloy steels to brittle rupture. It is demonstrated that the least cold brittleness is that of steels having the greatest fibrous component in the fracture produced in impact specimens during serial impact toughness tests. The absolute values of impact toughness are of secondary significance. 1 figure; 2 tables.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC 541.183

DOKHOV, M. P., ZADUMKIN, S. N., KARASHAYEV, A. A., Editorial Staff of "Zhurnal fizicheskoy khimii" AN SSSR

"Contact Wetting Angle for Solid Gallium in its Own Melt"

Krayevoy ugol smachivaniya tverdogo galliya sobstvennym rasplavom (cf. English above), Moscow, 1971, 6 pp, ill, bibliography of 6 titles, No 2978-71 Dep. (from RZh-Khimiya, No 1 (I), Jan 72, Abstract No 1B1263 Dep.)

Translation: the paper describes the procedure and results of measurement of the contact wetting angle θ of solid gallium by liquid gallium at the melting point. A drop of liquid gallium was applied to the surface of solid gallium. The angle θ was measured by comparing photographs of this surface before and after application of the drop, followed by removal of the molten metal. From θ $(6 \pm 2)^{\circ}$ and the surface energy of the melt (718 ergs/cm^2) the work of adhesion is calculated (1433 ergs/cm^2). Using the calculated value of 62 ergs/cm^2 for the interphase energy, Neumann's formula gives a value of 744 ergs/cm^2 for the surface energy of solid gallium at the melting point. Resume

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC: 539.2.01

KHOKONOV, Kh. B., ZADUMKIN, S. N., KALMYKOV, V. A., KARCV, B. G.

"On Molecular Interaction of Condensed Media. A System With Dielectrics"

V sb. Fiz. kondensirovan. sred (Physics of Condensed Media--collection of works), Rostov-na-Donu, 1969(1970), pp 33-36 (from RZh-Fizika, No 9, Sep 70, Abstract No 9Ye297)

Translation: Formulas are derived which can be used to compute the forces and energies of interaction of a dielectric with a metal or with a dielectric from known values of the dielectric constant, the width and position of the absorption band, the electrical conductivity, and the work function of an electron.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ON THE POSSIBILITY OF ESTABLISHING THE STOICHIOMETRIC RATIOS BY THE RADIOACTIVATION METHOD -U-

AUTHOR-(03)-ZADVORNI, A.S., GORENKO, A.F., SKAKUN, N.A.

COUNTRY OF INFO--USSR

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

DATE PUBLISHED----MAY70

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

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

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1328 STEP NO--UR/0075/70/025/000/0867/0869

CIRC ACCESSION NO--AP0138338

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138338

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARISON WAS MADE OF THE CONTENT OF CARBON AND OXYGEN ATOMS PER UNIT OF VOLUEM OF SUBSTANCES SIMILAR IN THEIR STRUCTURE. AT THE SAME AMOUNT OF HYDROGEN NO DEVIATION FROM STOICHIOMETRY FOR LAVSAN ((C SUB15 H SUB12 O SUB6) SUBN) AND ITS ANALOG MAILAR WAS OBSERVED. AT A PROTON FLUX OF 0.02 MU A THE SENSITIVITY FOR CARBON AND OXYGEN IS RESPECTIVELY 10 PRIME NEGATIVE3 AND 10 PRIME NEGATIVE2PERCENT (WEIGHT). THE STATISTICAL MEASUREMENT ERROR IS NOT HIGHER THA PLUS OR MINUS 5PERCENT. FACILITY: PHYSICAL-TECHNICAL INST., KHARKOV.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

ZADVORNOV, V. S.

SO: JPRS 55394

9 March 1972

CALCULATION OF DIRECTIVITY CHARACTERISTICS OF EQUIANGULAR CONICAL DOUBLE-SPIRAL ANTENNAS

[Article by N. P. Timirov and V. S. Zadvornov; Moscow, Antenny, Russian, No 11, 1971, pp 60-73]

Radiation field of a conical equiangular double-spiral antenna is determined in this article. In solving the problem it is assumed that directivity characteristics of an antenna are formed by a certain region the boundaries of which are determined on the basis of analysis of expression for the radiation vector created by different sections of the spiral. Expressions for an engineering calculation of an antenna's radiation patterns and experimental results confirming the calculated data are given.

Introduction

Among antennas used for the reception or radiation of the rotating-polarization waves in the ultrashort-wave range the conical equiangular double-spiral antennas are especially suitable. Along with clearly marked wide-band properties these antennas are characterized by a considerable simplicity of the arrangement, ease of excitation and non-criticalness of dimensions. Such antennas are often called frequency-independent or super-wide-band antennas. A number of works devoted to a theoretical investigation of these antennas are known in literature. However, results obtained in these and other works do not make it possible to calculate the characteristics of such antennas directly.

This work is devoted to a determination of the radiation field of a conical equiangular double-spiral antenna. Formulas for calculating its directivity characteristics are also derived in the work.

Initial Relationships for Calculating the Field

Suppose we have an infinitely fine ideally conducting double spiral with an angle of conicity Θ_0 whose branches are made with a constant angle of winding α and are excited at the starting points in antiphase. Figure 1 shows one of the branches oriented in the co-

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USSR UDC: 621.396.677.45

ZADVORNOV, V. S. and TIMIREV, N. P.

"Determining the Active Region Boundary for Conical Right-Angle Spiral Antennas"

Kiev, Izvestiya VUZ--Radioelektronika, Vol. 14, No. 1, 1971, pp 40-48

Abstract: The method proposed by the authors for determining the limit of the active region for this type of antenna is based on an analysis of the expression for the radiation vector set up by various sections of the spiral. They begin their derivation of this expression with the formula for an arbitrary wire radiator when the source of the electromagnetic field is a linear current in a segment of the wire. Assuming that for any wave of the operating range, the directivity of the antenna is formed by a segment of its active region while the radiation contributed by the remaining portions of the antenna can be neglected, they proceed with their derivation by dividing the spiral into such segments and summing up their effects. Expressions are also

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

ZADVORNOV, V. S. and TIMIREV, N. P., Izvestiya VUZ--Radioelektronika, Vol 14, No 1, 1971, pp 40-48

obtained for the active region of the double-turned spiral. The authors assert that their method can also be used for determining the active region of any wire antenna of spiral form.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

UDC 543.52:546.21

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

"Gamma-Activation Analysis of Carbon in Uranium and Thorium"

Moscow, Atomnaya Energiya, Vol 34, No 1, Jan 73, pp 53-54

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

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

1/2 035 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF THE OXYGEN CONTENT IN PURE BERYLLIUM BY PROTON ACTIVATION -U-

AUTHOR-(04)-ZADVORNYY, A.S., GORENKO, A.F., SKAKUN, N.A., KLYUCHAREV, A.P.

COUNTRY OF INFO--USSR

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

DATE PUBLISHED--------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, CHEMISTRY

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

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1879 STEP NO--UR/0075/70/025/002/0346/0350

CIRC ACCESSION NO--AP0115698

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

2/2 035 UNCLASSIFIED

CIRC ACCESSION NO--AP0115698 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION PRIME18 O(P,N)PRIME18 F WAS USED WITH PROTONS OBTAINED FROM A LINEAR ACCELERATOR AND HAVING AN ENERGY OF 9.5 MEV. THE IRRADIATED SAMPLES OF INDUSTRIAL BE AND PRUIFIED BE IN AN AR ATM. WERE ANALYZED BY GAMMA SPECTROMETRY. THE O CONTENT WAS 1.65 AND 0.2PERCENT IN TECH. AND PURE BE, RESP. THE ERROR IS PLUS OR MINUS 12PERCENT, AND THE SENSITIVITY 10 PRIME NEGATIVE2 PERCENT.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

ZADYKHAYLO, I. B., KAMYNIN, S. S., LYUBIMSKIY, E. Z.

"Problems of Design of Computers Using High-Quality Units"

Sistemnoye i teor. programmirovaniye [Systems and Programming Theory -- Collection of Works], Novosibirsk, 1972, pp 126-235 (Translated from Referativnyy Zhurnal - Kibernetika, No 8 V589 by the authors)

Translation: This work is dedicated to a discussion of the problems of selection of boundaries between the hardware and software of a computer system. Principles are suggested for creation of a machine language which should allow broad development of apparatus and have greater stability, since it is selected on the basis of rather general considerations.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR

KHALFEN, E. Sh., YATSENKO, K. S., ZAFERMAN, D. M. UDC: 8.74

"Predicting the Results of Myocardial Infarct Using Formulas Derived by a Dynamic Programming Method"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 279-282 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V704 by the authors)

Translation: As a generalized index for prediction, the paper introduces the sum of products of numerical estimates of symptom severity by coefficients. Finding these coefficients is reduced to a problem in finding an optimum trajectory by a dynamic programming method; the criterion of optimality is the minimum percentage of erroneous predictions. The results of clinical verification of the derived formulas show that the formulas are suitable for practical use.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720005-0

USSR UDC: 518.5:681.3.06

KHALFEN, E. Sh., ZAFERMAN, D. M.

"Prognosis of the Outcome of a Myocardial Infarct"

Tr. Saratov. med. in-ta (Works of the Saratov Medical Institute), 1971, 74, 91, pp 3-10 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V987)

Translation: The purpose of the paper is to derive mathematical "resolving rules" which could be used as a basis to judge the outcome of a myocardial infarct from data obtained in the first days of the illness. The method of deriving the resolving rules belongs to the category of recognition methods based on the principle of the "dividing hyperplane".

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USSR

UDC: 518.5:681.3.06

KHALFEN, E. Sh., ZAFERMAN, D. M.

"On a Method of Deriving Formulas for Calculating Optimum Doses of Medicines"

Tr. Saratov med. in-ta (Works of the Saratov Medical Institute), 1971, 74, 91, pp 37-50 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V988)

[No abstract]

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1/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--DEVELOPMENT OF A MATHEMATICAL MODEL OF PYROLYSIS IN A REACTOR WITH A RISING FLOW OF HEAT CARRIER -U-

AUTHOR--ABDULLAYEV, F.M., ZAFERMAN, D.M., KORSH, B.S., MAZIN, M.B., TMENOV, D.N.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PYROLYSIS OF A DIESEL FUEL FRACTION, B. 253-354DEGREES, FREE OF AROMATIC HYDROCARBONS, WITH QUARTZ SAND AS HEAT CARRIER, WAS STUDIED IN A PILOT PLANT. A CORRELATION MATRIX WAS USED AS CRITERION FOR THE DEGREE OF ORTHOGONALITY OF THE DESIGN MATRIX. THE OPTIMAL OPERAT6NG CONDITIONS WERE DETD. BY MEANS OF 2ND ORDER EQUATIONS.

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BLASHCHUK, V. YE., Engineer, GUREVICH, S. M., Doctor of Technical Sciences, SHELEMKOV, G. M., Engineer, Electric Welding Institute imeni Ye. O. Paton; TKACHENKO, N. N., Candidate of Technical Sciences, VASILENKO, I. I., Candidate of Technical Sciences, LISKEVICH, I. YU., Engineer, ZAFIYOVSKIY, YU. M., Engineer, ISAYEVA, M. M., Engineer, and MELEKHOV, R. K., Engineer, Physico-mechanical Institute of the Academy of Sciences UkrSSR

"The Tendency of AT3 Titanium Alloy Welded Joints to Mechanical Corrosion Failure"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 39-40

Abstract: A study was made of the tendency of AT3 titanium alloy and its welded joints to breakdown at increased temperature and pressure in a 0.6% solution of H_2SO_4, as applicable to the working conditions of hydrolytic apparatus. Specimens of AT3 alloy were cut from 24-mm-thick hot-rolled sheet. The failure of welded joints took place at stresses exceeding the yield limit of the alloy. The conditional limits of the corrosion-fatigue strength in axial load with symmetric tension and compression of AT3 alloy and its manually welded joints are close. Automatically welded joints show, in comparison with AT3 alloy,

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