USSR

BOLDYREV, G. N., et al, Vopr. fiz. zashchity reaktorov, No. 5, Moscow, Atomizdat, 1972, pp 235-250

γ-quanta fluxes. The OR-M experimental device is also intended for studying problems in reactor shielding. The 50-kw water cooled - water moderated research reactor is also equipped with devices for conducting experiments on shielding. Various studies associated with the radiation problems of shielding are carried out on this reactor. A description of the reactors, experimental devices, and characteristics of the devices and methods used in the research are given.

USSR

UDC 632.95

VLADIMIRTSEV, I. F., KARABANOV, Yu. V., KHRIPKO, S. S., BOLDYREV, I. V.

"Biological Activity of Benzanilines"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Materials. Republic Interdepartmental Collection), 1972, No 4, pp 136-138 (from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N640)

Translation: The results are presented from testing compounds with the formula $RC_6H_4CH = NC_6H_4R'$ (I) (R = H, halide, NO_2, aminogroup, alkoxyl; R' = H, halide, NO_2). The selectivity of the effect of I and the relation of the phytotoxicity to the nature of the substitution in the benzene rings are demonstrated. The 0.01% I compounds stimulate the root growth of oats, but they inhibit the growth of lettuce. The derivatives of salycilanaline have high phytotoxicity for dicotyledons, and they are of greatest interest from the point of view of finding new herbicides. $3\text{-MeO-4-NOC}_6H_4CH = NPh$ has high stimulating activity.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ISOMERS OF 1,3,5,TRINITRO,1,3,5,TRIMETHYLOLCYCLOHEXANE -U-

AUTHOR-(03)-GEORGIYEVSKAYA, G.D., BAGAL, L.I., BOLDYREV, M.O.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 731-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOMER, NITROBENZENE, SODIUM COMPOUND, BORON HYDRIDE, COMPLEX COMPOUND, CYCLOHEXANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1951 STEP NO--UR/0366/70/006/004/0731/0732

CIRC ACCESSION NO--AP0125540

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0125540
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REDN. OF 1,3,5, TRINITROBENZENE WITH NABH SUB4 A COMPLEX IS FORMED (L. I. BAGAL, ET AL., 1969) WHICH REACTS WITH HCHO GIVING 2 ISOMERS OF THE TITLE COMPD. M. 180-1DEGREES (DECOMPN.) AND 190-200DEGREES (DECOMPN.). IT IS THOUGHT THAT 1 OF THE ISOMERS HAS TRIEQUATORIAL OR TRIAXIAL CONFORMATION AND THE OTHER DIEQUATORIAL AXIAL OR DIAXIAL EQUATORIAL CONFORMATION.
FAICLITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETS, LENINGRAD, USSR.

UNCLASSIFIED

USSR UDC: 681.325.54

BOLDYREV, A. I.

"A Parallel Adder Based on Ferrite-Transistor Modules"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277409, Class 42, Filed 4 April 1969, p 133

Abstract: This Author's Certificate introduces a parallel adder based on ferrite transistor modules with two counting inputs and three outputs for radix-minus-one complement adding with parallel carry. As a distinguishing feature of the patent, speed is improved and the device is simplified by connecting one counting input of the inhibit element to the input line, while the other is connected directly and through a matching element to the second and first outputs of the inhibit element for the preceding digital place of the adder register.

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE STRUCTURE OF THE FIRST SEIZURES IN EPILEPSY SEEN IN CHILDREN AND ADULTS -U-
AUTHOR--BOLOTNEV, A.I.

B

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 6, PP 902-906
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EPILEPSY, SYNDROME, MEDICAL EXAMINATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1159 STEP NO--UR/0246/70/070/006/0902/0906

CIRC ACCESSION NO--AP0126762

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0126762
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR STUDIED THE FIRST PAROXYSMS IN 100 CHILDREN WITHIN THE AGE GROUP FROM SEVERAL MONTHS TO 16 YEARS, AND IN 300 ADULTS FROM 16 YEARS AND OLDER. IN CHILDREN, ESPECIALLY IN THE YOUNGER GROUP, IN ACCORDANCE WITH THE RELATIVELY PREDOMINANT SUBCORTICAL ACTIVITY AND LOCALIZATION OF THE EPILETICAL FOCUS IN THIS AREA, THERE IS A PREVALENCE OF PROPULSIVE, RETROPULSIVE AND IMPULSIVE PETIT MALS, VISCERO VEGETITIVE AND PSYCHOMOTOR ATTACKS, NOCTURANAL PHOBIAS, SOMNABULISM, ABORTIVE CONVULSIVE PAROXYSMS AND TONIC FITS. IN ADULTS THERE IS A PREDOMINANCY OF PAROXYSMS RELATED TO A PRIMARY CORTICAL LOCALIZATION OF THE EPILEPTICAL FOCUS: CLONIC CONVULSIONS, PAROXYSMS OF DISTURBED PERCEPTION, THINKING, SPEECH, SLEEP TALKING, NIGHTMARES AND PSYCHOSENSORIAL ATTACKS. FACILITY: MOSKOVSKIY NAUCHNO-ISSLED. INSTITUT PSIKHIARTII, MZ RSFSR.

UNCLASSIFIED

USSR

UDC 63 .95

KHELEMSKIY, M. Z., CHEPEGINA, F. D., and BOLDYREV, B. G.

"Application of Thiosulfonate Esters in the Control of Decay of Root Crops During Storage"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiological Effects of Compounds, Republic Interscience Symposium), Vyp 4, 1972, pp 110-113 (from Referativnyy Zhurnal -- Khimiya, No 4(II), 1973, Abstract No 4N649 by T. A. Belyayeva)

Translation: Eighteen compounds were studied under laboratory conditions to determine the physiological effects of RSO_2SR' on stored root crop decay. The highest fungicidal activity against Botrytis cinerea and Fusarium betae was exhibited by $EtSO_2SCCl_3$ and $PrSO_2SCCl_3$, and against Phoma beta, by $MeSO_2SMe$, $EtSO_2SEt$, $EtSO_2SBu$, and $PrSO_2SPr$. These compounds diluted 1:5000 still had fungicidal activity but did not have a toxic effect on the sugar beets.

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Acc. Nr AP0053771 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code UR0366

110949k Thiosulfonic acids. XXVII. Reaction of thiosulfonic acid esters with phenyl- and butyllithium. Boldyrev, B. G.; Stovanovskaya, Ya. I. (L'vov. Politekh. Inst., Lvov, USSR). *Zh. Org. Khim.* 1970, 6(2), 332–4 (Russ). The reaction of RSO_2SR^1 with R^2Li in abs. Et_2O at reflux temp. gave RSO_2Li and R^1SR^2 (R, R^1, and R^2 given): *p*-$AcONHC_6H_4$, Et, Ph; Ph, *p*-ClC_6H_4, Ph; *p*-$AcNHC_6H_4$, Ph, Ph; *p*-ClC_6H_4, *p*-ClC_6H_4, Ph; Et, Et, Bu; Et, Bu, Bu; *p*-$AcNHC_6H_4$, Et, Bu; *p*-$AcNHC_6H_4$, Bu, Bu; *p*-$AcNHC_6H_4$, Bu, Bu; *m*-ClC_6H_4, *p*-ClC_6H_4, Bu. CPJR

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REEL/FRAME
19830834

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USSR

UDC 621.039.538

BOLDYREV, G. N., VESELKIN, A. P., YEGOROV, Yu. A., YEMEL'YANOV, I. Ya., ZHIRNOV, A. D., ORLOV, Yu. V., KONSTANTINOV, L. V.

"Study of the Shielding Problems on Water Cooled - Water Moderated Research Reactors"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics -- Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 235-250 (from RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.62)

Translation: Several special installations were constructed to study shielding. The BSF and GTR installations were swimming pool reactors employing 1 and 3 Mw neutrons, respectively, placed on moving bridges in large water pools. The B-2 device on the BR-5 reactor was developed to study the laws of the attenuation of γ-quanta and reactor neutrons in the geometry of a unidirectional beam; the materials to be studied or models of the shielding were placed in a niche in the reactor shielding. A zero-power reactor was intended for studying processes in the shield directly adjacent to the reactor core. The reactor was equipped with filters in one of the directions making it possible to obtain an optimal relationship between the neutron and

USSR

BOLDYREV, G. N., et al, Vopr. fiz. zashchitv reaktorov, No. 5, Moscow, Atomizdat, 1972, pp 235-250

γ-quanta fluxes. The OR-M experimental device is also intended for studying problems in reactor shielding. The 50-kw water cooled - water moderated research reactor is also equipped with devices for conducting experiments on shielding. Various studies associated with the radiation problems of shielding are carried out on this reactor. A description of the reactors, experimental devices, and characteristics of the devices and methods used in the research are given.

USSR UDC 632.95

VLADIMIROVSKIY, I. F., KARABANOV, Yu. V., [illegible], BOLDYREV, I. V.

"Biological Activity of Benzanilines"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Materials. Republic Interdepartmental Collection), 1972, No 4, pp 136-138 (from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N640)

Translation: The results are presented from testing compounds with the formula $RC_6H_4CH = NC_6H_4R'$ (I) (R = H, halide, NO_2, aminogroup, alkoxyl; R' = H, halide, NO_2). The selectivity of the effect of I and the relation of the phytotoxicity to the nature of the substitution in the benzene rings are demonstrated. The 0.01% I compounds stimulate the root growth of oats, but they inhibit the growth of lettuce. The derivatives of salycilanaline have high phytotoxicity for dicotyledons, and they are of greatest interest from the point of view of finding new herbicides. 3-MeO-4-NOC_6H_4CH = NPh has high stimulating activity.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ISOMERS OF 1,3,5,TRINITRO,1,3,5,TRIMETHYLCYCLOHEXANE -U-

AUTHOR-(03)-GEORGIYEVSKAYA, G.D., BAGAL, L.I., BOLDYREV, M.D.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 731-2

DATE PUBLISHED-------70

B

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOMER, NITROBENZENE, SODIUM COMPOUND, BORON HYDRIDE, COMPLEX COMPOUND, CYCLOHEXANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1951 STEP NO--UR/0366/70/006/004/0731/0732

CIRC ACCESSION NO--AP0125540

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0125540
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REDN. OF 1,3,5, TRINITROBENZENE WITH NABH SUB4 A COMPLEX IS FORMED (L. I. BAGAL, ET AL., 1969) WHICH REACTS WITH HCHO GIVING 2 ISOMERS OF THE TITLE COMPD. M. 180-1DEGREES (DECOMPN.) AND 190-200DEGREES (DECOMPN.). IT IS THOUGHT THAT 1 OF THE ISOMERS HAS TRIEQUATORIAL OR TRIAXIAL CONFORMATION AND THE OTHER DIEQUATORIAL AXIAL OR DIAXIAL EQUATORIAL CONFORMATION.
FAICLITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETS, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 629.78:526.2+525.7

BOLDYREV, V. G. and KHAMARIN, V. I.

"Utilization of Satellite Radar Measurements in the Analysis of Ground-Level Temperature"

Tr. Gidrometeorol. N.-I. Tsentr SSSR (Works of the Hydrometeorological Scientific Research Center, USSR), No 89, 1972, pp 12-21 (from Referativnyy Zhurnal, Issledovaniye Kosmicheskogo Prostranstva, No 5, May 72, Abstract No 5.62.280, Resume)

Translation: A brief analysis is given of the state of the problem of determination of the ground-level temperature from artificial earth satellites. Consideration is given to some possibilities of utilizing measurements of self-radiation of the earth's surface (in transparency "windows" of the atmosphere) for objective analysis of the ground-level temperature field. Estimates of errors of interpolation and extrapolation of the temperature for underlying surfaces of various types are presented. 13 references.

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USSR UDC 629.78:526.2+525.7

BOLDYR[redacted]EV, V. G. and KOPROVA, L. I.

"The Influence of Cloudiness Upon the Variability of Departing Radiation"

Tr. Gidrometeorol. N.-I. Tsentr SSSR (Works of the Hydrometeorological Scientific Research Center, USSR), No 89, 1972, pp 26-34 (from Referativnyy Zhurnal, Issledovaniye Kosmicheskogo Prostranstva, No 5, May 72, Abstract No 5.62.281, Resume)

Translation: Some results of statistical processing of actinometric measurements from the "Meteor" artificial earth satellite are presented. The latitudinal course of the radiation-temperature values (on the basis of measurements in the 18-12 micron "transparency window") was obtained in relation to the cloud situation, together with the intensity of short-wave radiation (on the basis of measurements at 0.3 -- 3 microns), as well as their mean-square deviation; empirical curves of distribution of the radiation temperature were also obtained. The data give a conception concerning the limits of variability of the studied radiation characteristics.

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BOLDYREV V.G.

Acc. Nr.: AP0042561 Ref. Code: UR0362

JPRS 50162

Vertical Structure of Temperature and Humidity Fields

(Abstract: "Statistical Characteristics of the Vertical Structure of the Temperature and Humidity Fields to Great Altitudes," by L. I. Koprova and V. G. Boldyrev, Institute of Physics of the Earth and Hydrometeorological Center USSR; Moscow, Izvestiya Akademii Nauk SSSR, Fizika Atmosfery i Okeana, Vol VI, No 2, 1970, pp 154-167)

On the basis of detailed data from a special systematic series of soundings to great altitudes the authors determined the statistical structure of the vertical temperature field to the 5-mb level and the specific humidity field to the 60-mb level. The authors also computed the mean profiles, standard deviations, autocorrelation and cross-correlation matrices, eigenvalues and eigenvectors of the vertical temperature and humidity fields. The results agree with data obtained for the troposphere and lower stratosphere in earlier studies. Rocket data were used in determining temperature field correlations to an altitude level 0.9 mb. The dependence of the specific humidity correlation coefficients and the cross-correlation coefficients for specific humidity and temperature on latitude was determined. The first eigenvectors of temperature and humidity make it possible to evaluate the statistical characteristics of the

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AP0042561

temperature and humidity fields for different stations and different seasons of the year.

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UDC 621.382.2

KOLESHKO, V.M., BOLDYREV, V.P.

"Effect Of Gold-Silicon Ohmic Contact On Electrophysical Parameters of Semiconductor Devices"

V sb. Vopr. prochnosti i plastichn. met. (Problems Of Stability And Plasticity Of Metals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 125-127 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B114)

Translation: The paper reports on the effect of an Au-Si ohmic contact on the forward potential drop of p-n junctions formed in silicon planar-epitaxial structures. Creation of a Au-Si eutectic was used for a reliable ohmic contact. It is shown that by a change of the structure and technological processing of the eutectic layer it is possible to decrease the contact resistance substantially. V.K.

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Combustion

USSR UDC 662.311.1

ALEKSANDROV, V. V., BOLDYREVA, A. V., BOLDYREV, V. V., TUKHTAYEV, R. K., Institute of Chemical Kinetics and Combustion, Siberian Department of the Academy of Sciences of the USSR, Novosibirsk

"Mechanism of Action of Certain Additives on the Rate of Combustion of DINY"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 1, 1 May 73, pp 161-163

Abstract: The action of additives on the rate of combustion of condensed media has not been adequately studied. Different viewpoints have been expressed to explain experimental data. In this paper observations were made on the combustion of DINY (dinitrohydroxydiethylnitrosilane) which could in many instances help to explain the mechanism of the action of additives. The additives studied were potassium bichromate and ternary compositions of compounds of lead and copper with finely dispersed carbon. The experiments revealed a previously undescribed mechanism of the accelerating action of additives on the combustion of explosives: condensed formations arise on the burning surface where exothermal reactions take place, heating these formations to a high temperature. The active substances in these formations is either introduced in ready form in the additives (as for example in the dispersed carbon of the ternary compositions) or is formed directly in the surface layer of the burning explosive as was observed in the case of chromium-

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ALEKSANDROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 210, No 1, 1 May 73, pp 161-163

containing additives. The authors thank A. G. Merzhanov for assistance and constructive criticism, and V. S. Babkin for useful remarks in discussion of the work.

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1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--CHANGE IN THE THERMAL STABILITY OF SILVER OXALATE BY ORGANIC DYE ADDITIVES -U-

AUTHOR--BOLDYREY, V.V., BELKINA, R.M.

B

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 75-85

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL STABILITY, DYE, THERMAL DECOMPOSITION, SILVER COMPOUND, OXALATE, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0199 STEP NO--UR/0195/70/011/001/0075/0085

CIRC ACCESSION NO--AP0106855

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106855

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS MADE USING 4 XANTHENE DYES, 11 AZO DYES, AND ALIZARIN RED S. ABSORPTION OF THESE DYES FROM ALC. OR AQ. SOLNS. DECREASED THE THERMAL DECOMPN. OF AG OXALATE (I), WHILE MECH. I,DYE MIXTS. DID NOT AFFECT THE DECOMPN. ON ADSORPTION, THE DYES FORM SURFACE COMPDS. WITH AG. THESE COMPDS. SHOWED INDIVIDUAL SPECTRA. THE RESULTS SHOW THE LOWER THE SOLY. OF A AG DYE COMPD. THE GREATER THE EFFECT OF THIS DYE ON STABILIZATION OF I.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MECHANISM OF THE THERMAL DECOMPOSITION OF OXALATES -U-

AUTHOR-(04)-BOLDYREV, V.V., NEVYANTSEV, I.S., MIKHAYLOV, YU.I., KHAIRETDINOV, E.F.
COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(2), 367-73

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, OXALATE, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/D05 STEP NO--UR/0195/70/011/002/0367/0373

CIRC ACCESSION NO--AP0140290

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140290

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISCUSSION OF THE PUBLISHED HYPOTHETICAL MECHANISMS OF THERMAL DECOMPN. OF OXALATES LEADS TO THE CONCLUSION THAT CLEAVAGE OF C-C BOND OF C SUB2 O SUB4 PRIME2NEGATIVE IS THE PRIMARY STEP IN THE DECOMPN. FACILITY: INST. KHIM. KINET. GORENIYA, NOVOSIBIRSK, USSR.

UNCLASSIFIED

A conference on ball-powder was convened by the USSR in Czechoslovakia in 1958; it was attended by representatives from USSR, Czechoslovakia, Poland and China, and Russian interest in ball powder dates from about this time. However, it is probable that, with the very large available capacity for conventional small arms powder in the USSR, Russian production of CDB rocket charges will have made use of solvent-extruded base grain. [S]

It is difficult to derive information on CDB formulations from published papers since as much research is applicable to the double-base system applies equally to extruded or cast propellant. However, work on ballistic modifiers using lead and copper compounds together suggests that CDB formulations of fairly high calorimetric value and burning rates are probably in use. [C]

4. CAST COMPOSITE PROPELLANTS

4.1. Composite propellant research

Soviet interest in composite propellant systems seems to have developed very late and to have been triggered off by the success of the United States Polaris and Minuteman programmes. Based on open literature sources, research activity in so-called "combined systems" evidently awakened in about 1957-58. Numerous publications date from this period covering every aspect of ammonium perchlorate decomposition, combustion of composite propellants, and of finely divided metals, etc. That this had suddenly become a popular subject for study is evident from the number of Scientific Research Institutes associated with published work in this area. By 1959 the number of Institutes and Universities actively engaged in solid propellant combustion research totalled 33. [S]

4.1.1. *Combustion research*

At one of the most important centres, the Institute of Chemical Physics, Moscow, published work aims on composite systems over a four-year period has accounted for the work of some 26 scientific staff. [C]

Under the direction of N. N. Bakhman and the late A. F. Belyayev studies have been carried out into the effect on burning rate of the fuel/oxidiser ratio (1), (2), the particle size of the oxidiser (3), and of minute traces of impurity in the ammonium perchlorate, particularly traces of oxides and perchlorates of transition metals (4). This work has been extended to cover the effect of different polymer fuel matrices and to the use of three component systems including metal powder fuels (5). [C]

At the Tomsk Polytechnic Institute (im S. M. Kirov), V. V. Boldyrev, K. I. Brenner, and V. I. Kazennykh studied the decomposition of ammonium perchlorate under X-ray irradiation. As part of a continuing study of the effect of crystal defects on the rate of decomposition, Boldyrev has now transferred this work to the Institute of Chemical Kinetics and Combustion, Novosibirsk (6), (7), (8) and the kinetics of decomposition, catalysed and uncatalysed, is being investigated by O. P. Korobeinichev and others using a time-of-flight mass spectrometer. Interest has been centred recently on the effect of homogeneous phase additives (9), especially of cobalt, nickel and iron perchlorates. [C]

Together and fellow workers at the Institute of Chemical Physics, in a recent paper have shown a close causal connection between the rate of decomposition of ammonium perchlorate and the concentration of ionised particles in the flame reaction zone (10), which is itself connected with the rate of appearance of Schottky defects at the crystal surface. [C]

TECHNICAL TRANSLATION

AD-A/PSTC-HT-23-443-73

ENGLISH TITLE: RADIOLYSIS OF CRYSTALLINE AZIDES, BROMATES AND NITRATES

FOREIGN TITLE: RADIOLIZ KRISTALLICHESKIKH AZIDOV, BROMATOV I NITRATOV

AUTHOR: V.V. Boldyrev

SOURCE: INTERNATIONAL JOURNAL FOR RADIAT. PHYS. AND CHEM., 1971, Vol. 3, No. 2, PP. 155-169.

Translated for FSTC by UNIVERSAL LANGUAGE SERVICES, INC.

NOTICE

THE STRENGTH OF MOTORS

(Conference in Leningrad)

[Article by Yu. I. Yudelevich, Moscow, Vestnik Akademii Nauk SSSR, Russian, No 10, October 1971, pp 96-97]

The Commission for Strength of Motors under the Scientific Council for Problems of Strength and Plasticity of the AS USSR conducted in Leningrad on 27-29 March a scientific and technological conference in which about 500 representatives of research institutions, VUZ and industrial enterprises of a number of cities of the country participated; 20 reports were presented.

Opening the conference, the Chairman of the Commission, Corresponding Member of the AS USSR E. I. Grigolyuk, noted that a comprehensive examination of the questions proposed and discussed is of great importance for the further development and more rapid introduction into the practice of planning of very optimal methods of designing modern motors.

In a survey report on the main theme of the conference, V. V. Moskvitin distinguished the main problems of the strength of motors.

L. A. Birger devoted his report to questions of the three-dimensional stressed state in turbine blades. He examined an approximate theory which combines the hypothesis of plane sections and a solution of a plane task of elasticity theory. It was shown that under the condition of constancy of the Poisson ratio the stresses in the plane of a blade section depend only on the temperature field and the distribution of the elasticity modulus over the blade section.

In the reports of V. D. Vasil'yev, A. A. Nalesnik and A. D. Sobolevskiy there were discussions of the procedure and results of experimental investigation of the bending vibrations of the working wheels of turbine machines, as a result of which the

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forms of vibrations most dangerous with respect to dynamic
although were determined. The [illegible] methods of
dynamic calculation of gas-turbine motors with use of the topo-
logical properties of the design [illegible] which can
be introduced into calculations provided there is regularity
of the system were described, and examples of practical applic-
cations given. V. V. Pikul', V. G. Savchenko, and Yu. N. Shev-
chenko proposed a solution of the three-dimensional axisymmetric
problem of thermoplasticity with respect to thick turbine disks.
They also developed a numerical method, based on the method of
finite elements, for solving the axisymmetric problem of thermo-
plasticity for bodies of rotation with finite dimensions with
an arbitrary form of meridional section.

A number of reports dealt with the application of corre-
lation methods for analysis of the dynamic processes in a motor
(O. F. Shorr), investigations of the vibrations of twisted and
forged rods (L. D. Magomayev), study of the behavior of completely
[illegible] and forged (V. I. Voronayev), the results of the mater-
the kinetics of growth of cracks in full-scale disks of investigating
machines during their tests for long-term strength under creep
conditions (I. I. Ostapchuk and A. F. Proutkin), based on a solu-
tion of two-dimensional problems of the theory of shells, methods
of calculating elastic and thermoelastic stresses in the bodies
of turbines and in asymmetric disks of gas turbines (A. D. Krol'),
etc.

Yu. S. Perevezev presented a report in which, on the
basis of study of the elementary acts of processes of destruction
and plastic deformation, he substantiated a kinetic equation for
the process of destruction of solids under the effect of applied
loads and obtained an analytical expression for determining the
mean longevity during uniaxial loading with an arbitrary law of
change of the load in time. V. A. Pukhlyy presented an approxi-
mate approach to a solution of the task of the stress-strain
state of working blades of centrifugal blowers made of aniso-
tropic materials. G. A. Bursilovskaya and L. V. Yershova, who
investigated the stress-strain state of the body of the combustion
chamber of an engine using methods of solving an axisymmetric
problem, reported on determination of the reaction of an elastic
thin-walled circular cylinder under the effect of dynamic loading
of a general kind.

In some reports there were discussions of experimental
methods of studying the strength of turbine elements (B. G. Per-
el'man, D. M. Bavel'skiy, N. K. Ovsyannikov, T. V. Ilinkina, etc.).

In the resolution of the conference, note was made of the
higher level of investigations in the area of the strength of

USSR

UDC 534:061.3

BOLDYREV, YE. I.

"Scientific Council on Problem of Scientific Basis for Stability and Plasticity, Conference on Problems of Stability of Motors"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 4, Jul/Aug 72, pp 203-6

Abstract: This is a summary of a Scientific-Technical Conference on the Problems of the Stability of Motors, March 28-30, 1972. Thirty papers were presented on the real conditions of operation of the elements of motors and the extrapolation of results in relation to the actual course of the process, the adoption of practicable modern mechanics of solid deforming bodies in concrete stability calculations for the purpose of increasing the accuracy of engineering studies, treating the questions of constructing the strength of components predicting the carrying capacity under different heat, power and corrosion systems and in this connection leading to studies for the evaluation of motor resources. The papers were:

Questions of Fatique at High Temperatures by S. V. Serensena.
Mathematical Theory of Technical Diagnostics by I. A. Birger.
Thermal Stress in the Casing of Steam Turbines by G. Kh. Listvinskiy, Yu. K. Mikhalev, N. I. Prigorovskiy, U.S. Senin, V. P. Skladchikov and

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G. Kh. Khurshudov.

Some Creep Characteristics of Steam Turbines Parts With Time of Operation by N. N. Vinogradov and I. Rozenblyum.

Long-term Stability of Turbine Disks of Nickel Alloy With Typical Concentrator Stress by L. B. Getsov, M. G. Kabelevskiy, I. I. Ostapchuk and L. I. Stolyarovoy.

Study of the Causes of the Damages of Operating Blades of the Gas Turbine Under Conditions of Long-Term Operation by L. R. Alishoev and B. L. Knyaz'kov.

The Study of the Dynamic Strength About a Blade of a Power-Driven Turbine With a 300 mg vt Load by D. A. Arkad'ev, E. B. Karpin and S. G. Temkin.

A Question of the Strength of Unequally Heated Rotating Disks by N. P. Andreavoy, M. Ya. Kodner, E. A. Kushnerov and A. M. Potemkinoy.

Evaluation of Long-Term Strength of Parts Operating Under Creep Conditions by G. Kh. Listvinskaya and V. S. Balina.

The Investigation of the Strength of Elements of Turbo Rotors by V. I. Bogaichuk, V. N. Gorodetskiy, I. A. Kozlov, V. M. Leshchenko.

Dynamic Optimization of Rotors of Gas Turbo Motors by S. I. Bogomolov, and V. L. Khavin.

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Free Non-Cophasal Oscillations of Operating Blades in a Block by Yu. S. Vorb'ev and N. G. Medvedev.

Evaluation of the Strength of Motors With Cyclic Loading by I. V. Dem'yanushko.

On the Question of Equivalent Testing of Gas Turbo Motors by A. A. Mukhin.

Investigation of the Polarization Optical Method of Stress-Deformation State of Welded Rotors by I. P., Vasil'chenko, A. I. Zirka, T. Y. Kerpith and V. I. Savchenko.

Analysis of Transitional Systems of Work and Its Effect on the Strength of Disks of Axial Gas Turbines by D. A. Gokhfel'd, I. D. Nikitina, O. F. Chernyavskiy and E. F. Chernyaev.

Interrelated Oscillations in Rotors of Turbines and Gas Turbine Engines by A. M. Zhuravlevoy.

Calculation of Combined Empirical Vibrations With the Use of a Dynamically Pliant Regular System with Dynamically Pliant Elements by M. L. Kempner and G. B. Nesterova.

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USSR

BOLDYREV, YE. I., Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 4, Jul/Aug 72, pp 203-6

Forced Vibrations of Turbine Blades in Non-Uniform Flow of Gas by A. A. Kovalev, I. I. Kurtsevoy, V. A. Strunkin.

Comparative Evaluation of Intensity of Amplitude-Alternating Vibration of Motors by Equivalent Value of the Vibra-velocity of Harmonic Oscillations by V. I. Kostin.

Oscillation of Blade Blocks by L. Kh. Listvinskiy.

The Damping Capacity of Blades of Gas Turbo Engines by V. V. Matveev.

Studies of the Spectra of Oscillations of Belted Blades by M. M. Stratonovoy.

Vibrational Stability of Rotors in Which There Are Liquid Friction Bearings by N. G. Schul'zhenko and A. P. Filippov.

4/4

Combustion

USSR UDC 662.311.1

ALEKSANDROV, V. V., BOLDYREVA, A. V., BOLDYREV, V. V., TUKHTAYEV, R. K.,
Institute of Chemical Kinetics and Combustion, Siberian Department of the
Academy of Sciences of the USSR, Novosibirsk

"Mechanism of Action of Certain Additives on the Rate of Combustion of DINY"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 1, 1 May 73, pp 161-163

Abstract: The action of additives on the rate of combustion of condensed media has not been adequately studied. Different viewpoints have been expressed to explain experimental data. In this paper observations were made on the combustion of DINY (dinitrohydroxydiethylnitrosilane) which could in many instances help to explain the mechanism of the action of additives. The additives studied were potassium bichromate and ternary compositions of compounds of lead and copper with finely dispersed carbon. The experiments revealed a previously undescribed mechanism of the accelerating action of additives on the combustion of explosives: condensed formations arise on the burning surface where exothermal reactions take place, heating these formations to a high temperature. The active substances in these formations is either introduced in ready form in the additives (as for example in the dispersed carbon of the ternary compositions) or is formed directly in the surface layer of the burning explosive as was observed in the case of chromium-
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ALEKSANDROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 210, No 1, 1 May 73, pp 161-163

containing additives. The authors thank A. G. Merzhanov for assistance and constructive criticism, and V. S. Babkin for useful remarks in discussion of the work.

USSR UDC 612.822.3.087

GRINDEL', O. M., GERSHMAN, S. G., BOLDYREVA, G. N., VAKAR, Ye. N., MALINA, Z. A., DOBRONRAVOVA, I. S. and GALKINA, N. S., Institute of Neurosurgery imeni N. N. Burdenko, USSR Academy of Medical Sciences, Institute of Higher Nervous Activity and Neurophysiology and Acoustics Institute, USSR Academy of Sciences, Moscow

"Intercentral Relations in the Human Cerebral Cortex According to Data From Coherence and EEG Phasic Spectra"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 771-781

Abstract: The EEG of the occipital, parietal, central, frontal and temporal cortical areas were studied in 36 healthy subjects. The energetic and reciprocal spectra were produced with a computer and used to determine the expression of each rhythm. The degree of their interaction was calculated by analyzing the coherence and phasic spectra. Using this method statistical and temporal correlations may be found independent of energetic characteristics. A complex structure of relationships between rhythms was found, with differing degrees of connection and temporal relations at discrete

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BOLDYREVA, L.

CHEMICAL INDUSTRY AND MACHINERY

(1)

Sc: JPRS 57365
26 JUNE 1973

LIGHT IS SHED ON VARIOUS ASPECTS OF CHEMICAL INDUSTRY

Exposition of Consumer Chemistry Products

Article by L. Boldyreva, member of advertising department of the All-Union Scientific Research and Planning Institute of Chemical Industry; Alma-Ata, Kazakhstanskaya Pravda, Russian, 6 April 1973, p 4

An exhibition of Chemistry in Everyday Life is opening today in the Kazakh SSR Architects Union House.

We have asked V. P. Koltunov, chief of the Soyuzbytkhim Association to tell us about it.

The Chemistry in Everyday Life exposition is being held in Alma-Ata for the first time. Its purpose is to familiarize industrial enterprises, scientific research institutes, and all visitors with chemical consumer goods produced by the firms and enterprises of the Soyuzbytkhim Association. Various stands will have speakers on chemical consumer products put out by Kazakhstan's local industry.

Of interest are various washing, polishing, and stain-removing items, products used for motor vehicle maintenance, and products in aerosol containers for dyeing leather articles, freshening the air, and starching clothes. Incidentally, during the new five-year plan, the output of aerosol items will increase 500 percent.

Chemistry specialists will give visitors to the exposition all the necessary advice and will tell about the properties, purposes, and uses of products. This will be accompanied by short color films about our industry. In recent years, requirements with respect to quality, assortment, and external appearance of chemical consumer products have risen greatly. This has dictated the need for standardization -- out of 60 washing products, for example, only 15 are left. The consumer will have an easier time finding his bearings in the ocean of chemical services.

In addition to glass containers, polymer materials, which are both original and convenient, are being used successfully. The Alma-Ata residents will also see them at our exposition.

USSR

BOLDYREVA, Z. V., and KUSKOVA, T. V.

"On the Question of Viscous Incompressible Flow Past a Sphere"

Vychislitel'nyye Metody i Programmirovaniye (Chislennyye Metody v Mekhanike Sploshnykh Sred). XV. Sbornik Rabot Vychislitel'nogo Tsentra Moskovskogo Universiteta (Computer Methods and Programming (Numerical Methods in the Mechanics of Continua). XV. Collection of Works of Moscow University Computer Center), Moscow, Moscow University Press, 1970, 199 pp, pp 40-45

Abstract: The problem of uniform viscous incompressible flow past a sphere is considered. The fluid flow around the sphere is assumed to be axisymmetric. The problem is solved with the following boundary conditions: Conditions of attachment are given on the sphere in stream Γ_1, conditions of symmetry on the boundary of Γ_3 and Γ_4. The condition of flow uniformity at infinity is given for sphere Γ_2 of large radius. The approximation and

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BOLDYREVA, Z. V., and KUSKOVA, T. V., Vychislitel'nyye Metody i Programmirovaniye (Chislennyye Metody v Mekhanike Sploshnykh Sred). XV. Sbornik Rabot Vychislitel'nogo Tsentra Moskovskogo Universiteta, Moscow, Moscow University Press, 1970, 199 pp, pp 40-45

stability of difference schemes is investigated using the Fourier method. The difference scheme

$$\frac{\zeta^{n+\frac{1}{2}}-\zeta^{n}}{\tau}=\alpha\left(A_1\frac{\delta^2\zeta^{n+\frac{1}{2}}}{\delta x^2}+A_2\frac{\delta\zeta^{n+\frac{1}{2}}}{\delta x}\right)+$$

$$+\beta\left(B_1\frac{\delta^2\zeta^{n}}{\delta y^2}+B_2\frac{\delta\zeta^{n}}{\delta y}\right)+\frac{C}{2}\left[\gamma\zeta^{n+\frac{1}{2}}+(1-\gamma)\zeta^{n}\right],$$

$$\frac{\zeta^{n+1}-\zeta^{n+\frac{1}{2}}}{\tau}=(1-\alpha)\left(A_1\frac{\delta^2\zeta^{n+\frac{1}{2}}}{\delta x^2}+A_2\frac{\delta\zeta^{n+\frac{1}{2}}}{\delta x}\right)+$$

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BOLDYREVA, Z. V., and KUSKOVA, T. V., Vychislitel'nyye Metody i Programmirovaniye (Chislennyye Metody v Mekhanike Sploshnykh Sred). XV. Sbornik Rabot Vychislitel'nogo Tsentra Moskovskogo Universiteta, Moscow, Moscow University Press, 1970, 199 pp, pp 40-45

$$+(1-\beta)\left(B_1\frac{\delta^2\zeta^{n+1}}{\delta y^2}+B_2\frac{\delta\zeta^{n+1}}{\delta y}\right)+\frac{G}{2}[\gamma\zeta^{n+\frac{1}{2}}+(1-\gamma)\zeta^{n+1}],$$

is used in its general form to solve the problem of flow past the sphere.

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USSR

UDC 539.3

BOLDYSHEV, A. M.

"On the Calculating of Hollow Shells of Double Curvature Under Various Conditions for Resting Along the Contour"

V sb. Issled. po stroit. konstruktsiyam (Studies on Building Structures -- Collection of Works), Tomsk, Tomsk University, 1972, pp 29-33 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V132)

Translation: The mixed method of structural mechanics is applied in the problem of the bending of a hollow convex shell with two hinge-supported and two opposite arbitrarily supported edges. A shell hinge-supported over the entire contour is selected as the basic system. The unknown boundary conditions are determined from equations described in canonical form. It is proposed that these quantities have the character of the edge effect. 6 ref. N. V. Kolkunov.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--RHEOLOGICAL PROPERTIES OF A RONGALITE MELT -U-

AUTHOR-(04)-BUDANOV, V.V., LYUSKIN, V.K., MAYOROVA, S.A., BOLESLAVSKAYA, N.F.
COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 233-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FORMALDEHYDE, SODIUM COMPOUND, THIXOTROPE, VISCOMETER, FLUID VISCOSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0175 STEP NO--UR/0153/70/013/002/0233/0236

CIRC ACCESSION NO--AT0132452

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132452

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RHEOLOGICAL DATA AT 70-90DEGREES ARE GIVEN FOR RONGALITE MELTS CONTG. VARYING RATIOS OF NAHSO SUB2 .CH SUB2 O TO NAHSO SUB2 CH SUB2 O.2H SUB2 O AS DETD. IN A ROTATING CYLINDER VISCOMETER. HYSTERESIS LOOPS ARE OBSD. IN LOAD RMP PLOTS AND ARE INTERPRETED AS INDICATING A THIXOTROPIC CHARACTER. THE LOG OF THE BINGHAM VISCOSITY AND THE YIELD VALUE OF THE MOLTEN PRODUCTS ARE LINEARLY DEPENDENT ON THE CONCN. OF NAHSO SUB2 .CH SUB2 O IN THE MELT. EMPIRICAL EQUATIONS ARE DEVELOPED FOR THIS RELATION, WHICH MAY BE USED IN A VISCOMETRIC METHOD FOR DETG. THE H SUB2 9 CONTENT OF A MELT.

FACILITY: IVANOV. KHIM.-TEKHNOL. INST., IVANOVO, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--NUCLEAR MAGNETIC RESONANCE SPECTRA OF ARENECYCLOPENTADIENYLIRON COMPOUNDS -U-

AUTHOR-(05)-NESMEYANOV, A.N., LESHCHEVA, I.F., USTYNYUK, YU.A., SIROTKINA, E.I., BOLESOVA, I.N.

COUNTRY OF INFO--USSR

SOURCE--J. ORGANOMETAL. CHEM. 1970, 22(3), 689-96

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NMR SPECTRUM, IRON COMPOUND, CYCLIC GROUP, COMPLEX COMPOUND, ORGANIC PHOSPHATE, FLUORINE ISOTOPE, ELECTRON ACCEPTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2130 STEP NO--NE/0000/70/022/003/0689/0696

CIRC ACCESSION NO--AP0125714

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125714

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PMR SPECTRA OF ARENECYCLOPENTADIENYLIRON COMPDS. (XPHFEC SUB5 H SUB5) PRIME POSITIVE PF SUB6 PRIME NEGATIVE, (RHO,XC SUB6 H SUB4 MEFEC SUB5 H SUB5) PRIME POSITIVE PF SUB6 PRIME NEGATIVE, (C SUB6 H SUB6 FEC SUB5 H SUB4 X) PRIME POSITIVE PF SUB6 PRIME NEGATIVE CONTG. VARIOUS SUBSTITUENTS X HAVE BEEN STUDIED. PMR CHEM. SHIFTS HAVE BEEN CORRELATED WITH THE SETS OF THE HAMMETT-TAFT SIGMA PARAMETERS. THE RESULTS ARE COMPARED WITH THOSE OBTAINED FOR THE NON COORDINATED ARENES OR WITH EARLIER DATA. HEXAFLUOROPHOSPHATES OF RHO OR M,FLUORODIPHENYLCYCLOPENTADIENYL IRON HAVE BEEN PREPD. AND THEIR PRIME19 F NMR SPECTRA ARE USED TO DET. SIGMA SUBI AND SIGMA SUBR PRIMEO OF THE PH RING IN (C SUB5 H SUB5 FEC SUB6 H SUB6) PRIME POSITIVE PF SUB6 PRIME NEGATIVE WHICH DIFFERS FROM THE UNCOORDINATED PH IN THAT IT IS A STRONG ELECTRON ACCEPTOR.

FACILITY: INST. ORG.-ELEM. COMPD., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.35.018.52:669.018.2

ZYRYANKIN, G. A., IVANOV, V. I., NAM, B. P., and BOLGOV, I. S.

"Some Results of the Development of Hardened Vacuum-Melted Copper-Base Alloys With High Electric Conductivity"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Collection of Scientific and Technical Works on Materials), 1970, vyp. 2, pp 20-25 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I844 by the authors)

Translation: The article considers the influence of microalloying additions Zr, Ti, Cr, Ni, Be, and B on the elevation of strength properties of vacuum-melted Cu at 400-600°. The alloys Cu-Zr (0.1-2.0%), Cu-Zr (0.03-0.08%)-Ti-(0.005-0.010%), and Cu-Zr (0.05-0.10%)-Cu (0.05-0.10%) possess good mechanical properties at 400-600°, preserving high electric conductivity (95% or more of the electric conductivity of pure Cu) and technological effectiveness.

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1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--ROLE OF A LOCAL INCREASE IN TEMPERATURE IN AN OXIDE FILM DURING THE ANODIZING OF ALUMINUM -U-

AUTHOR-(02)-BOLGOV, V.I., FEDASH, P.M.

COUNTRY OF INFO--USSR

B

SOURCE--ZASHCH. METAL. 1970, 6(2) 211-13

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALUMINUM ALLOY, OXIDE FILM, ANODIZED ALUMINUM ALLOY, SURFACE FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0753 STEP NO--UR/0365/70/006/002/0211/0213

CIRC ACCESSION NO--AP0111946

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111946

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMT. OF HEAT EVOLVED IN THE OXIDE FILM WAS DETD. INDIRECTLY. THE POROUS FILM IMPEDED THE TRANSFER OF HEAT FROM THE BARRIER FILM TO THE ELECTROLYTE. THIS INDICATED THAT MOST OF THE HEAT IS GENERATED NOT IN THE POROUS PART OF FILM BUT IN ITS BARRIER LAYER. THE FREQUENTLY OBSERVED INSTABILITY OF THE ANODIC POTENTIAL OF AL IN A MIXT. OF H SUB2 SO SUB4 AND H SUB3 PO SUB4 WAS CHECKED IN A MIXT. OF THESE 2 ACIDS. WHEN THE ANODE WAS INTERNALLY COOLED TO CARRY OFF THE HEAT FROM THE BARRIER LAYER, THE INSTABILITY OF THE POTENTIAL DISAPPEARED AND THE POTENTIAL ROSE SMOOTHLY UP TO THE POINT OF SPARKING. THIS CONFIRMED THE CONTENTION THAT THE INSTABILITY OF THE ANODIC POTENTIAL IS OCCASIONED BY LOCAL OVERHEATING. A RISE IN THE TEMP. OF THE BARRIER LAYER DISTURBS THE RELATION BETWEEN THE RATE OF GROWTH AND THE RATE OF DISSOLN. OF THE OXIDE FILM. THE RATE OF GROWTH OF THE FILM IS DETD. BY THE C.D. AND IS INDEPENDENT OF THE TEMP., WHEREAS THE RATE OF CHEM. DISSOLN. IS INDEED AFFECTED BY THE TEMP.

UNCLASSIFIED

USSR UDC 51

BOLISLAVSKIY, A. I. and BENDERSKIY, V. M.

"A Method for Solving Problems in the Optimization of Production Processes"

Kiev, [illegible] (Industrial Cybernetics, collection of works) 1971, pp [illegible] (From [illegible], No [illegible], 19[illegible], Abstract No 12V557)

Translation: The multidimensional, nonlinear knapsack problem

$$F(x) = \sum_{i=1}^{m} g_i(x_i) \rightarrow \max,$$

$$\sum_{i=1}^{m} h_{ik}(x_i) \leqslant b_k, \quad k = 1,2,\ldots,n,$$

$$x_i = 0,1,\ldots,M, \quad i = 1,2,\ldots,m,$$

USSR

BOLISLAVSKIY, A. I. and BENDERSKIY, V. M., Prom. kibernetika, 1971, pp 299-306

is considered. For its solution, an algorithm is proposed which uses dynamic programming and Lagrange multipliers. This algorithm is wrong, as the following example shows: Let us maximize $F(x) = x_1 + x_2$ under the conditions that $2x_1 + x_2 \leq 2$, $x_1 + 2x_2 \leq 2$, and $x_j = 0,1,2$. This problem has two solutions, $x = (0,1)$ and $x = (1,0)$. However, the proposed computing process is cycled: $x^1 = x^3 = x^5 = \ldots = (0,2)$; $x^2 = x^4 = x^6 = \ldots = (2,0)$. There are other inaccuracies as well. Yu. Finkel'shteyn

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USSR

UDC 51

BOLISLAVSKIY, A. I., BENDERSKIY, V. M.

"A Method of Solving the Problems of Optimizing Production Processes"

V sb. Prom. kibernetika (Industrial Cybernetics--collection of works), Kiev, 1971, pp 299-306 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V337)

Translation: A study is made of a multidimensional nonlinear problem of rank

$$F(x) = \sum_{i=1}^{m} g_i(x_i) \to \max,$$

$$\sum_{i=1}^{m} h_{ik}(x_i) \leqslant b_k, \quad k = 1, 2, \ldots, n,$$

$$x_i = 0, 1, \ldots, M, \quad i = 1, 2, \ldots, m.$$

An algorithm is proposed for its solution which uses dynamic programming and Lagrange factors. This algorithm is erroneous as the following example demonstrates. Maximize $F(x) = x_1 + x_2$ under the conditions $2x_1 + x_2 \leq 2$, $x_1 + 2x_2 \leq 2$, $x_j = 0, 1, 2$. This problem has two solutions $x = (0, 1)$ and $x (1, 0)$. However, the proposed calculation process loops: $x^1 = x^3 = x^5 = \ldots = (0, 2)$; $x^2 = x^4 = x^6 = \ldots = (2, 0)$. There are other inaccuracies.

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USSR UDC 51

BOLISLAVSKIY, A. I., BENDERSKIY, V. M.

"Algorithm for Solving the Problems of Linear Programming for the Variables 0-1 and Its Application in the Problems of Operative Production Planning"

Sb. nauch. tr. VNII organiz. proiz-va i truda chern. metallurgii (Collected Scientific Works of the All-Union Scientific Research Institute of Organization of Production and Labor of Ferrous Metallurgy), 1972, vyp. 14, pp 172-174 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V495)

Translation: An algorithm is described for solving the problems of linear programming with boolean variables which was used to select the orders insuring optimal loading of machine tools in accordance with weekly proportions.

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USSR

FISHMAN, S. N., KHODOROV, B. I., and BOL'KENSHTEYN, M. V., Institute of Molecular Biology, Academy of Sciences, USSR, Moscow; Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences, USSR, Moscow

"Molecular Mechanisms of Changes of the Ionic Permeability of an Electrically Excitable Membrane. II. Model of the Activation Process"

Moscow, Biofizika, Vol 17, No 4, 1972, pp 611-617

Abstract: A model of activation of the Na-conductivity of an excitable membrane during a positive shift of the membrane potential is considered. This model assumes that activating particles exist in the membrane and that due to the effect of the field, these particles undergo a transformation related to the charge displacement. This transformation also brings about a change in the number of calcium ions sorbed by the membrane from solution. By means of the model, it becomes possible to explain the shape of the curve of the relationship of the peak Na-conductivity to the potential on the membrane, the value of the shift of this curve along the voltage axis with a change of the Ca^{++} concentration in the surrounding solution. The model also permits explanation of the influence of an increase of $(Ca)_0$ upon kinetic effects, such as retardation of the growth rate of membrane conductivity $g_{Na}(t)$ during membrane depolarization, and an acceleration of the rate of decrease of $g_{Na}(t)$ during repolarization.

USSR

UDC 678.643'42'5:678.049.01:537

SICHKAR', V. P., and BOLKHOVITINOV, A. B.

"The Effect of Plasticizers on the Radiational Electroconductivity of Plastic Materials"

Moscow, Plasticheskiye Massy, No 11, 1972, pp 25-27

Abstract: A study was carried out of the effect of plasticizers on radiational electroconductivity [σ_r] of the epoxy resin ED-5 reinforced with polyethylene-polyamine or methyltetrahydrophtalic anhydride. The plasticizers under investigation comprised tricresylphosphate, tributyl phosphate, dioctyl setacate and the resin DEG-1. The effect of dioctyl phtalate on σ of polystyrene was studied. It was shown that none of the above plasticizers showed any effect on the σ_r of the starting material. However, all of the starting materials were affected by the dose of Co^{60} γ-irradiation, as expressed by the coefficient $\Delta(\sigma_r \sim I)$.

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USSR UDC: 546.681'181:539.238

BOLKHOVITYANOV, Yu. B., BOLKHOVITYANOVA, R. I., MEL'NIKOV, P. L.

"Production of Thin Films of GaAs from Solution Located in a Gap Between Substrates"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 6, Jun 73, pp 887-890.

Abstract: The authors used the sandwich method of production of a thin layer of solution by drawing it between two parallel substrates. The boat containing the solution in its opposite end was heated to the epitaxial temperature and held there for one hour to saturate the solution, after which the boat was tipped and the solution, after contacting the substrates, was drawn into the interval between them by capillary force. The boat was then tipped back to pour the remaining portion of the solution back to its initial position. The gap width varied from 0.2 to 1.5 mm. The system was then cooled linearly. Layers of GaAs produced by this method were smooth, with thickness variation not over 10%. The assumption that the GaAs precipitated only from the solution onto the substrate during the programmed cooling period was justified. The GaAs, dissolved in gallium, was completely deposited on the substrate when the cooling rate was held at 20-35° per hour.

1/1

Burn Therapy

USSR

UDC 617-001.17-085.33-059:615.357.453

MEL'NIKOVA, V. M., BOLKHOVITINOVA, L. A., and GLADSHTEYN, A. I., Central Institute of Traumatology and Orthopedics Ministry of Health USSR, Moscow

"Combined Topical Application of Antibiotics and Corticosteroids in the Treatment of Burn Wounds"

Moscow, Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 108-112

Abstract: Hydrocorticocin ointment (active ingredients, hydrocortisone and neomycin) was used for topical treatment of burn wounds in 76 patients and on excessively scarred skin donor areas in 27 patients. The burns were of the 2nd and 3rd (both A and B) degree and covered from 5-45 percent of the body surface area. The results indicated that hydrocorticocin is effective in such cases, particularly for treatment of 3-A burns, if it is applied after detachment of the scab. Hydrocorticocin prevents excessive proliferation of the granulation tissue, promotes epithelization, reduces inflammation, and eliminates microflora, thus accelerating healing. Formation of keloid scars is markedly inhibited. Since the drug is applied topically, it does not upset the body's natural balance of corticosteroid hormones.

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USSR UDC: 546.681'181:539.238

BOLKHOVITYANOV, Yu. B., BOLKHOVITYANOVA, R. I., MEL'NIKOV, P. L.

"Production of Thin Films of GaAs from Solution Located in a Gap Between Substrates"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 6, Jun 73, pp 887-890.

Abstract: The authors used the sandwich method of production of a thin layer of solution by drawing it between two parallel substrates. The boat containing the solution in its opposite end was heated to the epitaxial temperature and held there for one hour to saturate the solution, after which the boat was tipped and the solution, after contacting the substrates, was drawn into the interval between them by capillary force. The boat was then tipped back to pour the remaining portion of the solution back to its initial position. The gap width varied from 0.2 to 1.5 mm. The system was then cooled linearly. Layers of GaAs produced by this method were smooth, with thickness variation not over 10%. The assumption that the GaAs precipitated only from the solution onto the substrate during the programmed cooling period was justified. The GaAs, dissolved in gallium, was completely deposited on the substrate when the cooling rate was held at 20-35° per hour.

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1/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--STATISTICAL STUDY OF THE KINETICS OF NUCLEATION IN MELTS. I. FORMATION RATE OF CRYSTALLIZATION CENTERS -U-

AUTHOR-(03)-KIDYAROV, B.I., BELKHOVITYANOV, YU.B., DEMYANOV, E.A.

B

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 668-72

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NUCLEATION, CRYSTALLIZATION, SUPERCOOLING, FUSED SALT, INDIUM ANTIMONIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0277 STEP NO--UR/0075/70/044/003/0668/0672

CIRC ACCESSION NO--AP0113207

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0113207
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE RATE OF NUCLEATION ON THE DEGREE OF SUPERCOOLING IS DERIVED FROM A STATISTICAL INVESTIGATION OF SUPERCOOLING OF A MELT. THE RATE OF NUCLEATION OF IN ANTIMONIDE ON THE DEGREE OF SUPERCOOLING WAS MEASURED. FACILITY: INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

UNCLASSIFIED

BOLKHOVITYANOV, Yu. B.

JPRS 5/1065
6-13

3

XIII-10. GROWTH OF THIN GALLIUM ARSENIDE FILMS BY THE LIQUID EPITAXY METHOD

[Article by Yu. B. Bolkhovityanov, G. I. Bol'shakova, I. L. Bel'skov, Novosibirsk; Tret'ye Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 197]

A study was made of various methods of growing thin (less than 10 microns) films of gallium arsenide by the method of liquid epitaxy. Films up to 0.1 mm. thick were obtained by brief submersion of the substrates in a weakly supersaturated solution of gallium arsenide in gallium or tin.

The electrophysical properties of the films drawn from the solution in tin did not in practice depend on the thickness, and they were as follows: $\mu \sim 1{,}000$ cm^2/v sec, $n \sim 10^{19}$ cm^{-3}. For films manufactured by epitaxy from solution in gallium, worsening of the properties was observed with a decrease in thickness:

h, microns	μ_{293}° K	μ_{77}° K	n, cm^{-3}
6	4500	16000	$1.3 \cdot 10^{15}$
0.7	4500	14000	$3.1 \cdot 10^{16}$
0.1	2700	3200	$7.1 \cdot 10^{16}$

BOLKHOVITYANOV, Yu. B.

SPRS 5/68

3

6.73

XIII-2. EPITAXY OF GALLIUM ARSENIDE FILMS FROM SOLUTION BETWEEN SUBSTRATES

[Article by Yu. B. Bolkhovityanov, R. I. Bolkhovityanova, P. L. Mel'nikov; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 181]

A study was made of a method of growing gallium arsenide films from solution in a thin gap between substrates analogously to that described by Panish and Sumski [1]. However, a saturated solution is first pulled into the gap. The procedure was realized structurally in the Melan version [2].

A study was made of the basic advantages of this epitaxy procedure. The possibility of controlled growth of films of different thickness from units to hundreds of microns is demonstrated.

Calculations are made which on the basis of the known diagram of state of the gallium arsenide and solvent permit determination of the film thickness. The experimental results agree with the calculation.

The film surface morphology was investigated as a function of the cooling rate, the height of the solution layer on the substrate and also its orientation in the range of planes of (100)-(111A)-(011).

BIBLIOGRAPHY

1. M. B. Panish, S. Sumski, USA Patent No 3531856, published 13 October 1970

2. R. Melen, RCA Rev, Vol 24, No 4, 603, 1963.

BOLKHOVITYANOV, Yu. B.

IPRS 59018
6 Jun 73

XIII-5. ORIENTATION FUNCTION OF THE PROPERTIES OF GALLIUM ARSENIDE FILMS OBTAINED BY THE METHOD OF LIQUID EPITAXY

[Article by Yu. B. Bolkhovityanova, S. I. Stromov, Ye. I. Gutorov, P. L. Nel'nikov, Novosibirsk; Novosibirsk, III Simposium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 180]

Studies were made of the electron concentration and mobility in gallium arsenide films as a function of the substrate orientation. The substrate orientation was varied from (100) to (011) every 5°. It was discovered that the electron concentration in the films in the entire range of deviations varies by no more than 3 times. The highest rate of variation of the film properties is observed for deviation of the substrate from (111) both to (011) and to (100) by small angles. On deviation of the substrate from (100) to (111) by 5-10°, the electrophysical properties of the film vary insignificantly.

USSR UDC 621.315.592

BOLKHOVITYANOV, Yu. B., and STROITELEV, S. A.

"Production of Thin Layers of Germanium and Antimonides of Indium and Gellium from a Melt and Some of Their Properties"

V sb. Protessy rosta kristallov i plenok poluprovodn. (Procedures for the Growth of Semiconductor Crystals and Films -- Collection of Works), Novosibirsk, 1970, pp 360-367 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971, Abstract No 7B76)

Translation: Thin layers of Ge, InSb, and GaSb are obtained from a supercooled melt by the liquid epitaxy method, and their electrical and structural properties are studied. The substrates, fixed in quartz fasteners, were moved vertically. The crucible with the melt was fastened to a rod and could be rotated with the aid of a motor. The temperature of the melt was controlled by a mobile thermocouple with a precision of 0.1--0.2° C. The experiments were conducted in an H_2 atmosphere. Layers of Ge were grown on Ge substrates, GaSb on GaSb and GaAs substrates, and InSb on InSb, InAs, GaSb, GaAs, and GaP substrates. The substrates were oriented with respect to the (111) plane. It is shown that the layers grown are monocrystalline. The most perfect are autoepitaxial and the less perfect, heteroepitaxial layers. The electrophysical properties were studied on layers with a thickness of 100--150 micron. It is shown that layers of InSb grown from one and the same melt on different substrates are characterized by similar electrical properties, with the exception of layers of InSb on GaAs where some decrease of the substrate electrons is observed. 15 ref. B.T.

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BOLKHOVITYANOVA, R. I.

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S/208

6.73

XIII-2. EPITAXY OF GALLIUM ARSENIDE FILMS FROM SOLUTION BETWEEN SUBSTRATES

[Article by Yu. B. Bolkhovityanov, R. I. Bolkhovityanova, P. L. Merl'nikov; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 183]

A study was made of a method of growing gallium arsenide films from solution in a thin gap between substrates analogously to that described by Panish and Sumski [1]. However, a saturated solution is first pulled into the gap. The procedure was realized structurally in the Nelson version [2].

A study was made of the basic advantages of this epitaxy procedure. The possibility of controlled growth of films of different thickness from units to hundreds of microns is demonstrated.

Calculations are made which on the basis of the known diagram of state of the gallium arsenide and solvent permit determination of the film thickness. The experimental results agree with the calculation.

The film surface morphology was investigated as a function of the cooling rate, the height of the solution layer on the substrate and also its orientation in the range of planes of (100)-(111A)-(011).

BIBLIOGRAPHY

1. M. B. Panish, S. Sumski, USA Patent No 3533856, published 13 October 1970

2. H. Nelson, RCA Rev, Vol 24, No 4, 603, 1963.

BOLKHOVITYANOVA, R. I.

JPRS 57003
6-73

3

XIII-10. GROWTH OF THIN GALLIUM ARSENIDE FILMS BY THE LIQUID EPITAXY METHOD

[Article by Yu. A. Bolkhovityanov, G. I. Bolkhovityanova, I. L. Mel'nikov, Novosibirsk; Tovyshlerak, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 192]

A study was made of various methods of growing thin (less than 10 micron) films of gallium arsenide by the method of liquid epitaxy. Films up to 0.1 mm thick were obtained by brief submersion of the substrates in a weakly supersaturated solution of gallium arsenide in gallium or tin.

The electrophysical properties of the films drawn from the solution in tin did not in practice depend on the thickness, and they were as follows: $\mu \sim 1{,}000$ cm^2/v sec, $n \sim 10^{19}$ cm^{-3}. For films manufactured by epitaxy from solution in gallium, worsening of the properties was observed with a decrease in thickness:

h, microns	μ_{293}° K	μ_{77}° K	n, cm^{-3}
6	4500	16000	$1.3 \cdot 10^{15}$
0.7	4500	14000	$3.1 \cdot 10^{16}$
0.1	2700	3200	$7.1 \cdot 10^{16}$

BOLKHOVITYANOVA, R. I.

TP25 5908
6-73

XIII-5. ORIENTATION FUNCTION OF THE PROPERTIES OF GALLIUM ARSENIDE FILMS OBTAINED BY THE METHOD OF LIQUID EPITAXY

[Article by Yu. B. Bolkhovityanov, R. I. Bolkhovityanova, S. I. Gresov, Ye. I. Gutarov, P. L. Neliukov, Novosibirsk; Novosibirsk, III Simpozium po Problemam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 186]

Studies were made of the electron concentration and mobility in gallium arsenide films as a function of the substrate orientation. The substrate orientation was varied from (100) to (011) every 5°. It was discovered that the electron concentration in the films in the entire range of deviations varies by no more than 3 times. The highest rate of variation of the film properties is observed for deviation of the substrates from (111) both to (011) and to (100) by small angles. On deviation of the substrates from (100) to (111) by 5-10°, the electrophysical properties of the film vary insignificantly.

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USSR UDC 519.21

MARKHASIN, A. B., BOLLER, B. V.

"The Distribution of Time Intervals Between Intersections of Two Levels by a Random Process"

Vopr. Teorii Perdachi Inform. Pri Upr. Proiz-vom [Problems of the Theory of Information Transmission During Production Control -- Collection of Works], Novosibirsk, 1970, pp 10-15 (No 2038-70 Dep) (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V93 by the authors).

Translation: Distributions of lengths of sectors between points of intersection of two levels with opposite signs of the levels and derivitives by normal noise are produced.

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USSR

BOLOBAN, V. N., Kiev State Institute of Physical Culture, Kiev

"Effectiveness of Training in the Fundamentals of Acrobatics in Relation to Data Pertaining to the Development of the Vestibular Analysor"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, Vol 34, No 1, Jan 71, pp 51-53

Abstract: Tests were developed for the selection of boys 8-10 yrs old for training in acrobatics. The tests were based on determination of the stability of vestibular reactions in various types of enforced and voluntary motion. Boys in a group selected on the basis of vestibular tests could be trained more successfully in acrobatics than those in a control group who had been randomly selected without being subjected to these tests. Boys 9 yrs old showed the greatest aptitude for training in acrobatics.

1/1

Converters and Transducers

USSR

UDC: 534.232-8

BOLODIN, B. L., NEVSKIY, YU. YE., SELIVANOV, L. V., Novosibirsk

"Measuring the Amplitude-Frequency Characteristics of Wide-Band Ultrasonic Converters"

Novosibirsk, Avtometriya, No 3, 1970, pp 65-69

Abstract: Measurement of the amplitude-frequency characteristics (conversion losses as a function of frequency) of wide-band diffusion converters entails certain difficulties since there are no standard instruments for measuring this parameter. The authors discuss these difficulties for the case of an ultrasonic converter. The measurement procedure is based on determining the characteristic for a known load impedance, and using a simple formula to compute the characteristic for any other load impedance. A radio pulse voltage signal is sent to the input of the converter where it is transformed to an acoustic signal which is propagated through an acoustic line, reflected from the free end of the line, and sent again to the converter, where it is transformed to a radio pulse output signal. Absorption of the ultrasonic wave takes place as it is propagated through the acoustic line. The amount of absorption is proportional to the delay time. To eliminate the error introduced by this absorption, the acoustic line must be made from a low-absorption material and the delay time must be minimized.

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USSR

BOLODIN, B. L., et al, Avtometriya, No 3, 1970, pp 65-69

Methods of accomplishing these goals are discussed. An instrument for measuring the amplitude-frequency characteristics of wide-band ultrasonic converters is described and a block diagram of the device is given. The proposed instrument can be used to study the amplitude-frequency characteristics of ultrasonic converters in the 30-150 MHz range in the pulse mode, the duration of probe pulses being 1-1.5 usec. Sensitivity recovery time is 3-4 usec. Maximum error is no more than ±1.9 DB.

2/2

USSR B UDC 576.8.093.6

CHALENKO, V. G., BOLODINA, I. K., and RUNYANTSEV, S. N., Leningrad Institute of Vaccines and Sera

"Colorimetric Method of Determining the Dry Weight of Bacterial Cultures. I. Details of the Method"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 1, 1970, pp 75-80

Abstract: The method of Bailey and Meymandi-Nejad (J. Lab. Clin. Med., 1961, Vol 58, p 667) was tested using S. typhi cells. A direct relationship was discovered between the dry residue in a sample and the extinction values determined in a photocolorimeter after oxidizing the sample with potassium bichromate. The technique is simple. It requires a sample of at least 1 ml, 2 ml, of reagent, and heating of the sample to 100° C for 30 min, after which the oxidized material and the control are diluted with water to 10 ml. Colorimetry against the control is done in cuvettes with a yellow light filter in a photoelectric colorimeter (optimum wavelength 580-600 mμ). The entire procedure, except for the time to prepare the samples for analysis, takes no more than 1-1½ hours.
1/1

USSR

UDC: 620.193.19;621.723

DERENDOVSKIY, A. F., KUKONESKU, V. F., BOLOGA, M. K., Kishinev

"Cavitation and Corrosion Resistance of Metals Protected by Metallized Coatings"

Kishinev, Elektronnaya Obrabotka Materialov, No 2(44), 1972, pp 67-70

Abstract: The paper presents the results of studies of the cavitation and corrosion resistance of cast iron and steel with various thermodiffusion and electrospark coatings under conditions of ultrasonic cavitation and in noncavitation flows. The standards were specimens of SCh 18-36 cast iron and St.3 steel to which zinc, chromium, and T15K6 alloy were applied. Plating conditions are given. Steel with electrospark T15K6 alloy coating shows the best resistance to cavitation erosion.

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AA0040711 B UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

243217 INTENSIFICATION OF HEAT EXCHANGE where the heat carrier used is on emulsion of non-conducting (dielectric) liquids with a conducting dispersed phase. The unequal conductivity increases the forces arising by passing a current, which in its turn leads to a greater heat exchange.
19.6.67 as 1169857/26-25. M. BOLOGA & OTHERS.
APPLIED PHYSICS INST. ACAD. SCIENCES MOLDAVIAN SSR.
(18.9.69) Bul 16/5.5.69. Class 421. Int.Cl.G 01k.

LD

AUTHORS: Bologa, M. K.; Kozhukhar', I. A.; and Grosu, F. P.
Institut Prikladnoy Fiziki AN Moldavskoy SSR

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19750348

Organophosphorous Compounds

USSR UDC 541.621'49:546.733'18'86:547.442.2

ABLOV, A. V., BOTOSHANSKIY, M. M., SIMONOV, YU. A., MALINOVSKIY, T. I., GOL'DIN, A. M., and BOLOGA, O. A., Institute of Applied Physics, Academy of Sciences MSSR, Institute of the Chemistry, Academy of Sciences MSSR, Kishinev

"A New Kind of Stereoisomerism in trans-Dioximines of Cobalt (III) With Triphenylphosphine and Triphenylstibine"

Moscow, Doklady Akademii Nauk SSSR, Vol 206, No 4, Oct 72, pp 863-865

Abstract: In an earlier publication it was reported that triphenylphosphine, triphenylarsine, and triphenylstibine can easily replace water in trans-acidoaquodioximines of cobalt (III) forming compounds $[CoX(DH)_2EPh_3]$ where X = Cl, Br, or I, and E = P, As or Sb. Furthermore, it was shown that these products occur as mixtures of two modifications. This paper covers x-ray diffraction studies of such compounds. The experimental results obtained show that cobalt (III) dioximines exhibit an unique case of stereoisomerism. Both modifications are in trans-configuration; in one case two chelate units DH are located in a plane, in the other the DH chelate planes are at an angle to each other, the cobalt atom being moved out of the center of the octahedron.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420010-0"

USSR UDC 632.911

KISKIN, P. Kh. Doctor of Biological Sciences, and BOLOKAN, V. I., Aspirant, Institute of Zoology, Academy of Sciences, Moldavian SSR, Kishinev

"How to Speed up Forecasts"

Moscow, Zashchita Rasteniy, No 5, 1971, pp 37-38

Abstract: The Institute of Zoology of the Moldavian Academy of Sciences has been working since 1966 on an information retrieval system for use in preparing sound and prompt forecasts of the spread of disease, degree of afestation and extent of injury done to crops by pests and diseases. Information on 12 main pests is obtained at four stations and coded in standard fashion. There are 39 categories of information relating to the pests (18), plant hosts (11), control measures and their effectiveness (7), and other aspects (3). Each category is given a Roman numeral and each index has a different Arabic numeral. For example:

Categories	I	III	XII.....XXXIX
1968 index:	18	06	03
1969 index:	18	06	03

USSR

KISKIN, P. Kh. et al, Zashchita Rasteniy, No 5, 1971, pp 37-38

This means that in 1968 and 1969 at Novoanensk station (I, 18) winter wheat (III, 06) was infested with the ground beetle (XII, 03), etc. The capacity of the system is unlimited, so that categories and indices can be increased when desired. The data can easily be entered on hand or machine punch cards for easy mechanization of the retrieval process for forecast purposes.

2/2

USSR

UDC 612.821.6+612.822.6

BOLONDINSKIY, V. K. and KYLASIN, D. A., Laboratory of Cortico-Visceral Physiology and Pathology and Laboratory of Genetics of Higher Nervous Activity, Institute of Physiology imeni I. P Pavlov, USSR Academy of Sciences Leningrad

"On the Correlation Between the Strength of the Excitatory Process, Emotional Reactions and RNA Concentration in the Brain of Rats"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 887-889

Abstract: A significant negative correlation was found between the strength of stimulation, measured as the value of a conditioned reflex after introduction of caffeine, and emotionality, measured as the number of fecal droppings in response to strong light. Emotionality also showed a negative correlation with the concentration of RNA in the brain, but not with DNA concentration. The experiments were performed on 14 male rats of the Wistar line.

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USSR UDC 632.95

(3)

GOLYSHIN, I. M., MONOVA, V. I., KLIMKINA, L. P., IVANOVA, S. N., MEL'NIKOV, N. N., KHUSNETDINOVA, F. I., SHVETSOV-SHILOVSKIY, N. I., SAMYSHKINA, M. A., and BOLONINA, YE. I.

"An Antiseptic"

USSR Author's Certificate No 355008, Div B, filed 11 Jan 71, published 13 Nov 72 (from RZh-Khimiya, No 14, 25 Jul 73, abstract No 14N616 P by T. A. Belyayeva)

Translation: It is proposed that 4,5,6-trichlorobenzoxazolinone-2 (I) be used as an antiseptic for nonmetallic materials, and at the same time is a bactericide, which considerably extends the sphere of its action. Compound I is used in a 2-2.5% concentration to control mold, wood-rotting and wood-discoloring fungi.

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USSR

BALOSHIN, O. N., BLAGORODOV, A. M., BOLONKIN, B. V., VLADIMIRSKIY, V. V., GORIN, YU. P., GRIGOR'YEV, V. K., GRISHIN, A. P., YEROFEYEV, I. A., KOROL'KOV, I. YA., LUZIN, V. N., MILLER, V. V., NIKOLAYEVSKIY, YE. S., PETRUKHIN, V. N., PLIGIN, YU. S., PONOMAREV, L. A., SIROTKIN, S. M., SOKOLOVSKIY, V. V., TARASOV, YE. K., TIKHOMIROV, G. D., TROSTINA, K. A., TURCHANOVICH, L. K., and SHKURENKO, YU. P., Institute of Theoretical and Experimental Physics GKI AE (State Committee for the Use of Atomic Energy)

"The $K^-p \rightarrow \bar{K}^0n$ Charge Exchange Reaction at a Pulse of 39 Gev/sec"

Moscow, Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544

Abstract: The authors present the measurement results from studying the charge exchange reaction of K^--mesons on protons ($K^-p \rightarrow \bar{K}^0n$) at a pulse of 39 Gev/sec. The study was carried out using the ITEF 6-m magnetic track spectrometer. The working volume of the magnetic field of the spectrometer was 1.0 x 1.5 x 6 m . Twelve optical spark chambers were located inside the magnet, with each chamber having eight spark gaps (10 mm each). The chamber electrodes consisted of two layers of aluminum foil 14 microns thick. The photographs were taken through a special slit in the magnet yoke. A mirror system made it possible to obtain three stereoprojections of all of the chambers

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USSR

BALOSHIN, O. N., et al., Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544

with one camera. The reaction was studied on the negative particle beam of the IFVE accelerator. The K^--mesons were distinguished by a differential Cerenkov counter. The beam was focused on a liquid hydrogen target 40 cm long which was set approximately three meters from the first chamber of the spectrometer. Approximately $5 \cdot 10^7$ K^--mesons were passed through the equipment and 1020 photographs taken. Pairs of uniformly charged tracks were measured on the photographs. The measurement results were then processed on the Razdan-3 computer. Only 270 intersecting tracks were found. A graph is given for the differential cross section of the reaction. The results show that the cross section value of 7.4 ± 1.2 microbarns obtained by the authors in comparison to data obtained for lower energies elsewhere shows the logarithmic dependence of the charge exchange cross section on the pulse, equal to -1.58 ± 0.05. The authors thank K. G. Boreskov, A. M. Lapidus, S. T. Sukhorukov, and K. A. Ter-Martirosyan for their presentation of the computational results as the dependence of the differential cross section onpulse transfer (do/dt). This dependence is compared with predictions of the Regge pole model.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PHOTOMETRIC METHOD FOR DETERMINING PYRIDINE AND ITS METABOLIC PRODUCTS IN BIOLOGICAL MEDIA -U-

AUTHOR-(02)-GORSKAYA, R.V., BOLONOVA, L.N.

COUNTRY OF INFO--USSR

SOURCE--LAB. DELO 1970, (1), 30-1

B

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--PYRIDINE, QUANTITATIVE ANALYSIS, PHOTOMETRY, URINE, BLOOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0061 STEP NO--UR/9099/70/000/001/0030/0031

CIRC ACCESSION NO--AP0119057

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR THE QUANT. DETN. OF PYRIDINE IN BIOL. MATERIALS. THE SAMPLES (0.1-0.2 ML OF BLOOD, 1-5 ML OF URINE, OR TISSUE) ARE MIXED WITH 0.1N HCL AND CENTRIFUGED. ONE ML OF 1PERCENT AMMONIUM THIOCYANATE AND 1 ML OF 8PERCENT VHLORAMINE B ARE ADDED TO THE SUPERNATANT AND THE MIXT. IS LEFT FOR 10 MIN. THEN, 3 ML OF 1PERCENT BARBITURIC ACID IS ADDED AND THE MIXT. IS DILD. TO 15 ML WITH PHOSPHATE BUFFER, PH 6.0-6.2. THE MIXT. IS HEATED FOR 30-40 MIN AT 35-45DEGREES, CENTRIFUGED, AND THE ABSORBANCE IS DETD. AT 584 NM AGAINST THE BLANK WITHOUT BIOL. MATERIAL. A CALIBRATION CRUVE IS CONSTRUCTED USING A SOLN. OF PYRIDINE (0-10 MJG) IN 0.1N HCL.

FACILITY: DONETS. NAUCH.-ISSLED. INST. GIG. TR. PROFZABOL., DONETSK, USSR.

UNCLASSIFIED

USSR

UDC 536.24

ROZHANENKO, P. N., BOLOSHCHUK, A. YA., Moscow, Lumber Engineering Institute

"The Protection Effectiveness and the Heat Exchange When Air is Blown Into the Turbulent Boundary Layer of an Air Stream Through a Porous Preconnected Sector"

Moscow, Teplofizika Vysokikh Temperatur, No 5, 1970, pp 1025-1031

Abstract: In the article are presented the results of an experimental investigation of the protection effectiveness and heat exchange in case of the blowing of air into a turbulent boundary layer on a plate in the presence and in the absence of the boundary layer at the entry, at the beginning of a preconnected porous insert before the porous surface. 7 figures, 1 table, 8 bibliographic entries.

1/1

USSR

UDC 621.359.3

KULINICH, V. I., BOLOSYUK, YU. M., and YALYUSHEV, N. I.

"The Mechanism for Electrolysis in a Two Layer Bath for a Series of Ions"

Tr. Novocherkas. politekh. in-ta (Works of the Novocherkas. Polytechnical Institute), 259, 1972, pp 107-110 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L272)

Translation: The elemental electrochemical process was considered as an example of the electrocrystallization of metallic powders in a two layer bath. It is associated with the transfer of one or several electrons from the electrode at the interface surface. The possibility of a tunnelling mechanism for the reaction was substantiated. The calculated value for the tunnelling coefficient D was 0.53 and provided current flow close to the experimental value.

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USSR

UDC 539.192/.194+535.33/.34.01

ZURBA, V. B., BOLOTIN, A. B.

"Quasimechanical Calculation of Para-, Meta-, and Ortho-Toluidine"

Lit. fiz. sb. (Lithuanian Physics Collection), 1972, Vol. 12, No. 2, pp 245-252 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D139)

Translation: Single-electron functions and energy levels of para-, meta- and ortho-toluidine were found using the simplest version of the molecular orbital-linear combination of atomic orbitals method. The methyl group was considered as one atom of fluorine giving one electron to the π-electron system. The molecular orbitals obtained were used to calculate electron density in atoms, binding orders, and free valence indices and also the Coulomb interval α_C and the affinity of toluidine molecules for the electron. Authors abstract.

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USSR

UDC 539.192/.194+535.33/.34.01

BOLOTIN, A. B., LYASH, A. V., LITINSKIY, A. O.

"Electron Structure of Aluminum Hydride"

Lit. fiz. sb. (Lithuanian Physics Collection), 1972, Vol. 12, No. 2, pp 253-257 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D118)

Translation: The AlH_3 molecule was investigated within the framework of the expanded Wolfsberg-Helmholtz method for two possible structures: plane and pyramidal. The Slater wave functions were used as base functions for the Al and H atoms. Self-consistent MO, single-electron energy levels, the population of orbitals, and charges on the atoms were obtained from solving the Wolfsberg-Helmholtz equations. The dipole moment was calculated. A comparison is made with the theoretical results obtained for this molecule by other authors. 10 ref. Authors abstract.

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1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--TNB 2 APPARATUS USED FOR CARBONATE SAPONIFICATION OF OXIDIZED PARAFFINS IN THE PRODUCTION OF SYNTHETIC FATIY ACIDS -U-

AUTHOR-(05)-YEFIMOV, V.T., NAZARYAN, M.M., MOSKVIN, V.D., BOLOTIN, I.M., KOVAL, L.P.

COUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR, PROM. 1970, 36(3), 21-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBONATE, SAPONIFICATION, ALKANE, FATTY ACID, CHEMICAL PLANT EQUIPMENT, CHEMICAL REACTOR/(U)TNB2 CHEMICAL EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0550 STEP NO--UR/9085/70/036/003/0021/0025

CIRC ACCESSION NO--AP0119469

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT7C

CIRC ACCESSION NO--AP0119469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTIMUM OPERATING PARAMETERS WERE DETD. FOR THE TITLE APP. THE APP. CONSISTED OF A MIXER AND A CASCADE OF 4 SEQUENTIALLY CONNECTED REACTORS. THE EFFECTS OF TEMP. OF THE NA SUB2 CO SUB3 SOLN. USED AND OF THE OXIDIZED PARAFFIN, THE CONCN. OF THE NA SUB2 CO SUB3 SOLN., THE SAPON. TEMP. OF THE CARBONATE MASS, THE PRODUCTIVITY OF THE APP., AND THE H SUB2 O CONSUMPTION DUE TO MIXING AND CO SUB2 STRIPPING WERE DETD. THE DEPENDENCE OF THE ACID NO. OF THE CARBONATE MASS ON THE RESIDENCE TIME IN THE APP. WAS PLOTTED FOR VARIOU PARAFFIN-NA SUB2 CO SUB3 RATIOS (1:0.21-0.26) AND TEMPS. (50-100DEGREES). THE NA SUB2 CO SUB3 DECOMPN. RATES AT VARIOUS TEMPS. OF THE OXIDATE AND OF THE NA SUB2 CO SUB3 WERE ALSO DETD. THE APP. DESCRIBED IS THE MOST SUITABLE ONE FOR THE ABOVE CARBONATE SAPON. BECAUSE IT PROVIDES COMPLETE REMOVAL OF CO SUB2 AND A HIGH DEGREE OF NA SUB2 CO SUB3 DECOMPN. FACILITY: KHAR'KOV. POLITEKH. INST. IM. LENINA, KHARKOV, USSR.

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USSR UDC: None

TKACH, Yu. V., FAYNBERG, Ya. B., BOLOTIN, L. I., BESSARAB, Ya. Ya., GADETSKIY, N. P., MAGDA, I. I., and SIDEL'NIKOVA, A. V.

"Laser Using Plasma-Beam Discharge"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62, No 5, 1972, pp 1702-1716

Abstract: Experiments to investigate the generation of stimulated radiation in the visible range of the spectrum are described. In the equipment described in this paper a pulsed electron beam with a pulse width of 90 μs at a current of 35 amp and an energy of up to 40 kev was injected into a stainless steel plasma chamber with a diameter of 110 mm and a length of three meters. At the end of the chamber a water-cooled collector was placed for dissipating the beam power, reaching a level of as much as 1.5 kW. A block diagram of the equipment and an explanation of its operation given. These experiments demonstrated the possibility of using collective processes in a high-temperature plasma for pumping gas lasers; it is asserted, in fact, that this type of pumping in a plasma-beam discharge is best for obtaining oscillation in the shortwave end of the visible range. The authors, members of the Physico-Technical Institute of the Ukrainian Academy of Sciences, express

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UDC: None

TKACH, Yu. V., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62, No 5, 1972, pp 1702-1716

their gratitude to V. P. Tychinskiy, V. V. Slezov, V. D. Shapiro, and V. I. Shevchenko for their comments and advice.

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1/2 050 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--MEASUREMENT OF THE ELECTRON TEMPERATURE IN A BEAM PLASMA DISCHARGE LASER ON THE BASIS OF THE BREMSSTRAHLUNG X RADIATION SPECTRUM -U-

AUTHOR-(05)-GADETSKIY, M.P., BOLOTIN, L.I., TKACH, YU.V., BESSARAB, YA.YA., MAGDA, I.I.

COUNTRY OF INFO--USSR

B

SOURCE--UKRAINS'KII FIZICHN II ZHURNAL, VOL. 15, APR. 1970, P 662-664

DATE PUBLISHED----APR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MEASUREMENT, ELECTRON TEMPERATURE, LASER, BREMSSTRAHLUNG, X RADIATION, PLASMA DISCHARGE, PLASMA BEAM, POPULATION INVERSION, RADIATION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0658 STEP NO--UR/0185/70/015/000/0662/0664

CIRC ACCESSION NO--AP0128195

UNCLASSIFIED

2/2 050 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128195

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE PARAMETERS OF A HIGH ENERGY GROUP OF PLASMA ELECTRONS IN A LASER BASED ON A BEAM PLASMA DISCHARGE. THIS GROUP ARISES DUE TO THE ACCELERATION OF ELECTRONS BY HIGH FREQUENCY FIELDS EXCITED IN THE PLASMA. THE TEMPERATURE OF ELECTRONS IN THE GROUP IS MEASURED BY THE SPECTRUM OF THE BREMMSTRAHLUNG X RADIATION TO BE BETWEEN 0.8 AND 1 KEV, WHILE THE NUMBER OF CONSTITUENT PARTICLES IS 10 BILLION PER CU CM, AS MEASURED BY THE ABSOLUTE INTENSITY OF X RAY EMISSION. THE TEMPERATURE AND DENSITY ARE SUFFICIENT FOR CRITICAL POPULATION INVERSION IN THEPULSED MODE OF OPERATION OF THE LASER. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, FIZIKO-TEKHNICHNII INSTITUT, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

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UDC 539.3:534.1

BOLOTIN, V. V.

"Problems of Reliability Theory in the Mechanics of Deformable Solids"

V sb. Mekh. sploshn. sredy i rodstv. probl. analiza (Mechanics of a Continuous Medium and Related Problems of Analysis -- Collection of Works), Moscow. "Nauka", 1972, pp 63-77 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V292)

Translation: A reliability theory problem for continual systems is formulated and certain possible methods solving these problems are discussed. A space of states and a space of qualities are introduced and the dynamics equations for the system are described. A reliability function is introduced as the probability of a random event consisting of the fact that after a given segment of time not one overshoot from the permissible region of the quality of the space occurs. Examples of selecting the quality space are given. In the first example the space of states is identified with the stress space. The permissible region is the region in which the maximum of the intensity of tangential stresses within the limits of the entire body do not exceed a certain determined limit. The second example comes from the region of the theory of plates and shells. Only the condition of achieving maximum

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BOLOTIN, V. V., Mekh. sploshn. sredy i rodstv. probl. analiza, Moscow, "Nauka", 1972, pp 63-77

deflection of a critical value is taken as a condition for breakdown or a combination of this condition with a similar condition for maximum moment is assumed. Considerable attention is given to the problem of the approximate calculation of the reliability function using the moments of the number of breakdowns in the average number of maxima, minima, and saddle points. A spherical shell with initial faults in the shape under the action of pressure is considered as an example. An approximate method for analyzing the reliability of continual systems is discussed that is based on reduction to finite-dimensional systems. V. A. Pal'mov.

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UDC: 539.31-434:534-16

BOLOTIN, V. V., Moscow Power Engineering Institute

"Theory of Distribution of Normal Modes of Elastic Bodies and its Application to Problems of Random Oscillations"

Kiev, Prikladnaya Mekhanika, Vol 8, No 4, Apr 72, pp 3-29

Abstract: This paper, which was presented at the All-Union Conference on Oscillations of Mechanical Systems held in Kiev on 6 July 1971, is a survey of the distribution of normal modes of oscillation of elastic bodies. Particular emphasis is given to oscillations of thin elastic shells and to applications of the theory to calculating elastic systems for random vibrations in a field of wide-band loads. Various representations for the distribution of normal modes are analyzed, and these representations are statistically interpreted. The concept of asymptotic points of crowding of the spectrum is discussed and a physical interpretation of these points is given, as well as the application of this concept to calculation of random vibrations of elastic and elasto-acoustic systems. Eighteen illustrations, bibliography of sixty-one titles.

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UDC 539.3:534.1

BOLOTIN, V. V., YELISHAKOV, I. B., Moscow

"Random Vibrations of Elastic Shells Containing an Acoustic Medium"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 5, 1971, pp 122-130

Abstract: Previously [V. V. Bolotin, Inzh. zh. MTT, No 1, 1968], a study was made of the problem of determining the sound pressure field inside shells undergoing random vibrations. A method was proposed for calculating the correlation functions and the spectral pressure densities in an acoustic environment and also the noise level inside a shell. A significant restriction was introduced in that the surface functions corresponding to the forms of the natural vibrations of the acoustic medium were assumed to coincide with the forms of the natural vibrations of the shell. In the present paper, the method is generalized to a broader class of shells. Two systems of base functions are used simultaneously -- the functions for the shell and for the acoustic medium. Smooth and reinforced circular cylindrical shells with sound insulation are presented as an example. The calculation is performed as applied to vibrations in a pulsating pressure field from a turbulent boundary layer.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--STOCHASTIC EDGE EFFECTS IN SUBCRITICAL DEFORMATIONS OF ELASTIC SHELLS -U-

AUTHOR--BOLOTIN, V.V.

B

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, MAR.-APR. 1970, P. 94-99

DATE PUBLISHED-------70

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

TOPIC TAGS--SHELL STRUCTURE, ELASTICITY, SHELL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0343 STEP NO--UR/0484/70/000/000/0094/0099

CIRC ACCESSION NO--AP0124100

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124100

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE PROBLEM OF DEFORMATIONS OF THIN ELASTIC SHELLS WITH RANDOM IMPERFECTIONS IN THE REGIONS ADJACENT TO THE CONTOUR. THE CONDITIONS OF EXISTENCE OF SOLUTIONS OF EDGE EFFECT TYPE ARE INVESTIGATED, FORMULAS FOR THE SPECTRAL AND CORRELATION CHARACTERISTICS ARE DERIVED, AND AN ESTIMATE IS MADE OF THE CONCENTRATION OF FORCES AND MOMENTS AT THE CLAMPED CONTOUR.

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2/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123546

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COHERENT EXCITATION OF COUPLED MAGNETOACOUSTICAL OSCILLATIONS IN FERROMAGNETIC CRYSTALS NEAR THE CRITICAL POINT, IN WHICH THE CHARACTER OF THE MAGNETIC ANISOTROPY CHANGES, IS INVESTIGATED. THE INCREMENTS OF THE INCREASE IN THE OSCILLATIONS ARE DETERMINED. IT IS SHOWN THAT THESE INCREMENTS CAN BE CONSIDERABLY LARGER THAN THE INCREMENTS OF THE INCREASE OF SPIN WAVES IN ORDINARY FERROMAGNETICS. FACILITY: PHYSICS ENGINEERING INSTITUTE OF THE UKRAINIAN ACADEMY OF SCIENCES, KHAR'KOV.

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USSR

AKHIYEZER, I. A.; BOLOTIN, Yu. L.; SPOL'NIK, Z. A. (Physics-Engineering Institute of the Ukrainian Academy of Sciences, Khar'kov)

"Coherent Excitation of Oscillations by Streams of Particles in Ferromagnetics with Small Magnetic Anisotropy"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; March, 1970; pp 433-7

Δ Δ Δ

ABSTRACT: The coherent excitation of coupled magnetoacoustical oscillations in ferromagnetic crystals near the critical point, in which the character of the magnetic anisotropy changes, is investigated. The increments of the increase in the oscillations are determined. It is shown that these increments can be considerably larger than the increments of the increase of spin waves in ordinary ferromagnetics.

The article includes 14 equations. There are 4 references.

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