

USSR

UDC: 51

BURIKOV, A. D., VOSKOV, L. S., SUSHCHINSKIY, I. M.

"A Method of Solving a Discrete Programming Problem of Special Form"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 16, ch. 2, pp 111-117 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V422)

Translation: The problem of synchronizing a conveyer line is formulated as a special kind of integral linear programming problem. An approximate algorithm of directed sorting is proposed for solving it (in most of the experiments done by the authors the algorithm gave an exact solution).
Yu. Finkel'shteyn.

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1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CALCULATION OF RETENTION VALUES IN GAS CHROMATOGRAPHY. III.
CHLORINATED HYDROCARBONS -U-
AUTHOR--(03)--SAKHAROV, V.M., VOSKOV, V.S., DZHIDYEVA, Z.K.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 183-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, METHODS AND EQUIPMENT
TOPIC TAGS--GAS CHROMATOGRAPHY, CHLORINATED ORGANIC COMPOUND,
CHROMATOGRAPHIC ANALYSIS, ISOMER, STEREOCHEMISTRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/2145 STEP NO--UR/0075/70/044/001/0183/0186
CIRC ACCESSION NO--AP0125728
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125728

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

ABSTRACT. RETENTION VALUES (R SUBV) AND THE B.P. OF ISOMERIC CHLOROORG. COMPS. DEPEND ON THE ENERGIES GIVEN BY THE STERIC EFFECTS IN THE MOLS. OF THESE COMPS. THE INTERACTION ENERGIES OF NONBOUND ATOMS CAN BE ESTD. IF THE NO. OF INTERACTING PAIRS OF GEMINAL H AND CL ATOMS (H-H) SUBI AND (C-CL) SUBI IS KNOWN. TABLES GIVE THE NO. (H-H) SUBI, (H-CL) SUBI, R SUBV, AND B.P. FOR 26 MONO, DI, TRI, AND TETRACHLORO SUBSTITUTED SATD. AND UNSATD. HYDROCARBONS.

UNCLASSIFIED

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 UNCLASSIFIED
 PROCESSING DATE--13NOV70
 TITLE--SCHE OBSERVATIONS ON THE EFFECTIVENESS OF MONOMYCIN IN THERAPY OF
 GONORRHEA IN MEN -U-
 AUTHOR-(05)-GRIGORYEV, V.YE., POTAPNEV, F.V., SKURATOVICH, A.A., GRACHEV,
 YU.I., VOSKRESENSKAYA, G.A.
 COUNTRY OF INFO--USSR
 SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 4, PP 59-62
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--ANTIBIOTIC, VENEREAL DISEASE, MONOMYCIN
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1990/0936
 CIRC ACCESSION NO--AP0109093
 STEP NO--UR/0206/70/000/004/0059/0062
 UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0109093
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EFFECTIVENESS OF MONOMYCIN IN THERACY OF GONORRHEAL INFECTION IN 145 MEN WAS STUDIED. THE DRUG WAS INJECTED INTRAMUSCULARLY IN A DOSE OF 500,000 UNITS EVERY 10-12 HOURS. PATIENTS WITH ACUTE AND SUBACUTE GONORRHEAL URETHRITIS RECEIVED A COURSE DOSE OF MONOMYCIN OF 2,000,000 UNITS. FOR PATIENTS WITH COMPLICATED AND CHRONIC FORMS OF GONORRHEAL INFECTION COURSE DOSES WERE INCREASED TO 3,500,000-4,000,000 UNITS. GONOCOCCI DISAPPEARED FROM THE SECRETE IN THE MAJORITY OF PATIENTS WITHIN 6-7 HOURS. ETIOLOGICAL CURE AFTER MONOMYCIN THERAPY WAS ACHIEVED IN 96.6PERCENT OF PATIENTS.
FACILITY: OTDEL GONOREI TSENTRAL'NOGO N I KOZHNO VENEROLOGICHESKOGO INSTITUTA MINISTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 669.794.669.25

VOSKRESENSKAYA, L. A., PETUKHOVA, A. S., PIKUNOV, M. V.

"Study of Distribution of Tantalum in the Structure of Yttrium by Contact Micro-roentgenography"

Nauchn. Tr. N-i. i Projektn. In-t Redko met. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 34-37. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I710 by the authors).

Translation: The distribution of Ta in Y produced by various methods was studied. The method of contact microroentgenography was found to be the only possible method for this purpose. It was established that Y is contaminated to a significant extent with tantalum. The nature of the distribution of Ta in Y and the influence of Cu and Fe impurities on this distribution were determined. 3 figs; 5 biblio refs.

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1/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--ON THE DEPENDENCE OF THE PHOTSENSITIVITY OF SOME PROTEINS TO
ULTRAVIOLET LIGHT ON THE MOLECULE CONFORMATION -U-

AUTHOR--(03)-KONEV, S.V., VOLOGOVSKIY, I.D., VOSKRESENSKAYA, L.G.

COUNTRY OF INFO--USSR

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 395-400

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTEIN, ENZYME, PHOTOCHEMISTRY, FLUORESCENCE, LIGHT
POLARIZATION, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0149

STEP NO--UR/0463/70/004/003/0395/0400

CIRC ACCESSION NO--AP0120849

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120849

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

ABSTRACT. CONSIDERABLE CHANGES ARE OBSERVED OF THE QUANTUM YIELDS OF ARGINASE AND UREASE PHOTOINACTIVATION (Q) DUE TO TEMPERATURE CHANGES IN THE REGION 5-35DEGREES WHICH ARE NOT ACCOMPANIED BY ANY CHANGES OF THE RATE OF THE TRYPTOPHANYL PHOTOLYSIS OR BY CHANGES IN THE NATURE OF PHOTOPRODUCTS. A GOOD CORRELATION BETWEEN THE EXPERIMENTAL CURVES Q EQUAL F(T) AND CURVES QO DEPENDENCE OF THE DEGREE OF FLUORESCENCE POLATIZATION OF TYPTOPHANYLS ON THE TEMPERATURE F(SUB)FL EQUALS F(T) TESTIFIES THAT THE EARLIER FOUND COOPERATIVE CONFORMATIONAL TRANSITION BETWEEN A AND B FORMS OF THE NATIVE PROTEINS IS RESPONSIBLE FOR THE CHANGES IN PHOTONSENSITIVITY OF ENZYMES. IT IS SUGGESTED THAT CHANGES IN PHOTONSENSITIVITY OF THE PROTEINS ARE CONNECTED WITH INFLUENCES OF MACROMOLECULAR CONFORMATION ON EVENTS WHICH PRECEED THE FORMATION OF THE FINAL STABLE PHOTOPRODUCTS. FACILITY: LABORATORY OF BIOPHYSICS AND ISOTOPES, ACADEMY OF SCIENCES, BESSR, MINSK.

UNCLASSIFIED

Acc. Nr:

AP0034073

Abstracting Service:
CHEMICAL ABST. # - 70

Ref. Code:

U.R. 0078

71354r Surface and volume properties of melts of diagonal cross sections of Na, Zn-PO₃, O and K, Zn-PO₃, O reciprocal systems. Krivovvazov, E.L.; Vlasovskaya, N.K. (USSR). Zh. Neorg. Khim. 1970, 15(1), 246-50, (Russ.). Surface tension (σ) and d of fused Zn(PO₃)₂-Na₂O; Zn(PO₃)₂-K₂O, NaPO₃-ZnO, and KPO₃-ZnO systems were detd. at $\leq 1111^\circ$. In 1st 2 systems the plot of σ versus concn. shows a min., corresponding to complex formation which is more pronounced in the system of K₂O. The analogous graphs of ZnO systems show max. It is assumed that polyphosphate chains become shorter with increasing ZnO concn. reaching shortest length and simultaneously a max. σ at $\sim 25-30$ mole % ZnO. HMJR

REEL/FRAME

19710716

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1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--HETEROGENECUS EQUILIBRIUMS IN A POTASSIUM FLUORIDE, NIOBIUM
PENTOXIDE SYSTEM -U-
AUTHOR--(02)-BUDOVA, G.P., VOSKRESENSKAYA, N.K. ✓
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM, 1970, 15(3), 859-64
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POTASSIUM COMPOUND, FLUORIDE, NIOBIUM OXIDE, PHASE DIAGRAM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1594/1726 STEP NO--UR/0078/70/015/003/0859/0864
CIRC ACCESSION NO--AP0115555
UNCLASSIFIED

2/2 010

CIRC ACCESSION NO--AP0115555

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE BINARY SYSTEM KF-NB SUB2 O
 SUB5 WAS STUDIED AS AN UNSTABLE DIAGONAL CROSS SECTION OF THE TERNARY
 MUTUAL SYSTEM K, NB MAGNITUDE OF F, O. K SUB2 NB0 SUB3 F (M.
 838DEGREES), KNB0 SUB3, 2K SUB2 O.3NB SUB2 O SUB5, AND K SUB2 NB0 SUB2 F
 SUB3 FORM IN THE SYSTEM. PHASE DIAGRAMS OF THE TERNARY AND THE BINARY
 SYSTEMS ARE PARTIALLY CONSTRUCTED. FACILITY: INST. OSSHCH.
 NEORG. KHIM. IM. KURNAKOVA, USSR.

UNCLASSIFIED

USSR

UDC (546.36*185+546.732*185):542.3

KRIVOVYAZOV, YE. L., DZHURINSKIY, V. F., RADHIMBEKOVA, KH. H., and
~~Yoskresenskaya, N. K.~~ Institute of General and Inorganic Chemistry imeni
N. S. Kurnakov, Academy of Sciences USSR

"Density of Fused Cesium and Cobalt Metaphosphates"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 8, 1972,
pp 1505-1506

Abstract: The authors used the method of hydrostatic weighing to measure the density of fused Cs and Co metaphosphates. Based on the data produced on the density of fused Cs and Co metaphosphates, using the method of least squares, the equations for density polytherms were calculated. The molar volumes of the Na, K, and Cs metaphosphates increase in that order at their melting points with increasing cation radius. The temperature coefficients of density for Na, K, and Cs metaphosphates are less than for the corresponding nonpolymerized simple salts. Even stronger compacting of structure can be expected for Zn and Co metaphosphates.

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USSR

UDC 669-157.96

VOSKRESENSKAYA, N. L., GNUCHEV, V. S., GUREVICH, M. YE., KRASIL'NIKOV, V. S.,
LARIKOV, L. N., RYBALKINA, L. V., and SINITSKIY, N. YE., Institute of Metal
Physics, Academy of Sciences Ukr SSR

"Physical Nature of the Processes of formation of Complex Mechanical Properties
During the Tempering of a Hardened Alloyed Structural Steel"

Kiev, Metallofizika, No 40, 1972, pp 53-56

Abstract: Calorimetric, x-ray, volumetric, and mechanical tests were used to study the physical processes which take place in the tempering of a complexly alloyed structural steel (approximately 0.33% C, 3% Cr, 1% Mn, Ni, W, and V). The magnitudes of thermal and volume effects were determined in the tempering stages. The types of processes occurring and their effect on the formation of mechanical properties were analyzed. It was established that the optimum combination of strength and ductile properties, obtained as a result of tempering the investigated steel for an empirically selected mode, was associated with the occurrence of processes of internal stress relaxation, primarily at points of their maximum concentration. The hypothesis was made that this phenomenon is related to the development of processes of diffusion "closing" microcracks which cause brittle failure of the material. 3 figures, 6 bibliographic references.

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USSR

UDC 581.132.8

VOSKRESENSKAYA, N. P.; VIYL', Yu. A.; GRISHINA, G. S.; PYARNIK, T. P.; Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, and Institute of Experimental Biology, Academy of Sciences Estonian SSR, Kharku

"Distribution of Tracer Carbon in Products of the Photosynthesis in Bean Plant Leaves in Red and Blue Light Depending on the Content of Oxygen in the Medium"

Moscow, Fiziologiya Rasteniy, Vol 18, No 3, May/Jun 71, pp 488-493

Abstract: The intensity of photosynthesis and $C^{14}O_2$ metabolism were studied in experiments on bean plant (*Phaseolus* sp.) leaves in which discs from the leaves were exposed to $C^{14}O_2$ in red or blue light in air and N_2 . In air on the light plateau, the intensity of photosynthesis was the same in red and blue light. It was increased in either kind of light in N_2 , but to a greater extent in blue than red light. In air blue light activated incorporation of C^{14} into glycine, serine, alanine, aspartic acid, and glutamic acid, while inhibiting its inclusion, as
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VOSKRESENSKAYA, N. P., et al, Fiziologiya Rasteniy, Vol 18,
No 3, May/June 71, pp 488-493

compared with red light, into starch. In N_2 in either kind of light there was a change in the principal path by which C left the Calvin cycle; the way over phosphoglyceric acid was activated (particularly in red light), while that over glycolate was inhibited. The activating effect of blue light on the inclusion of C^{14} into the amino acids mentioned above was retained in N_2 , being increased greatly in the case of serine. Furthermore, blue light had an activating effect in N_2 on the incorporation of C^{14} into phenylalanine, while reducing greatly, vs. red light, the incorporation of C^{14} into alanine. The inhibiting effect of blue light on the biosynthesis of starch disappeared in N_2 . While O_2 had only a small effect on the activation of the biosynthesis of amino acids by blue light, it enhanced greatly the inhibiting effect of this light on the synthesis of starch. The reasons for the latter phenomenon are not quite clear.

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USSR

UDC 547.26'118

VERIZHNIKOV, L. V., VOSKRESENSKAYA, O. V., KADYROVA, V. KH.,
KIRPICHNIKOV, P. A., MUKMENOV, E. T., Kazan' Institute of Chemical
Technology imeni S. M. Kirov and Institute of Organic Chemistry
imeni A. YE. Arbuzov, Academy of Sciences USSR

"Arbuzov Isomerization of Cyclic Phosphites Containing a Seven-
or Eight-membered Ring"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2162-
2164

Abstract: To explore the applicability of the Arbuzov reaction
to the synthesis of cyclic phosphonates with seven- or eight-
membered rings, a study was made of the reactions of certain title
compounds with bromoethane. Heating a cyclic alkyl phosphite,
e.g., O,O'-diphenyl ethyl phosphite, with excess bromoethane in
a sealed ampoule gave a cyclic alkylphosphonate, e.g., O,O'-
diphenyl ethylphosphonate, with a higher mp and relatively more
stable than the starting phosphite. Structure of the prepared
compounds was confirmed by NMR and IR spectra. The elemental
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VERIZHNIKOV, L. V., et al, Zhurnal Obshchey Khimii, Vol 41,
No 10, 1971, pp 2162-2164

analysis data and some physicochemical constants of the synthesized cyclic phosphonates are tabulated, and the experimental procedures employed in their preparation are described.

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USSR

UDC 542.91+541.6:547.1'118

MUKHENEV, E. T., KIRPICHNIKOV, P. A., and VOSKRESENSKAYA, O. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbusov, Academy of Sciences USSR, and Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Study of the Possibility of the Formation of 7- or 9-Membered Rings in the Molecule of Tricyclic D-Mannitol Triethyl Triphosphite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp 1395-1399

Abstract: The authors synthesized model cyclic phosphites based on 1,3; 4,6-di-O-methylene- and 2,5-O-methylene-D-mannitols by the transesterification of triethyl phosphite with the corresponding D-mannitol derivatives. The attempt to synthesize a 7-membered cyclic phosphite based on 1,4-butyleneglycol under the transesterification conditions (110-120°, threefold excess of triethyl phosphite) proved unsuccessful. It was also found impossible to synthesize a 9-membered cyclic phosphite based on 2,3,4,5-di-O-methylene-D-mannitol.

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USSR

UDC 542.91+541.6:547.1'118

ANOSHINA, N. P., GOL'DFARB, E. I., VOSKRESENSKAYA, O. V., KIRPICHNIKOV, P. A.,
and MUKHENEV, E. T., Institute of Organic and Physical Chemistry imeni A. Ye.
Arbuzov, Academy of Sciences USSR, and Kazan' Institute of Chemical Technology
imeni S. M. Kirov

"Use of the Arbuzov Reaction to Establish the Structure of Tricyclic D-Mannitol
Triethyl Triphosphite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp
1390-1395

Abstract: The authors used the Arbuzov reaction to establish the ring size in
tricyclic D-mannitol triethyl triphosphite. A study was made of the reaction
with ethyl bromide of tricyclic triethyl triphosphite and phosphites which model
it, obtained from 1,2; 5,6-di- and 3,4-O-isopropylidene-, as well as 1,3; 4,6-
di- and 2,5-O-methylene-D-mannitols. Differential thermal analysis and $^{31}\text{P-NMR}$
data indicate that tricyclic D-mannitol triethyl triphosphite represents 2-
ethoxy-4,5-bis-(2'-ethoxy-1',3',2'-dioxaphospholanyl-4')-1,3,2-dioxaphospholane.

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USSR

UDC: 621.396.677.095.222-523.8(02)

VOSKRESENSKIY (editor)

"Electrical-Scanning Microwave Antennas--Collection of Works"

Elektricheski skaniruyushchiye anteny SVCh. Sb. statey. Tr. Mosk. aviats. in-ta, vyp. 203 (cf. English above. Works of the Moscow Aviation Institute, vyp. 203), Moscow; 1970, 109 pp, ill. 68 k. (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B89 K)

Translation: Convex monopulse antennas are described together with methods of constructing active antenna arrays. The construction of active arrays with the use of Gunn oscillators is considered. N. S.

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USSR

UDC 678.7.074

GINIYATULLIN, M. KH., KHASANOV, M. KH., TIMERGALEYEV, R. G., and
~~VOSKRESENSKIY, V. A.~~, Chair of Plastic Materials, Kazan' Engineer-
ing Construction Institute

"Synthesis and Study of Modifying Properties of Phosphorus Contain-
ing Oligourethanes"

Ivanovo, Izvestiya VUZ -- Khimiya i Khimicheskaya Tekhnologiya,
Vol 16, No 4, 1973, pp 631-632

Abstract: A study was carried out on the possibility of modifying
polyvinyl chloride with specially synthesized oligourethanes con-
taining phosphorus. The oligomers were obtained by reacting 2,4-
toluylenediisocyanate, a simple polyester, with trihydroxymethyl-
phosphine at 80°, in a stream of nitrogen. A complex of physical
properties of the system PVC-oligourethane has been presented as
a function of the concentration of components. An interpretation
has been presented for the non-linear type of changes of the
effective viscosity, glassing temperature, temperature of fluidity,
and flow index n for the above system. It has been shown that
addition of small quantities of oligourethanes (4-5 weight parts
per 100 weight parts of PVC) to PVC lowers the n_{ef} , T_s and increases
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USSR

GINIYATULLIN, N. KH., et al., Izvestiya VUZ -- Khimiya i Khimicheskaya Tekhnologiya, Vol 16, No 4, 1973, pp 631-632

relative elongation, improving the processing and utilization qualities of the material.

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172 024 UNCLASSIFIED PROCESSING DATE--ZUNUV70

TITLE--SOME ORGANIC COMPOUNDS WITH ETHYLENIC AND ACETYLENIC BONDS TESTED AS INHIBITORS FOR THE ACID CORROSION, OF STEEL -U-

AUTHOR--(02)-PODOBAYEV, N.I., VOSKRESENSKIY, A.G.

COUNTRY OF INFO--LSSR

SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(4), 834-8

DATE PUBLISHED-----70

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

TOPIC TAGS--ALDEHYDE, HYDROXYL RADICAL, ETHYLENE, ACETYLENE HYDROCARBON, ACID CORROSION, STEEL CORROSION, CORROSION INHIBITOR, IRON

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1945 STEP NO--UR/0080/70/043/004/0834/0838

CIRC ACCESSION NO--AP0132206

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132206

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. DIALLYL (I), CROTONALDEHYDE (II),
HE SUB2 C(OH)C TRIPLE BOND CCH:CH SUB2 (III), CH SUB2:CHC TRIPLE BOND
CCH SUB2 DCH SUB2 CH SUB2 CH (IV), DIPROPARGYL (V), AND CH TRIPLE BOND
CCH SUB2 CCH SUB2 CH SUB2 OH (VI) WERE TESTED AS CORROSION INHIBITORS
FOR STEEL ST. 2 IN AQ. HCL. THE EXPTL. AND TEST EVALUATION TECHNIQUES
WERE AS DESCRIBED EARLIER (CA 67:35421Y). THE ADDITIVE CONC. WAS 15MM
IN ALL THE EXPTS. ELEC. MEASUREMENTS SHOWED THAT ALL THE COMPOS.
STUDIED INHIBITED THE CATHODIC REACTIONS. THE EFFECTS ARE DISCUSSED IN
TERMS OF A MECHANISM INVOLVING THE CATALYTIC ACTION OF FE PRIME2
POSITIVE AND FE METAL. FACILITY: MOSK. GOS. PEDAGOG. INST. IM.
LENINA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.396.677.833.2.061.1

VOSKRESENSKIY, D. I. and GRINEV, A. Yu.

"Synthesis of Spherical Antenna Difference Patterns"

Moscow, Antenny, No 13, 1971, pp 28-42

Abstract: The problem of minimizing the sidelobes with the spherical antenna difference patterns is investigated. The spherical antenna is assumed to have a perfectly conductive surface and is provided with closely spaced diffraction-type emitters.

The graphs obtained by the subject method show several sidelobes of decreasing magnitude. Graphs of the current amplitude and phase distribution along the equator are also given.

Relations between the magnitude of sidelobes, the slope of the main lobes and their width are derived.

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USSR

UDC 621.396.677.833.2

VOSKRESENSKIY, D. I., PONOMAREV, L. I., GRINEV, A. Yu.

"Optimum Sum-Difference Characteristics of Spherical Convex Antennas"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1170-1180

Abstract: The problem of optimizing the sum-difference characteristics of spherical nonsuperdirectional antennas which are a system of slot radiators arranged on a conductive spherical surface is solved by the method of vector eigenfunctions, utilizing the theory of quadratic forms. The maximum directive gain of the effective radiation pattern is found with regard to diffraction phenomena on the surface of the antennas, as well as the maximum directive gain of the difference characteristic in the two principal directions deviating symmetrically from the equal-signal direction, and the slope of the difference radiation pattern in the equal-signal direction. These maxima are compared with the corresponding maximum values for an equivalent flat aperture. It is shown that when the electrical radius is short, a spherical antenna may give somewhat of a gain in the three maxima; when the electrical radius is much greater than $ka = 10$, the maximum directive gains of sum and difference radiation patterns and the slope of the difference

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VOSKRESENSKIY, D. I., et al., Radiotekhnika i Elektronika, Vol 16, No 7,
Jul 71, pp 1170-1180

characteristic in the equal-signal direction for the optimum spherical antenna are practically equal to the corresponding values for an equivalent flat aperture. Spherical nonsuperdirectional antennas are synthesized with space-amplitude sum-difference radiation patterns having minimum side emission. It is shown that the sum (difference) radiation pattern may be represented by a Chebyshev polynomial multiplied by some weakly directional factor.

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USSR

UDC 621.396.677(02)

ARDAB'YEVSKIY, A. I., VOLKOV, O. A., VOSKRESENSKIY, D. I., GOSTYUKHIN, V. L.,
GRANOVSKAYA, R. A., GRINEVA, K. I., KRITSYN, V. A., MYAKISHEV, B. YA., FILIPPOV,
V. S., CHEBYSHEV, V. V.

"Microwave Antennas and Devices. Calculation and Design of Antenna Arrays
and their Radiating Elements. Textbook for Students at the Radiotechnical
Specialized Institutions of Higher Learning"

Antennы i ustroystva SVCh. Raschet i proyektirovaniye antennoykh reshetok i ikh
izluchayushchikh elementov. Uchebn. posobiye dlya stud. radiotekhn. spets. vyzov
(cf. English above), Moscow, Soviet Radio, 1972, 320 pp, ill., 75 k. (from RZh-
Radiotekhnika, No 6, Jun 72, Abstract No 5B32K)

Translation: Methods of calculating the basic parameters of antenna arrays
with electric rocking of the radiation pattern and frequency and commutation
methods of controlling the radiation pattern are discussed. A study is made
of the structure of the optimal arrays with Dolf-Chebyshev distribution, the
design of irised-wave guide and horn arrays and also methods of calculating
the array elements: dielectric, rod, spiral, horn and director antennas.

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USSR

UDC 621.372.8

VOSKRESENSKIY, G. V., KURDYUMOV, V. N.

"Study of an Electron Ring Passing Near the Junction of Two Circular Wave Guides"

Gor'kiy, Izvestiya Vysshikh Uchebnykh Zavedeniy, Radiofizika, Vol XIV, No 5, 1971, pp 778-787

Abstract: A study is made of the spectral characteristics of radiation accompanying drift of a charged or current ring passing an elementary inhomogeneity in a wave guide, and the total radiation losses are estimated. The losses of a thin uniformly charged ring are proportional to the kinetic energy of the source. For a ring current of given magnitude the radiation losses are proportional to the third power of the ring energy.

The contributions of waves of different polarization to the total losses of the charged ring moving along the axis of the structure and rotating around the axis are compared. If the longitudinal energy of the ring is γ and the dimensionless transverse velocity is β_{\perp} , the total energy losses to excitation of the electric waves W^e and the magnetic waves W^m are related by the expression

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VOSKRESENSKIY, G. V., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Radiofizika, Vol XIV, No 5, 1971, pp 778-787

$$W^m = W^e \frac{w_\infty^m}{w_\infty^e} \left(\frac{\rho}{a} \gamma \beta_\phi \right)^2.$$

Thus, the excitation of the magnetic waves is always less than the excitation of the magnetic waves since the values of w_∞^m / w_∞^e and ρ/a are less than 1 if we consider the relation valid for ring energies γ where the losses reach their asymptotic values w_∞^e and w_∞^m . The value of $\gamma \beta_\phi$ remains invariant and cannot exceed one during acceleration of the rotating charged ring.

2/2

- 137 -

USSR

UDC: 621.372.823:621.385.63

VOSKRESENSKIY, G. V., KURDYUMOV, V. N.

"Radiation From an Electron Ring Flying Past the Junction of Two Circular Waveguides"

Tr. Radiotekhn. in-ta AN SSSR (Works of the Radio Engineering Institute, Academy of Sciences of the USSR), 1970, No 2, pp 60-76 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B144)

Translation: The authors compute the emission energy losses of a thin electron ring flying uniformly past an elementary inhomogeneity in a circular waveguide. It is shown that the losses of the charged ring increase linearly as a function of its energy; the losses of a current ring increase as the cube of the energy. Five illustrations. Resumé.

1/1

USSR

UDC 621.372.851

VOSKRESENSKIY, G. V., MAYOROV, YU. K.

"Study of the Properties of Magnetic Symmetrical Waves in an Iris Waveguide"

Uskoriteli (Accelerators), vyp. 12, Moscow, Atomizdat Press, 1970, pp 49-53
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B104)

Translation: The dispersion properties of magnetic symmetrical waves are analyzed as a function of the waveguide geometry (See Uskoriteli [Accelerators], vyp. X, 1968, page 52). There are three illustrations and a three-entry bibliography. See RZhEIP, 1969, 5A196.

1/1

USSR

V
UDC 621.372.853:621.385.63

VOSKRESENSKIY, G. V., MAYOROV, YU. K.

"Calculating Charge Losses to Radiation in an Iris Waveguide"

Uskoriteli (Accelerators), vyp. 12, Moscow, Atomizdat Press, 1970, pp 27-35
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B105)

Translation: This article contains a study of the problem of exciting electromagnetic waves by a charge which moves in a round waveguide periodically loaded by irises. It is proposed that the charge moves uniformly at some distance from the axis of symmetry of the waveguide. The solution is found with the help of Vaynshteyn excitation theory. Expressions are obtained for the longitudinal component of the electric field and the charge energy losses to radiation in the pass band. The dependence of the radiated energy in the lower pass band of the symmetrical E-wave on the charge velocity is presented. Losses to radiation in various transmission zones are given for a closed cylindrical resonator. There are three illustrations and a three-entry bibliography.

1/1

USSR

ALAD'YEV, I. T., VOSKRESENSKIY, K. D., GUKOV, G. P., EAPEROV, YE. V.,
FARDZINOV, V. K.

"Device for Extracting Geothermal Energy"

USSR Author's Certificate No 322084 (from Otkrytiya, Izobreteniya, Promyshlennyye obravtsy, Tovarnyye znaki (Discoveries, Inventions, Industrial Models, Trademarks), No 43, 1973, page 213)

Translation: (1) This device for extracting geothermal energy from hot rock crushed, for example, by an underground nuclear explosion and containing the basic drill stem and open-bottom working casing set to a flooded horizon is distinguished by the fact that in order to increase the reliability it reduced the time for putting the unit into operation, the operating column is made perforated above the lower mark of the stem and it is equipped in the perforated section with discharge channels, but inside the operating column below the perforated section a heat exchanger has been installed for tapping the geothermal heat.

(2) This is a device according to item 1 distinguished by the fact that the operating stem is executed with perforations in the lower section.

1/1

- 131 -

USSR

UDC 536.24:532.54

KRONIN, I. V., POKIVALOV, YU. YE. VOSKRESENSKIY, K. D.

"Problem of Studying Critical Thermal Fluxes in the Case of Forced Movement of Water"

V sb. Vopr. teplofiz. yadern. reaktorov. Vyp. 3 (Problems of Thermophysical Nuclear Reactors. vyp. 3--collection of works), Moscow, Atomizdat Press, 1971, pp 32-38 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B668)

Translation: Distilled water was boiled in a copper tube with an inside diameter of 5 mm and 80mm long. The experiments were performed at pressures of 1.5 and 30 bars with underheating of the liquid close to zero in the range of mass velocities W_{ρ} from 40 to 20,000 kg/m²-sec. A low-inertia oscillograph was used in the experiments to measure the flow rate through the operating channel, the vapor content at its exit, and the wall temperature of the channel.

It was established that in thermal fluxes close to critical, high frequency (~10 hertz) pulsations of the vapor content develop in the channel at the exit and corresponding pulsations develop in the water flow rate through the channel. At $W_{\rho} < 2 \cdot 10^3$ kg/m²-sec, the mass flow rate during the pulsations reaches practically zero values. Choking the flow before the working channel reached 5-7 absolute atmospheres, and the ordinarily used electron devices of 1/2

USSR

KRONIN, I. V., et al., Vopr. teplofiz. yadern. reaktorov. vyp. 3, Moscow, Atomizdat Press, 1971, pp 32-38

the EPID type with DM-6 and the standard manometers failed to record any pulsations. The noted phenomenon is most clearly exhibited at low pressures and low velocities. The dependence of q_{cr} on W_p turned out to be nonmonotonic. In the range of low velocities $q_{cr} \sim W_p^{0.5}$ and q_{cr} can be appreciably smaller than in a large volume. In the medium velocity range the dependence on the velocity is strongest $q_{cr} \sim W_p^{1.2}$, and at high velocities (a pressure of 30 bars) a region is observed where the increase in velocity by more than an order either has no effect or weakly reduces q_{cr} . The nature of the oscillograms obtained permits the conclusion that in these three regions the mechanism of occurrence of the crises differs qualitatively. The bibliography has 14 entries.

2/2

- 24 -

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--RECRYSTALLIZATION OF THE CALCIUM SULFATE HEMIHYDRATE TO THE
DIHYDRATE -U-
AUTHOR--(04)-ZOTOV, B.G., VOSKRESENSKIY, S.K., ZOTOVA, F.N., GORYUNOV, N.A.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 263,577
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATZSY, TOVARNYE ZNAKI 1970, 47(8)
DATE PUBLISHED--10FEB70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL PATENT, CRYSTALLIZATION, AQUEOUS SOLUTION, CALCIUM
SULFATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1837 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132102
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0132102
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RECRYSTN. TAKES PLACE IN AQ.
SOLNS. OF H SUB 3 PD SUB 4, TREATED WITH GASEOUS CO SUB 2 OR AN AQ.
SOLN. CONTG. CO SUB 2.

UNCLASSIFIED

USSR

UDC 541.6:536.485

POPOV, V. I., and VOSKRESENSKIY, V. A., Chair of Plastics, Kazan' Construction Engineering Institute

"The Frost Resistance of Polymers"

Moscow, Uspekhi Khimii, Vol 39, No 9, Sep 70, pp 1,707-1,718

Abstract: The article is a survey of the work of Soviet and foreign authors on the frost resistance of polymers. Technical frost resistance is defined as "the ability of polymeric materials to retain operating properties at low temperatures for a certain time interval," theoretical frost resistance as "the lower temperature limit for the start of segmental mobility of macromolecular chains." There is a discussion of existing qualitative methods for determining the frost resistance of various types of polymeric materials, as well as quantitative methods suggested by Soviet authors. Special attention is given to the method suggested by M. N. SHTEPING and V. A. KARGIN, which uses thermomechanical characteristics of the temperature dependence of deformation, obtained under axial tension on a deformometer. The authors consider this method "a significant step forward in frost resistance determination, but one requiring the making of a special and rather complex instrument -- the deformometer." The authors have used the KARGIN-SHTEPING principle to determine

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USSR

POPOV, V. I., and VOSKRESENSKIY, V. A., Uspekhi Khimii, Vol. 39, No 9, Sep 70, pp 1,707-1,718

the frost resistance of polymeric films, but instead of the deformometer they used an instrument specially adapted for these purposes which is ordinarily employed in technology for determining the frost resistance of rubbers. The authors assert, "The use of the KARGIN-SHTEDING method with allowance for the procedural and equipment modifications suggested by us permits not only a more precise determination of the absolute frost-resistance values for polymeric films, but also the quantitative tracing of the effect of various external factors (quantity and type of plasticizers, processing conditions, aging processes etc.) on polymers."

The article concludes with data on research into the relationship between frost resistance and the previous history of polymer production and processing, the character and duration of aging, the action of plasticizers, fillers etc.

2/2

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1/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--CHANGE IN THE FREEZE RESISTANCE AND STRENGTH OF POLY,VINYL CHLORIDE, FILMS BY THE ACTION OF LOW MOLECULAR WEIGHT LIQUIDS --U-
AUTHOR--(02)--POPOV, V.I., VOSKRESENSKIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., STROIT. ARKHITECT. 1970, 13(1), 103-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LOW TEMPERATURE EFFECT, POLYVINYL CHLORIDE, PLASTIC FILM, PHTHALATE, PLASTIC COATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3008/0836

STEP NO--UR/0494/70/011/001/0103/0106

CIRC ACCESSION NO--AT0137864

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0137864

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

ABSTRACT. POLY(VINYL CHLORIDE) (I) FILMS
CONTG. 10-20PERCENT DIDOXYL PHTHALATE (II) HAVE SUFFICIENT FREEZE
RESISTANCE AFTER EXPOSURE TO WATER, 10PERCENT NaCl SOLN., 10PERCENT H
SUB2 SO SUB4 SOLN., OF LIGROIN. LARGER AMTS. OF II IMPART BETTER FREEZE
RESISTANCE CHARACTERISTICS, TO I. I IS RECOMMENDED FOR USE IN COATING
INDUSTRIAL INTERIORS AND EQUIPMENT. FACILITY: KAZAN. INZH.
STROIT. INST., KAZAN, USSR.

UNCLASSIFIED

USSR

V
UDC: 621.374

YAKOVLEV, V. N., VOSKRESENSKIY, V. V., GENIS, A. A. et al.

"Handbook on Pulse Technology"

Spravochnik po impul'snoy tekhnike (cf. English above), Kiev, "Tekhnika", 1970, 654 pp ill. 2 r. 17 k. (from RZh-Radiotekhnika, No 7, Jul '70, Abstract No 7G268 K)

Translation: The authors outline the theoretical principles of pulse technology and explain the physical aspect of phenomena. The computational formulas are given which are necessary in the design of pulse circuits and devices, as well as examples of their calculation. Methods are given for analysis of linear circuits as well as methods for synthesis of linear homogeneous and nonhomogeneous circuits for shaping and transforming square wave pulses. Transient processes are investigated; a method is outlined for calculating linear and nonlinear tube and transistor amplifiers and pulse shapers. Square pulse generators (multivibrators, blocking oscillators and flip-flops) based on tubes, transistors, tunnel diodes and cold-cathode thyatrons are considered. Tube and transistor sawtooth voltage and current generators, pulse frequency dividers and generators with delayed feedback are described. Considerable attention is devoted to methods and circuits for stabilizing the time parameters of generated pulses. The handbook is written for engineers and tech-

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YAKOVLEV, V. N. et al., Spravochnik po impul'snoy tekhnike, Kiev, "Tekhnika", 1970

icians working in the development and design of electronic and radio engineering equipment of various types, and may serve as a reference text in course and thesis planning for students in the appropriate field. 356 illustrations, 30 tables, bibliography of 250 titles. Resumé.

2/2

1/2 012 UNCLASSIFIED ✓ PROCESSING DATE--02OCT70
TITLE--A MANUAL ON PULSE TECHNOLOGY -U-
AUTHOR-(05)-YAKOVLEV, V.N., VOSKRESENSKIY, V.V., GENIS, A.A., DORONKIN,
YE.F., LITVINENKO, U.N.
COUNTRY OF INFO--USSR
SOURCE--A MANUAL ON PULSE TECHNOLOGY (SPRAVOCHNIK PO IMPUL'SNOY TEKHNIKE)
KIEV, TEKHNIKA. 1970, 654 PP
DATE PUBLISHED--70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION
TOPIC TAGS--ELECTROMAGNETIC PULSE, PULSE AMPLIFIER, MULTIVIBRATOR,
BLOCKING OSCILLATOR, PULSE GENERATOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0567 STEP NO--UR/0000/70/000/000/0001/0654
CIRC ACCESSION NO--AM0110365
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AM0110365

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5.
CHAPTER I LINEAR CIRCUITS 7. II FORMING LINES 71. III THE
CORRELATION METHOD OF INVESTIGATION OF TRANSITION PROCESSES IN LINEAR
SYSTEMS 133. IV WIDE BAND AMPLIFIERS AND PULSE AMPLIFIERS 151. V
MULTIVIBRATORS WITH A BASIC MASTER TIME CIRCUIT 181. VI
MULTIVIBRATORS WITH EMITTER MASTER TIME CIRCUITS 204. VII TRANSISTOR
TRIGGERS 217. VIII TRANSISTOR BLOCKING GENERATORS 229. IX TUBE
MULTIVIBRATORS 248. X TUBE TRIGGERS 299. XI TUBE BLOCKING
GENERATORS 314. XII CONTROLLED GENERATORS OF SAWTOOTH VOLTAGE 344.
XIII AUTOGENERATORS OF SAWTOOTH VOLTAGE 393. XIV GENERATORS OF
SAWTOOTH CURRENT 447. XV PULSE GENERATORS WITH BRIDGE MASTER CIRCUITS
473. XVI PULSE FREQUENCY DIVIDERS 491. XVII PULSE GENERATORS WITH A
QUARTZ STABILIZATION OF THE FREQUENCY OF VIBRATIONS 525. XVIII PULSE
GENERATORS WITH LAGGING REVERSE CONNECTION 539. XIX PULSE CIRCUITS
ON TUNNEL DIODES 556. XX PULSE CIRCUITS ON GAS DISCHARGE INSTRUMENTS
595. LITERATURE 637. IN A COMPACT FORM YET FULLY ARE GIVEN THE
THEORETICAL BASES FOR THE PULSE TECHNOLOGY; EXPLAINED IS THE PHYSICAL
ASPECT OF THE PHENOMENA; CITED ARE MANY CALCULATING FORMULAE NECESSARY
IN DESIGNING BASIC PULSE CIRCUITS AND DEVICES AND ALSO EXAMPLES OF THEIR
CALCULATION. A GREAT DEAL OF ATTENTION IS GIVEN TO METHODS AND DIAGRAMS
OF STABILIZATION OF TEMPORARY PARAMETERS OF THE GENERATED IMPULSES. THE
MANUAL IS FOR ENGINEERS AND TECHNOLOGISTS DESIGNING ELECTRO AND
RADIOTECHNICAL EQUIPMENT FOR WIDE USE.

UNCLASSIFIED

Acc. Nr.: AP0046772

Ref. Code: UR0113

USSR

UDC 621.785.545

SHEPELYAKOVSKIY, K. Z., Doctor of Technical Sciences, VOSKRESENSKIY, V. A., V.,
Candidate of Technical Sciences, LAPSHIN, K. P., SUKHIN, S. S., CHUDIN'SKIY, V. S.,
ORLOVSKIY, A. G., ROZENTAL', G. A., and STEFAN, A. L., Moscow Evening Metallurgical
Institute, Moscow Auto Plant imeni Likhachev

"High-Frequency Thyristor Converter for Induction Hardening Installations"

Moscow, Avtomobil'naya Promyshlennost' (Motor Vehicle Industry), No 1, 1970,
pp 28-29

Translation: A thyristor frequency converter and a dynamoelectric one are
compared. The power circuit and control and protection circuits of a 100 kw
2500 cps thyristor converter for an induction hardening installation are described.
(4 illustrations)

18 87

Reel/Frame
19790076

173 014

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--RESULTS OF USING AEROMETHODS IN GEOLOGY IN THE PAST 25 YEARS -U-

AUTHOR--(05)-VOSKRESENSKIY, YE.N., DRENOV, N.V., GAVRILOV, A.A., YEREMIN, V.K., NIKITSKIY, V.YE.

COUNTRY OF INFO--USSR

SOURCE--RAZVEDKA I OKHRANA NEDR, 1970, NR 2, PP 5-8

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOLOGIC EXPLORATION, PROSPECTING, AEROMAGNETIC SURVEY, RADIOMETER, MAGNETOMETER, AEROELECTRIC SOUNDING, GEOPHYSIC INSTRUMENT/(U)AYAAM6 AEROMAGNETOMETER, (U)AHM13 AEROMAGNETOMETER INSTRUMENT, (U)AM13 AEROMAGNETOMETER INSTRUMENT, (U)AEM49 AEROMAGNETOMETER INSTRUMENT, (U)ASG48 GEOPHYSIC INSTRUMENT, (U)SG10

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3007/1357

STEP NO--UR/9083/70/000/002/0005/0008

CIRC ACCESSION NO--AP0136722

UNCLASSIFIED

2/3 014

CIRC ACCESSION NO--AP0136722

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HISTORY OF THE DEVELOPMENT OF AEROMETHODS IN GEOLOGICAL PROSPECTING, LISTING INSTITUTIONS, PERSONALITIES, AND INSTRUMENTS, IS GIVEN. IN 1949, THE VIRG INTRODUCED THE SG-10 AERORADIOMETER, AND LATER DEVELOPED THE ASGM-25, ASG-46, AND ASG-48 AEROGEOLOGICAL STATIONS FOR SIMULTANEOUS AEROMAGNETIC AND AERORADIOMETRIC SURVEYS. THE ASG-48 INSTRUMENT IS USED TO DETECT CONCENTRATIONS OF URANIUM THORIUM, ETC. IN THE 1950'S, THE AEM-49 FERROSOUND AEROMAGNETOMETERS WERE INTRODUCED. THE MINISTRY OF GEOLOGY THEN INTRODUCED THE AM-13 AND AMM-13 AEROMAGNETOMETERS. THE VNIIGEOFIZIKA DEVELOPED AND INTRODUCED THE PROTON MAGNETOMETER ACCESSORY TO FERROSOUND AEROMAGNETOMETERS. VITR DEVELOPED THE AYAAM-6 PROTON AEROMAGNETOMETER CAPABLE OF MEASURING ABSOLUTE VALUES OF GEOMAGNETIC FIELD FORCE AND, AT PRESENT, IS SUCCESSFULLY TESTING A NEW MODEL PROTON AEROMAGNETOMETER, THE AMP-7, FOR BAUXITE PROSPECTING. A HELICOPTER BORNE AEROELECTROPROSPECTING DEVICE, THE INFINITELY LONG CABLE, WAS INTRODUCED IN 1959. THE AIRCRAFT BORNE AERTIS SYSTEM (INDUCTION INVESTIGATIONS) WAS DEVELOPED AT THE SAME TIME. IN THE 1960'S, BITR DEVELOPED APPARATUS FOR THE ROTATING MAGNETIC FIELD SYSTEM, WHILE SVEGINGED DEVELOPED APPARATUS FOR THE AERORADIOKIP METHOD OF SEARCHING OUT WATER IN DESERT AREAS. VIRG DEVELOPED A SIMILAR INSTRUMENT TO USE IN GEOLOGICAL MAPPING OPERATIONS VNIIGEOFIZIKA INTRODUCED THE SUCCESSFUL POISK RADIOGEODETTIC SYSTEM. IN 1968-69 SEVERAL DIFFERENT INSTITUTES DEVELOPED THE AMPP AEROELECTROPROSPECTING SYSTEM FOR USE IN A METHOD INVOLVING TRANSITION PROCESSES OF THE ELECTROMAGNETIC FIELD.

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136722

ABSTRACT/EXTRACT--RADAR, THERMAL, SPECTROMETRIC, AND RELATED AERIAL SURVEY METHODS ARE DEVELOPED IN LAEM. VARIOUS GEOLOGICAL SURVEY PROJECTS NOW UNDER WAY ARE GIVEN.

TREST.

FACILITY: VSESOYUZNY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT

EKONOMIKI MINERAL'NOGO SYR'YA I GEOLOGORAZVEDOCHNYKH RABOT.

FACILITY: MINISTERSTVO GEOLOGII SSSR.

UNCLASSIFIED

USER

UDC 681.332.05

VOSTOKIN, Ye. A., YERSHOV, L. I., ZHURAVLEV, P. A., LEBEDEV, M. P., NOVIKOV, A. I., and TSYBIN, Yu. B.

"Device for Linking a Computer With a Communication Channel"

USSR Authors' Certificate No 341054, Cl. G 06j 3/00, filed 4 May 70, published 5 Jun 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 5 Jun 72, p 186)

Abstract: The device contains an electronic telegraph receiver and transmitter, a block of keys, and delay circuit flip-flops. For simplification the outputs of the computer are connected to the inputs of the block of keys, whose outputs are connected to the inputs of the electronic transmitter; and the inputs of the control circuits of the block of keys are connected to the outputs of a flip-flop, one input of which is connected to the "trigger" output of the computer; the other, to the transmitter output; the outputs of the electronic receiver are connected to the inputs of the flip-flops, whose outputs are connected to the inputs of the computer, and the "trigger" output of the electronic receiver is connected through the delay circuit to the "clear" inputs of the flip-flops.

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Acc. Nr:

AP 0101482

Abstracting Service:
CHEMICAL ABST: 6-70

Ref. Code:

4R0079

121659s Reactions of n-butylselenomagnesium, -cadmium, and -mercury halides. Vostokov, I. K.; Bychkov, V. T. (USSR). *Zh. Obshch. Khim.* 1970, 40(2), 319-22 (Russ). EtMgBr from 0.45 g Mg in Et₂O was freed of solvent in a closed system and treated under liq. N cooling with 2.5 g BuSeH (exotherm) to give 100% C₄H₉ and a residue which freed of excess BuSeH gave 95% BuSeMgBr (I) colorless solid, decompd. 280-5°, which with Et₃SiBr in THF in 2 hr at 80° gave 37% BuSeSiEt, b_s 98-100°, n_D²⁰ 1.4759. Similarly, BuMgI and BuSeH gave 79% BuSeMgI, which with Et₃GeBr in THF gave after 1 hr at 100° 47.5% BuSeGeEt, b_s 105-8°, 1.5074. I and powd. CdCl₂ in THF gave after 2 hr at 50° 48% BuSeCdCl.CdCl₂, decompd. 190-200°; this also formed from BuSeCdCl and CdCl₂ in THF. Et₃GeLi in THF and I gave overnight 90.6% LiBr and 87% BuSeMgGeEt, infusible solid, isolated as a 1:1 adduct with THF; H₂O reacted vigorously with it to yield Mg(OH)₂, BuSeH, and BuSeMgI. BuSeHgGeEt, and BuSeH in C₆H₆ at 100° 2 hr gave 91% Hg and 74% BuSeGeEt. Similarly prepd. were BuSeCdCl, decompd. 145-50°; BuSeHgCl, m. 97-9°; BuSeHgCl.HgCl, decompd. 250°; BuSeCdGeEt, undistillable yellow oil, n_D²⁰ 1.5710 (oxidizes in air); and BuSeHgGeEt, n_D²⁰ 1.5210 (oxidizes in air).

G. M. Kosolapoff

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REEL/FRA
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Epidemiology

USSR

UDC 616.988-002.151-036.2(470.61)

PERELATOV, V. D., VOSTOKOVA, K. K., BUTENKO, A. M., and DONEYS, M. A., Rostov Scientific Research Institute of Medical Parasitology, Ministry of Health RSFSR; Institute of Poliomyelitis and Virus Encephalitides, Academy of Medical Sciences USSR

"Epidemiology of Crimean Hemorrhagic Fever. II. Characteristics of the Epidemiology of Crimean Hemorrhagic Fever in Belokalitvenskiy Rayon of Rostov Oblast'"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 6, Nov/Dec 72, pp 718-724

Abstract: A study carried out in 1970-71 in Belokalitvenskiy Rayon of Rostov Oblast' indicated a sporadic occurrence of human infections with Crimean hemorrhagic fever. The maximum incidence (80 cases) was observed in May 1971. Maintenance of a source of infection was associated with the grazing of cattle on wooded land; antibodies to the virus were present only in the blood of cattle that were driven out regularly to forested pastures. Strains of the virus were isolated from *Rhipicephalus rossicus* (the predominant Ixodid species) and *Dermacenter marginatus* ticks collected from cattle and hedgehogs in wooded regions. Hares inhabiting steppe regions and fields also functioned as hosts

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USSR

PERELATOV, V. D., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 6, Nov/Dec 72, pp 718-724

of infected ticks, but their importance as a source of transmission of the disease was less than that of forest-inhabiting small rodents. The majority of patients had been attacked by ticks in forests, shelter belts, and gardens. Milkmaids were infected during the milking of cows in forests or as a result of contact with cows that had been 1-1.5 hrs earlier in forests -- after expiration of this time, the ticks were firmly attached to the cows.

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- 9 -

VOSTOKOVA, K. K.

JPRS-53880
23 August 1971

UDC 616.988-002.151-036.2(470.61)
EPIDEMIOLOGY OF CRIMEAN HEMORRHAGIC FEVER. REPORT 1. EPIDEMIOLOGICAL CHARACTERISTICS OF CRIMEAN HEMORRHAGIC FEVER IN ROSTOVSKAYA OBLAST

[Article by V. D. Perel'atov, K. K. Vostokova, V. N. Yasodinskiy, and V. I. Parov, Rostov Scientific Research Institute of Medical Parasitology, RSFSR Ministry of Public Health; Moscow, Meditsinskaya Parazitologiiya, Parazitologicheskiye Bolezni, No. 3, 1971, pp 314-327]

A number of works have already treated the epidemiological problems of Crimean hemorrhagic fever (CHF) in Rostovskaya Oblast (Perel'atov, 1964, 1965; Perel'atov et al., 1966; Biral'ya et al., 1966, and others).

The materials at our disposal and our own observations over the period 1963-1969 provide a possibility for dynamically describing the natural focus of CHF in Rostovskaya Oblast, pinpointing population groups in a potentially dangerous position with regard to CHF infection, justifying a number of nonspecific prophylactic measures, and defining the immediate tasks.

For the oblast as a whole the total number of CHF infections did not exceed 61 cases per year from 1963 through 1969, with the exception of 1968 when 131 victims of CHF were recorded. Even though the infections were of a sporadic nature, the number of CHF patients as well as the number of population centers undesirable with respect to CHF and of infected regions increased through 1968 (Figure 1).

A tendency of "expansion" of the borders of the focus has been noted toward the northwest and southeast. Cases of CHF infection were recorded in 1968 and 1969 in Millerovskiy, Tarasovskiy, Korosovskiy, and Trimiyan'skiy rayons, where there were none before 1968. Even though there were changes in the

MEDICINE

USSR

UDC 669.14.018.262

ADAMESKU, R. A., VOSTRIKOV, A. A., GUBCHESKIY, V. P., MARKOV, YU. N., and
NEPKINA, E. D., Ural Polytechnic Institute and the Magnitogorsk Metallurgical
Combine

"Recrystallization Texture of Low-Carbon Steel"

Moscow, Stal', No 7, Jul 73, pp 650-652

Abstract: The recrystallization texture of low-carbon steels 08Yu and 08Fkp in all the investigated deformations (3-90%) was multi-component and can be mainly described by three orientations: $(111) \overline{[112]}$, $(211) \overline{[011]}$, and $(100) \overline{[011]}$. The ratio between components varies with degree of deformation. The main component in the recrystallization texture of low-carbon steels 08Yu and 08Fkp is the orientation $(111) \overline{[112]}$, the intensity of which is increased with rise in the degree of reduction during cold rolling. A low temperature of uncoiling hot-rolled strip for steel 08Yu and high for steel 08Fkp is necessary for producing the strong component $(111) \overline{[112]}$ in the weak component $(100) \overline{[011]}$ with the goal of improving the mechanical properties of low-carbon steel. Here the degree of deformation during cold rolling should be not less than 50%. Two figures, one table, 11 bibliographic references.

1/1

USSR

UDC 669.14.018.262

VOSTRIKOV, A. A., SARYCHEVA, L. P., SHARIPOV, E. I., RABINOVICH, YE. I., and
KONDRAT'YEV, L. M., Magnitogorsk Metallurgical Combine

"On the Question of Aluminum Nitrides in O8Yu Steel"

Moscow, Stal', No 11, Nov 73, pp 1034-1036

Abstract: The microstructure of O8Yu steel containing (in %): 0.04 C, 0.01 Si, 0.3 Mn, 0.012 S, 0.006 P, 0.02 Cr, 0.03 Ni, 0.09 Cu, 0.02 As, and 0.065 Al, was investigated to determine the role of aluminum nitrides in this steel. It was found that the high-temperature winding of strip into coils (780° C) leads to the formation of large aluminum nitride precipitates (up to 1 micron) in hot-rolled and annealed (unaging) steel. At a low coiling temperature (580° C), nitrogen atoms are found in solid solution and, during the final anneal, form finely dispersed aluminum nitrides with an elongated grain. S. A. BRATUS', D. V. VOSTRIKOVA, I. S., FRIVEL', AND T. V. BAKLUSHINA participated in this work. Three figures, one table, five bibliographic references.

1/1

- 45 -

Analysis and Testing

UDC 669.14-41:620.186.5

USSR

YOSTRIKOV, A. A., GUBCHEVSKIY, V. P., ZBOROVSKIY, A. A., NEMKINA, E. D.,
RADAYEV, G. D.

"Ultrasonic Method of Studying Recrystallization of Sheet Steel"

Zavodskaya Laboratoriya, No 3, 1971, pp 302-304.

ABSTRACT: Specimens of Type 08 kp steel 1 mm thick, annealed at 50°C intervals in the 100-1,200°C range, were used to study the dependence of attenuation of ultrasound (inclination of piezoelement 40°, frequency 2.5 Mhz) on angle of beam deflection in relationship to the rolling direction. Parallel x-ray structural studies of the process of recrystallization of these specimens confirmed the possibility of determining the temperatures of beginning and ending of recrystallization on the basis of approximate attenuation curves of ultrasound, and also of studying the kinetics of the process of recrystallization of sheets of this steel. 3 Figures; 1 Table; 2 Biblio. Refs.

1/1

Automatic Control Instruments

USSR

UDC: 621.317:681.26

VIKTOROV, V. A., Doctor of Technical Sciences, LUNKIN, B. V., Candidate of Technical Sciences, VOSTRIKOV, I. S., Engineer, FEDOROV, A. V., Engineer

"A Resonance Volume Gauge for Liquids and Dry Pourable Materials"

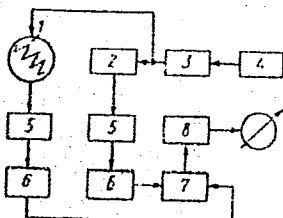
Moscow, Pribory i Sistemy Upravleniya, No 4, Apr 72, pp 26-27

Abstract: The paper describes a new method of volume measurement developed at the Institute of Problems of Control in Moscow. The procedure is based on using the resonance properties of electromagnetic systems with distributed parameters. The resonance frequency of such a system is an indirect parameter which characterizes the amount of material contained in the system. The pickup is made in the form of a continuous thin line uniformly distributed throughout the volume of the vessel whose contents are to be measured. The resonance frequency of the system formed by the line and the metal walls of the vessel is independent of the distribution of material filling the vessel. Expressions and curves are given for the resonance frequency of the system as a function of relative volume (the ratio of the volume of material to the volume of the vessel). Measurement error is $\pm 1\%$. A block diagram of the volume gauge is shown in the figure.

1/2

USSR

VIKTOROV, V. A. et al., Pribory i Sistemy Upr., No 4, 1972, pp 26-27



1--pickup; 2--reference tank circuit;
3--high-frequency wobbulator; 4--low-
frequency square pulse generator;
5--detector; 6--shaping stage; 7--
flip-flop; 8--integrating circuit

USSR

UDC 616.61-002.151-022.6-057

KOVAL'SKIY, G. S., VOSTRIKOV, J. A., and ZAKLINKOV, L. G., Khabarovsk Medical Institute and Khabarovskiy Kray Sanitary Epidemiological Station

"Occupational Characteristics of Hemorrhagic Fever With a Renal Syndrome in the Middle Amur Region"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 147-148

Abstract: Hemorrhagic fever with a renal syndrome is transmitted mainly by rodents. Hence persons who work regularly or even briefly in wooded areas and farms are likely to come into contact with these animals, and their excretions and contract the disease. The following groups are particularly endangered: (a) geological prospectors, foresters, etc.; (b) persons engaged in disinfectant work and rodent extermination, biologists and others who check on this work; (c) zoologists, entomologists, and parasitologists and others engaged in studying small wild mammals in the field and in the laboratory; (d) farmhands who take care of cattle and harvest crops; (e) tractor and truck drivers and mechanics who work in rural areas; (f) persons engaged in lumbering and in the procurement, transport, and primary processing of wood.

1/1

1/2 008 UNCLASSIFIED
TITLE--MIXED PLATINUM CHALCOGENIDES -U- PROCESSING DATE--16OCT70
AUTHOR--(03)-RUCHKIN, YE.D., VOSTRIKOVA, L.A., BATSANOV, S.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 252-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--PLATINUM COMPOUND, CHALCOGENIDE GLASS, TELLURIDE, SELENIDE,
SULFUR COMPOUND, CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/0185 STEP NO--UR/0363/70/006/002/0252/0256
CIRC ACCESSION NO--AP0115889 UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115889

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, THE SYNTHESIS CONDITIONS WERE FOUND AND MIXED PT(IV) CHALCOGENIDES WERE PREPD. FROM THE REACTIONS OF THE TYPE PTX PLUS Y, PTY PLUS X, AND PT PLUS X PLUS Y (WHERE X, Y EQUALS S, SE, TE). AT 500-600DEGREES, NO EXCHANGE TAKES PLACE IN THE PTX SUB2 PLUS PTY SUB2 SYSTEMS. THE COMPD. PTSTE WAS PREPD. FOR THE 1ST TIME, AND THE PARAMETERS FOR THE HEXAGONAL LATTICES OF PTSSE AND PTSETE WERE DETD. THE EFFECT OF THE SYNTHESIS CONDITIONS ON SUCH PROPERTIES OF THE CALCOGENIDES AS THE D. AND THE ELEC. COND. WAS STUDIED. FACILITY: INST. TEPLOFIZ., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 389.0.681.2.083.7

VOSTRIKOV, Yu. A. and KARELIN, N. M.

"Application of Asymptotic Methods for Seeking the Distribution Laws of the Metrological Characteristics of a Remote-Acting Differential-Transformer Measuring System"

Moscow, Metrologiya, No 7, 1972, pp 3-9

Abstract: The problem of seeking the distribution laws of the metrologic characteristics of a remote-acting differential-transformer measuring system is dealt with. These characteristics are nonlinear functions of many random arguments. The application of asymptotic methods permits the desired distribution laws to be obtained in the form of approximate expressions that are suitable for use in practice. Three asymptotic formulas are derived, which yield good results even in the first approximation if the remainder is smaller than unity even by one order of magnitude. If the remainder of the first approximation is insufficiently small, a second approximation can yield satisfactorily exact approximate results. But if the remainder of the second approximation is still too large, the asymptotic formulas cannot be used for approximate calculations. 1 table. 1 figure. 5 references.

1/1

USSR

UDC: 681.327

KITOVICH, V. V., STRAKHOV, V. G., BORODKIN, V. M., VOSTRIKOVA, Z. P.,
SAKHAROV, V. T.

"A Memory Device Using Magnetic Thin Films"

Moscow, Magnit. elementy avtomatiki i vychisl. tekhn. XIV Vses. soveshch.,
1972. Ref. dokl. (Magnetic Elements in Automation and Computer Technology.
Fourteenth All-Union Conference, 1972. Abstracts of Papers), 1972, pp 114-
-117 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1,
Jan 73, abstract No 1B410 by V. R.)

Translation: The paper describes an immediate-access memory unit using thin
films with a capacity of 1024 26-digit numbers with an access time of 0.7
 μs and a sampling time of $0.2 \mu s$. The device contains: a magnetic film
module, an address decoding module, a readout-record amplifier module, and
a localized control module. The memory module for data storage uses four
magnetic film elements per symbol.

The magnetic film module consists of 16 aluminum matrices, each of
which contains 140×66 Permalloy "spots" measuring 0.3×0.5 mm. Provision
is made in the module for redundant information capacity: there are 96

1/2

USSR

KITOVICH, V. V. et al., Magnit. elementy avtomatiki i vychisl. tekhn. XIV soveshch., 1972. Ref. dokl., 1972, pp 114-117

reserve numbers and seven reserve digital places. The electrical parameters of the memory unit: readout current 250 ma, discharge current 60 ma, output signal 0.5 mv or more with a duration of 50 ns. Structurally the memory unit is made in the form of a block measuring 390 x 290 x 194 mm with a weight of 12 kg. Power consumption is 9 w. Bibliography of one title.

2/2

- 38 -

USSR

RUBLEV, YU. V.; TUZ, V. T.; VOSTROV, G. N.

"A Method of Automatic Document Indexing with Introduction of Links between the Elements of the Search Pattern"

Moscow, Nauchno-Tekhnicheskaya Informatsiya -- Seriya 2: Informatsionnyye Protsessy i Sistemy; October, 1973; pp 30-3

Abstract: An algorithm for constructing a document's search pattern that inserts links between its terms is proposed. The algorithm is represented by a flow chart showing the following operations: Words likely to be informative are isolated from the text (these are words that are frequently encountered in the text, elements of the title, words occurring in sentences opening with such phrases as "therefore", "it follows from the above", etc.). The words are ranked by the method of correlation clusters according to decreasing informability. The first n terms of the series are included in the search pattern.

In order to establish the links, the text is broken into segments. A list of segments containing the words from the set of n chosen ones is compiled. The segments are subjected to syntactic analysis. Terms have been ranked by decreasing informability on the Minsk-22 computer.

1/2

USSR

RUBLEV, YU. V. et al., Nauchno-Tekhnicheskaya Informatsiya -- Seriya 2:
Informatsionnyye Protsessy i Sistemy; October, 1973; pp 30-3

A manual experiment in constructing the search pattern and inserting the links
between the terms has been conducted.

The article includes two figures. There are six references.

2/2

USSR

UDC 621.372.543

VOSTROVA, I.N., KANTOR, V.M.

"Some Problems Of Calculation And Planning Of Monolithic Piezoelectric Filters"

Sb. nauchn. tr. TsNII svyazi. Leningr. fil (Collection Of Scientific Works Of The Central Scientific-Research Institute Of Communication. Leningrad Branch), 1970, Issue 5, pp 148-155 (from RZh--Elektrosvyaz', No 3, March 1971, Abstract No 3.64.51)

Translation: The special features are considered of the construction of monolithic piezoelectric filters. A method of calculation in a narrow-band approximation of the equivalent electrical circuit of a filter is presented as well as the results of experiment. 5 ref. Summary.

1/1

1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--STEREOCHEMISTRY OF HETEROCYCLES. IV. 2, SUBSTITUTED
5, ALKYL, 1, 3, DITHIANES -U-
AUTHOR-(05)-VOSTROVA, I.N., SOMCHINSKAYA, V.N., BOGATSKAYA, Z.O.,
MAMONTOV, V.P., DAVIDENKO, T.I.
COUNTRY OF INFO--USSR
SOURCE--KHM. GETEROTSIKL. SOEDIN. 1970, (4), 462-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--STEREOCHEMISTRY, HETEROCYCLIC SULFUR COMPOUND, ORGANIC
SYNTHESIS, BROMINATED ORGANIC COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0935 STEP NO--UR/0409/70/000/004/0462/0465
CIRC ACCESSION NO--AP0134662
UNCLASSIFIED

2/2 007
CIRC ACCESSION NO--AP0134662 UNCLASSIFIED PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY THE METHOD OF BOGATSKAYA (1962)
WERE SYNTHESIZED CH SUB2 BRCHRCH SUB2 R (R, B.P., D PRIME20, N PRIME20
SUBD, AND PERCENT YIELD GIVEN): SHOWN ON MICROFICHE. FACILITY:
ODESS. GOS. UNIV. IM. MECHNIKOVA, ODESSA, USSR.

UNCLASSIFIED

USSR

UDC: 681.3

KOPYLENKO, V. M., VOSTROVA, Z. N.

"Algorithm for Synthesis of Relay Devices Based on Standard Sets of Elements"

V sb. Metódy postroyeniya inform.-logichesk. ustroystv (Methods of Constructing Information-Logic Devices--collection of works), Frunze, "Ilim", 1971, pp 3-22 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V906)

Translation: A description is given of the flowchart and logic diagram of an algorithm for synthesis of relay devices given by generalized tables of states on standard sets of elements: AND, OR, NOT, AND-NOT, NOR, majority elements, etc. Criteria are presented for directed selection of the realization. Authors' abstract.

1/1

Corrosion

USSR

UDC: 621.791.856.3

MEDOVAR, B. I., MARTYN, V. M., CHEKOTILO, L. V., VOSVILOV, N. M., KULEV, G. B., POLTAVETS, A. V., KRAVETS, N. I., and GLOZMAN, L. P.

"Corrosion Resistance of Joints of EP668 Alloy in Nitrogen- and Sulfur-Containing Media"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 67-68

Abstract: A study was made of the corrosion resistance of high-chromium alloy Kh50N5V (EP668) and its welded joints in highly aggressive media involved in the production of sulfuric and nitric acids. It was found that EP668 alloy and its welded joints have a high corrosion resistance in media containing nitrogen oxides NO and NO₂, natural gas with air, H₂S, SO₂, CO₂, and HCN gases. In these media the maximum corrosion rate of the parent metal and its welds is 0.019 g/m².hour. For comparison, tests were also conducted on the most extensively employed corrosion-resistant materials, including Kh18N10T, Kh18N12M2T (E1446), OKh21N6M2T (EP54), titanium, aluminum, and St.3 steel. Under similar conditions these materials exhibited intensive corrosion. EP668 alloy is also resistant in ammonium carbonate solutions (43% NH₃, 34% CO₂, 23% H₂O) at 100°C and a maximum pressure of 200 atm.

1/1

1/2 009

UNCLASSIFIED

TITLE--THE NOTIONS SYSTEM OF STATIC TECTONICS OF THE CONTINENTS
 SEDIMENTARY COVER -U- PROCESSING DATE--02OCT70

AUTHOR--(02)-VOTAKH, D.A., SOLOVYEV, V.A. ✓

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 4, P 127-139

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--TECTONICS, MODEL, SEDIMENTARY ROCK LAYER, LAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1994/0050

STEP NO--UR/0210/70/000/004/0127/0139

CIRC ACCESSION NO--AP0114446

UNCLASSIFIED

2/2 009

CIRC ACCLSSION NO--AP0114446

UNCLASSIFIED

PROCESSING DATE--02OCT70

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

ABSTRACT. A FIRST ATTEMPT OF CONSTRUCTION OF THE NOTIONS SYSTEM OF STATIC TECTONICS IS CARRIED OUT. THE MODELS ARE CONSTRUCTED AND THE MAIN STRUCTURES OF CONTINENTS SEDIMENTARY COVER ARE DESCRIBED.

FACILITY: IGIG SO AN SSSR, NOVOSIBIRSK.

UNCLASSIFIED

89

USSR

UDC 615.221.015

VOTCHAL, B. Ye., ZAMOTAYEV, I. P., LOXINSKIY, L. G., SANDOMIRESKIY, B. L.,
and VOROB'YEVA, Z. V., Central Institute of Postgraduate Medicine, Moscow

"Clinical Pharmacology of the Beta-Adrenergic Blocking Agent Trasicor"

Moscow, Terapevticheskiy Arkhiv, No 8, 1973, pp 10-14.

Abstract: The new beta-adrenergic blocking agent trasicor (Ciba) was administered in varying doses for 3 to 30 days to a group of 59 patients suffering from a variety of diseases including coronary insufficiency, hypertension, diabetes mellitus, angina pectoris, combined in some cases with bronchial asthma or other lung pathology. Trasicor was found to have distinct anti-arrhythmic, "coronary-active," negative chronotropic, bronchospastic and mild hypotensive effects somewhat less pronounced than those exerted by inderal. It was particularly efficacious in the patients with extrasystoles, sinus tachycardia, angina pectoris, auricular fibrillation and bronchial obstruction. When taken perorally, the effect of trasicor was manifested within 40 to 60 minutes and persisted for 3 to 6 hours. Side effects (nausea, bitter taste in the mouth) were noted in only two patients.

1/1

USSR

UDS 621.314.6.01

ABRAMOVICH, M.I., VICTORITSEV, G.M., SAKOVICH, A.A.

"Dependence Of Use Of Rectifiers In Practicable Circuits For Conversion Of Electrical Energy On Boundary And Dynamic Parameters"

Preobrazovatel'n. tekhnika. Nauchno-tekhn. sb. (Converter Technology. Scientific-Technical Collection), 1970, No 1, pp 11-14 (From RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 83426)

Translation: Factors are considered which limit with respect to power the use of rectifiers [ventil'] in practicable circuits for conversion of electrical energy: the permissible short circuit current as a function of time, the permissible rate of growth and decrease of the current, and the duration of the permissible current as a function of the frequency and time of restoration of the control features. Computed formulas are presented for the classified, rated, and actual powers of the rectifiers. The actual power of rectifiers in a converter circuit is computed as a function of the rated and boundary parameters and is expressed by a classified power. 2 ill. 1 ref. Summary.

1/1

172 066

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--INTERACTION BETWEEN A GRAPHITE SURFACE AND A TURBULENT GAS FLOW
UNDER CONDITIONS OF SUBSTANTIAL NONISOTHERMALITY AND IN THE PRESENCE OF
AUTHOR--(04)-VOTCHKOV, E.P., ZAULICHNYY, YE.G., LEONTYEV, A.I., SINAYKO,
YE.I.

COUNTRY OF INFO--USSR

V

SOURCE--TEPLOFIZIKA VYSOKIKH TEMPERATUR, VOL. 8, JAN.--FEB. 1970, P.
116-122

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, PROPULSION AND FUELS

TOPIC TAGS--TURBULENT FLOW, GAS FLOW, GRAPHITE, EXHAUST GAS COOLING,
THERMAL INSULATION, NITROGEN, COMBUSTION RATE, REYNOLDS NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0384

STEP NO--UR/0294/70/003/000/0116/0122

CIRC ACCESSION NO--AP0111577

UNCLASSIFIED

2/2 0/5

CIRC ACCESSION NO--AP0111577

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. THEORETICAL AND EXPERIMENTAL STUDY OF THE NONISOTHERMAL BURN UP RATES OF GRAPHITE SURFACES IN AN AIR FLOW WITH OR WITHOUT INJECTING A NEUTRAL GAS INTO THE BOUNDARY LAYER AS A SHIELD FROM BURNING. THE EXPERIMENTS WERE CARRIED OUT AT TEMPERATURES FROM 1500 TO 1800DEGREESC AT REYNOLDS NUMBERS FROM 40K TO 4M IN A GRAPHITE CHANNEL. THE CHANNEL WALLS WERE 5-10 MM THICK, THE DENSITY OF THE GRAPHITE SPECIMENS WAS 1076-1925 KG-CU M, AND NITROGEN OR ARGON WERE INJECTED THROUGH SLOTS FOR SHIELDING. THE GRAPHITE BURN UP RATES WERE ESTIMATED BY MEASURING THE CHANNEL DIAMETER AFTER EXPERIMENTS. EQUATIONS ARE PROPOSED FOR ESTIMATING THE EFFECTIVENESS OF THIS SHIELDING TECHNIQUE. THE THEORETICAL AND EXPERIMENTAL RESULTS ARE COMPARED.

FACILITY: AKADEMIJA NAUK SSSR,
 NAUCHNO-ISSLEDOVATEL'SKII INSTITUT VYSOKIKH TEMPERATUR, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.373.826:038.8

YERMOLAYEV, E. A., SHELEKHIN, YU. L., VOTINOV, M. P.

"Interaction of a Ruby with Ionizing Radiation"

Tr. Leningr. politekhn. in-ta (Works of the Leningrad Polytechnic Institute),
No 325, 1971, pp 78-80 (from RZh-Radiotekhnika), No 1, 1972, Abstract No 1D325)

Translation: A rose ruby (0.05 percent Cr_2O_3 in burden) was irradiated by Co^{60} γ -rays (a dosage of 10^8 roentgens) and thermal neutrons (10^{16} - 10^{17} neutrons/cm²) at room temperature, and single crystals of corundum (and ruby) were irradiated by x-rays (10^4 roentgens) at the liquid nitrogen level. The irradiated crystals acquired an orange tint. Two additional absorption bands with centers at 370 and 460 nm appeared in the optical spectrum, the Cr^{3+} content decreased by 11-18 percent, and the nonuniformity of the intracrystalline field increased by 30-40 percent. It is confirmed that the induced coloring is connected with a change in the valence state of the chromium and the formation of centers of color in the matrix defects. There is 1 illustration and a 7-entry bibliography.

1/1

- 110 -

Nuclear Science and Technology

USSR

UDC 669.296:5:621.039.5

ANDREYEVA, A. B., BELOKOPYTOV, V. S., VOTINOV, S. N., DEREZIZOV, M. D.,
PETIN, B. P., PAKHOMOV, Z. I.

"Study of Fuel Assemblies of the VK-50 Boiling Reactor"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation
Solid State Physics and Reactor Material Science -- collection of works),
Moscow, Atomizdat Press, 1970, pp 208-212 (from RZh-Metallurgiya, No 4, Apr
71, Abstract No 41842)

Translation: The results of studying the fuel assemblies of a boiling re-
actor after operation in the reactor core for 5,000 hours are described.
The fuel element cores are briquettes of sintered UO_2 with 2% enrichment.
The can material was Zr + 1% Nb alloy, and the jacket material was Zr + 2.5%
Nb alloy. A significant amount of the hydride phase was detected in the cans
of ruptured fuel elements in defective places. The article contains 1 illus-
tration and a 4-entry bibliography.

1/1

USSR

UDC 669.15.018.8:621.039.5

VOTINOV, S. N., SHAMARDIN, V. K., PROKHOROV, V. I.

"Characteristic Features of Stainless Steel Creep after Irradiation"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 121-138 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I847)

Translation: The effect of neutron irradiation on the stress-rupture strength, creep, microstructure, and microhardness of Kh18N10T, Kh15N2V2M4B, KhN35V3T, Kh16N15M3B, and Kh16N15M3BR steels was investigated. The samples were irradiated in the SM-2 reactor by fast neutron fluxes of $5 \cdot 10^{19}$ - $5 \cdot 10^{22}$ at 50-70° and $2 \cdot 10^{20}$ cm⁻² at 700°. The neutron flux density was no less than 10^{14} neutrons/cm²-sec, and the ratio of thermal and fast neutrons was 1 : 10. The stress-rupture strength tests were performed at 630-730°. In the majority of cases the irradiation led to a reduction or even complete disappearance of three creep stages. There are 12 illustrations, 2 tables, and a 19-entry bibliography.

1/1

USSR

UDC 669.15.018.44:621.039.5

VOTINOV, S. N., GRINCHUK, P. P., OSTROVSKIY, Z. YE., PROKHOROV, V. I.

"Effect of Irradiation on the Structure of Some Dispersion Hardening Steels"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp. 73-82 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I845)

Translation: An electron microscope study was made of the effect of neutron irradiation on the structure of two dispersion hardening stainless steels of the austenitic class -- OKh16N15M3B, OKh16N15M3BR and 00Kh16N15, which is the Cr-Ni base of the first two. The irradiation was performed in the SM-2 reactor at 680-700° with a fast neutron dosage of $2 \cdot 10^{20}$ cm⁻². OKh16N15M3B steel was also irradiated at 70° in water with a dosage of $4.3 \cdot 10^{21}$ cm⁻². There are 6 illustrations, 1 table, and a 16-entry bibliography.

1/1

- 69 -

USSR

UDC 669.28:539.4:539.125.18:669-977

ALEKSANDROV, S. I., BAZYUKIN, V. G., VOTINOV, S. N., ZAKHAROV, A. R., KAZAKOV, V. A., and RAZOV, I. A.

"Effect of Initial State of Molybdenum on Radiation Hardening at High Temperatures"

V sb. Radiatsion. fiz. tverd. tela i reaktornoye materialoved. (Radiation Solid-State Physics and Reactor Materials Science -- Collection of Works), Moscow, Publishing House of the State Committee of the Council of Ministers USSR for the Use of Atomic Energy, 1970, pp 139-140 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3I733 by V. Kudryashov)

Translation: The authors studied the effect of irradiation with an integral dose of up to $1.5 \cdot 10^{20}$ neutrons/cm² ($E \geq 1$ Mev) at high temperatures (750 and 1200°) on Mo produced by different methods (single crystal, powder metallurgy, and cast) in different states (recrystallized and unrecrystallized). Tensile testing was performed by remote control on an MM-150D machine at a deformation rate of 10^{-3} sec⁻¹ at 20-8000 in a vacuum of 10^{-4} mm Hg. After irradiation at 750° an increase is observed in strength properties, lattice spacing and microhardness and a decrease in ductility, with the radiation

1/2

USSR

ALEKSANDROV, S. I., et al., Radiatsion. fiz. tvard. tela i reaktornoye materialoved., Moscow, 1970, pp 139-140

hardening of cast Mo higher than that of p/m Mo. There is found to be a decline in the uniform elongation of specimens of single-crystal Mo from 8.5 to 4.5% without an appreciable decline in the overall specific elongation. The brittle point of cast Mo rises after irradiation. Bibliography with 17 titles.

2/2

USSR

UDC 669.15.018.295.621.039.5

BALASHOV, V. D., VOTINOV, S. N., PROKHOROV, Z. I., SHAMARDIN, V. K.

"Change in Strength and Plasticity Characteristics of Iron and Its Alloys With Chromium as a Result of Bombardment"

Radiatsion. Fiz. Tverd. Tela. i Reaktornoye Materialoved. [Solid State Radiation Physics and Reactor Materials Science -- Collection of Works], Moscow, Atomizdat Press, 1970, pp. 94-101. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I811 by O. Pimenova).

Translation: The influence of low-temperature neutron bombardment on the mechanical properties of Armco iron, the alloy Fe-20% Cr, and type Kh13 steel in extension is studied. 6 figs; 8 biblio refs.

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UDC 669.15.018.8.621.039.5

BALASHOV, V. D., VOTINOV, S. N., PROKHOROV, V. I.

"Influence of Bombardment on Mechanical Properties of Alloys in the System Fe-Cr-Ni"

Radiatsion. Fiz. Tverd. Tela. i Reaktornoye Materialoved. [Solid State Radiation Physics and Reactor Materials Science -- Collection of Works], Moscow, Atomizdat Press, 1970, pp. 101-120. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 1812 by Yu. Bychkov).

Translation: In order to study the high-temperature radiation embrittlement of the alloys Kh20N15, Kh20N40, Kh20N60, Kh20N80 and Ni, bombardment was performed in the core of the Sm-2 reactor at 70° to an integral fast neutron flux of $7 \cdot 10^{21}$ cm⁻². The specimens, tested at 20° following bombardment, showed an increase in σ_t of 200-1600% and a decrease in ductility. The temperature of the beginning of high-temperature embrittlement was 600° for Kh20N15 and 500° for Ni. 13 figs; 3 tables; 8 biblio refs.

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Materials: UDC 621.039.5

VOTINOV, S. N., LOSEV, N. P., PROKHOROV, V. I., SAMSONOV, B. V., TSYKANOV, V. A.,
PIN'KO, A. G., Melekess

"Estimate of Long Term Strength of Structural Materials in Reactor"

Kiev, Problemy Prochnosti, No 5, May, 1971, pp 61-64.

Abstract: Results are presented, produced in testing of tubular specimens of a number of structural materials under conditions of bombardment in a nuclear reactor. Two hundred hour tests performed with a flux of $2.5 \cdot 10^{12} \text{ cm}^{-2} \cdot \text{sec}^{-1}$ fast neutrons and $6 \cdot 10^{13} \text{ cm}^{-2} \cdot \text{sec}^{-1}$ thermal neutrons showed that the time to rupture for tubing of steels Types OKh16N15M3B, OKh16N15M3BR and Kh18N10T at 650°C decreases in comparison to the time to rupture without bombardment by not over 3-10 times. The deformation at rupture is approximately 1.5 times less than for specimens not bombarded. No changes in durability or ductility of copper and copper with chromium were observed in the reactor at 700°C .

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UDC 621.639.53

BALASHOV, V. D., VOTINOV, S. N. and PROKHOROV, V. I.

"Effect of Radiation on the Mechanical Properties of Alloys in the System Fe-Cr-Ni"

Radiatsion. Fiz. Tverd. Tela i Reaktornoye Materialoved. (Radiation Solid State Physics and Reactor Materials Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 101-120 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 4, 1971, Abstract No 4.50.137)

Translation: This work deals with a study of high-temperature radiation embrittlement of a successive series (with increasing Ni from 15 wt. % to pure nickel) of nickel alloys with chromium based on iron and nickel: Kh20Ni15, Kh30Ni40, Kh20Ni60, Kh20Ni80 and pure nickel. The results of these studies of the effects of high temperature annealing (1050°) indicated that the reduced high temperature plasticity of irradiated specimens is partially restored. This allows us to consider the annealed radiation defects to be a significant factor in the effect of high temperature embrittlement. 12 figures; 8 biblio. refs.

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UDC: 62L.039.53

BALASHOV, V. D., VOTINOV, S. N., PROKHOROV, V. I., and SHAMARDIN, V. K.

"Change in Strength and Ductility Characteristics of Iron and its Alloys With Chromium as a Result of Irradiation"

Radiatsion. Fiz. Tverd. Tela i Reaktornoye Materialoved. [Radiation Solid State Physics and Reactor Materials Science -- collection of works], Moscow, Atomizdat Press, 1970, pp 94-101 (translated from Referativnyy Zhurnal Yadernyye Reaktory, No 4, 1971, Abstract No 4.50.141).

Translation: The effect of low-temperature neutron bombardment by the SM-2 nuclear reactor on the mechanical properties of armco iron, iron with 20 wt. % Cr, and type Kh13 chrome steel was studied. The specimens were bombarded in the core of the SM-2 reactor in water at a temperature of about 100° C, with a fast neutron flux density of about 10^{15} (cm²·sec)⁻¹, integral flux $7 \cdot 10^{21}$ cm⁻². After neutron bombardment, the strength was decreased, while ductility was increased in this temperature area in comparison with the nonbombarded material. This indicates that there was no interrupted deformation and indicates a decrease in the hardening factor on the diagrams of bombarded specimens. Both facts qualitatively indicate structural conversions in the material (for example, beading of carbon with radiation defect), preventing deformation aging following bombardment. It should be

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BALASHOV, V. D., et al., Radiatsion. Fiz. Tverd. Tela i Reaktornoye Materialoved., Moscow, Atomizdat Press, 1970, pp 94-101 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 4, 1971, Abstract No 4.50.141)

noted that whereas in chrome-nickel steels the decrease in ductility following neutron bombardment at high temperatures is sometimes catastrophic, in chrome steels and iron it is not great. 6 figures; 8 biblio. refs.

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Transformation and Structure

USSR

UDC 621.039.53

VOTINOV, S. N., GRINCHUK, P. P., OSTROVSKIY, Z. YE., and PROKHOROV, V. I.

"Effect of Irradiation on the Structure of Certain Dispersion-Hardening Steels"

Radiatsion. Fiz. Tverd. Tela i Reaktornoye Materialoved (Radiation Solid State Physics and Reactor Materials Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 73-82 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 4, 1971, Abstract No 4.50.138)

Translation: Investigations performed with 2-component alloys of certain steels have shown that irradiation accelerates the decomposition of solid solutions with segregation of the excess component or separation of an inter-metallic phase. Irradiation of alloys also results in structural changes noted in non-irradiated specimens only at temperatures higher than the irradiation temperature. 6 figures; 16 biblio. refs.

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Nuclear Science and Technology

USSR

UDC 669.14.018.45:539.12.04

ILYASOV, V. M., BETEKHTIN, V. I., and VOTINOV, S. N., Institute of Physics of Metals of the Academy of Sciences USSR

"Durability and Creep of Irradiated Metals"

[Part of the paper was presented by the authors at the Symposium of Radiation Damage in Reactor Materials at the International Atomic Energy Agency, Vienna, 2-6 Jun 1969]

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 765-772

Abstract. The durability (τ) and creep (v) of Al, Ni, and Cu, subjected to neutron irradiation of 10^{22} n/cm² ($E > 1$ Mev), were investigated on 0.1-mm-thick plane specimens annealed at 400°C (Al), 600°C (Cu), and 750°C (Ni). It is shown that irradiation brings about a strengthening of Al by increasing τ and decreasing V and a weakening of Ni and Cu by decreasing τ and increasing V . The analysis of coefficients of two functions characterizing τ and v in relation to the stress and temperature of the investigated materials shows that the effect of neutron irradiation depends on structural conditions
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ILYASOV, V. M., et al., Fizika Metallov i Metallovedeniye, Vol 31, No 4,
Apr 71, pp 765-772

under which disintegration and creep processes develop and not on changes
of the nature and mechanism of the processes. Eight illustr., one table,
two formulas, twenty biblio. refs.

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UDC 621.039.532.5:621.039.553

CHECHETKINA, Z. I., GOL'TSEV, V. P., KLIMENKOV, V. I., VOTINOV,
S. N., and TSYKANOV, V. A.

"Behavior of Metallic Beryllium in the SM-2 Reactor"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

Abstract: Metallic beryllium has been used in the SM-2 reactor since 1962 in the system for expelling water from the neutron trap. The expulsion system consists of four inserts placed between the fuel assemblies and the central channel located in the neutron trap. Each insert consists of two blocks. The bottom part of the safety rods is also made of beryllium. In 1964 the reactor design was modified by replacing the beryllium oxide reflector with metallic beryllium. Since then experimental material has been accumulated on the stability of metallic beryllium under SM-2 conditions. The article presents some of the data. Experiments were conducted on specimens cut out of the inserts and safety rods before and after being held in the reactor. The inserts were made of hot-pressed blocks of dis-

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CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

tilled powder beryllium, the safety rods fabricated by hot extrusion from not-pressed blocks. The investigated parts found in the neutron trap underwent the maximum irradiation. The thermal-neutron flux over the cross section of the inserts was $1.5 \cdot 10^{15}$ - $5 \cdot 10^{14}$ nv, the fast-neutron flux $1 \cdot 10^{15}$ nv and energy release through gamma absorption 100 w/g. The main emphasis was on dimensional stability, density, structural changes, and mechanical properties of beryllium.

It was found that the surface condition depends on the water quality, the total time spent in the water by the beryllium, and the integral irradiation dose. A photograph taken of the inserts during the 1962-1964 period shows extensive pitting regions, while a photograph taken subsequently, when the quality of the medium was improved, shows only individual traces of pitting. An increase in the irradiation dose on the surface of the

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Sep 70, pp 174-177

blocks produces macrocracks in addition to the pitting. No changes were found in the geometric dimensions of the investigated parts even after irradiation with fast neutrons to an integral dose of $(3-4) \cdot 10^{22}$ neutrons/sq cm. The density of the beryllium remained constant in all cases up to doses of $(5-7) \cdot 10^{21}$ neutrons/sq cm. A decrease in density to 1.5 percent was found in individual specimens cut out of blocks irradiated with doses of 10^{22} neutrons/sq cm or more. There is practically no change in the density of hot-extruded beryllium at the above doses. Up to $5 \cdot 10^{21}$ neutrons/sq cm there is no appreciable change in the microstructure of hot-pressed beryllium. At an integrated flux of about 10^{22} neutrons/sq cm there are twins, slip lines, microcracks, and appreciable discrete porosity, primarily along the grain boundaries. Higher doses result in fur-

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CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3,
Sep 70, pp 174-177

ther porosity development and the spread of microcracks over the grain boundaries, as well as the grains themselves. No appreciable changes are found in the microstructure of hot-extruded beryllium irradiated with an integrated flux of up to $1.5 \cdot 10^{22}$ neutrons/sq cm; there are no microcracks. There is a sharp increase in microhardness up to an integrated flux of $(3-5) \cdot 10^{21}$ neutrons/sq cm. The compression strength remains practically unchanged up to a dose of $(3-5) \cdot 10^{21}$ neutrons/sq cm, but declines with a higher dose. Yield point is unchanged up to 10^{20} neutrons/sq cm, but rises with a higher dose. The influence of the build-up of helium and tritium products is considered.

The results indicate that the permissible irradiation dose for beryllium parts which carry no external mechanical loads is an integrated fast-neutron flux of $2 \cdot 10^{22}$ neutrons/sq

cm.
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UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--THE EFFECT OF IRRADIATION ON THE PROPERTIES OF WELDS IN HIGH ALLOY STEELS -U-

AUTHOR--(05)-VOTINOV, S.N., KAZENNOV, YU.I., AGAPOVA, N.P., PALCHUK, N.YU., PRUKHROV, V.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 3, 1970, PP 4-6

DATE PUBLISHED-----70

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

TOPIC TAGS--HIGH ALLOY STEEL, ALLOY DESIGNATION, MECHANICAL PROPERTY, BIBLIOGRAPHY, IRRADIATION, NUCLEAR METALLURGY, WELD JOINT, METAL TEST, WELDING/(U)0KH16N15M3B STAINLESS STEEL, (U)00KH16N15M3B STAINLESS STEEL, (U)0KH20N40B STAINLESS STEEL, (U)1KH13M2BFR STAINLESS STEEL, (U)UM5 STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1303

STEP NO--UR/0135/70/000/003/0004/0006

CIRC ACCESSION NO--AP0123262

UNCLASSIFIED

2/2 042

CIRC ACCESSION NO--AP0123262

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MECHANICAL PROPERTIES WERE DETERMINED OF SAMPLES CUT OUT FROM THE METAL OF WELDS IN OOKH16N15M3B, GK16N15M3B, OKH20N40B, AND IKH13M2BFR STEELS FOLLOWING IRRADIATION WITH A DOSE OF 2.8 TIMES 10 PRIME21 NEUTR,CM PRIME2 AND 4.3 TIMES 10 PRIME21 NEUTR,CM PRIME2 (E LARGER THAN OR EQUAL TO 1 MEV) AT A TEMPERATURE OF ABOUT 100DEGREESC. TESTS WERE CARRIED OUT USING UMD-5 BREAKING MACHINES AT 20, 350, AND 650DEGREESC IN THE AIR.

UNCLASSIFIED