

2/2 029

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0053294

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TRACKS OF PRIME210 PO ALPHA PARTICLES (ENERGY 5 MEV) WERE RECORDED ON NITROCELLULOSE (I) AND CELLULOSE ACETATE (II) FILMS EXPOSED TO O, CO SUB2, OR H SUB2 O .IPORS. I FILMS WERE ETCHED WITH A 20PERCENT NAOH SOLN., WHEREAS II FILMS WERE ETCHED WITH A NAOH-KOH-KMNO SUB4 MIXT. AT 50DEGREES. MEASUREMENT RESULTS INDICATED THAT WIDEST TRACKS WERE OBTAINED IN O, I.E., O INITIATED INTENSIVE DEGRADATION OF I AND II FILMS, EVEN AT A PARTIAL PRESSURE OF ONLY TWICE THAT FOUND IN AIR. THE TRACKS WERE MARKEDLY SMALLER IN VACUO.

UNCLASSIFIED

USSR

UDC 621.396.69(088.8)

VALITOV, M. S., VOLKOV, B. A., FEDYUNIN, V. N., DEART, A. P., MENONFONTOV, Ye. A.,
Moscow Mining Institute

"A Device for Physical Modeling of Radio Electronic Circuits"

USSR Author's Certificate No 255665, Filed 13 Mar 67, Published 12 Mar 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V402 P)

Translation: The proposed device is based on the use of a random number pickup
whose output is connected to the movable contact of a step switch in the situation
set-up module. This step switch is connected to the control windings of actuating
relays, indicator lamps and pulse counters. H. S.

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USSR

UDC 629.23.56-843.6

VOL'FENZON, M.N., IL'YIN, A.G., FEDYUNYAYEV, A.M., ZANJAROV, G.A., SPIVAK, A.Ya.

"The Power Plant in Tankers of the 'Mangyshlak' Type"

Abstract: In the article are presented the composition and a general description of the ship power plant for twin-screw tankers of the 'Mangyshlak' type. 2 figures, 1 photographic illustration.

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USSR

UDC: 8.74

FEDYURKO, V. V.

"Some Expansions of the Language of the PROYEKT Programming System"

Teoriya Yazykov i Metody Postroyeniya Sistem Programmir. [The Theory of Languages and Methods of Construction of Programming Systems--Collection of Works], Kiev-Alushta, 1972, pp 139-144 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V539, by V. Mikeyev)

Translation: Several expansions of the PROYEKT programming system input language are studied. An expansion of the language refers to a supplementation of the basic language using special devices built into the automation system of the PROYEKT programming system. In selecting expansions, the following were considered: coding of data in the PROYEKT system (expansion of CHAST'), interaction of the PROYEKT system programs (expansion of SISTEMA), connections to the external medium (expansion of TEKST). It is noted that the experience gained in using these expansions has shown that they can produce compact programs, running in a PROYEKT environment on the M-220 computer.

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USSR

UDC 629.78.015.076.6

GRABUN, V. Ya., FEDYUSHIN, B. K.

"Relativistic Generalization of the Equation of I. V. Meshcherskiy"

Vopr. Mekhaniki [Problems of Mechanics -- Collection of Works], Moscow University Press, 1971, pp 121-122, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.106 by T. A. Ye.).

Translation: A relativistic generalization of the equation of I. V. Meshcherskiy has been produced for analysis of the flight of an interstellar spacecraft:

$$m \frac{d\vec{V}}{dt} = \vec{F} + (\vec{U}_1 - \vec{V}) \frac{d\mu_1}{dt} - (\vec{U}_2 - \vec{V}) \frac{d\mu_2}{dt} - \vec{V} \frac{\vec{F} \cdot \vec{V}}{C^2},$$

where m is the mass of the spacecraft, μ_1 is the attached mass at moment t , μ_2 is the ejected mass at moment $t + dt$, \vec{V} is the velocity of the spacecraft, \vec{F} is the external force, \vec{U}_1 , \vec{U}_2 are the absolute velocities of the attached and ejected masses, C is the speed of light in a vacuum. This relativistic generalized equation becomes the generalized equation of I. V. Meshcherskiy in the classical case, and where $d\mu_1 = 0$ it becomes the relativistic equation

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USSR

UDC 629.78.015.076.6

GRABUN, V. Ya., FEDYUSHIN, B. K., Vopr. Mekhaniki, Moscow University Press, 1971, pp 121-122.

of I. V. Meshcherskiy. Based on the relativistic generalized equation of I. V. Meshcherskiy, a number of problems can be solved and studied concerning the flight of an interstellar spacecraft with a nuclear, direct-flow engine using interstellar hydrogen. 6 Biblio. Refs,

USSR

FEDYUSHIN, B. K.

"One Problem of Relativistic Mechanics of a Body with Variable Rest Mass"

Vopr. Mekhaniki [Problems of Mechanics -- Collection of Works], Moscow University Press, 1971, pp 115-118, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 A83 by L. M. Markhashov).

Translation: A formula is suggested for the rest mass of a relativistic rocket, the reaction stream of which contains several components. Several particular cases are studied: thermonuclear engine converting hydrogen to helium, photon engine, in which the product of annihilation of hydrogen and antihydrogen is gamma-radiation, and an ionic engine, producing a stream of metal (cesium) ions with a thermonuclear or annihilation reactor as a source of energy.

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USSR

UDC 629.78.015.076.6

FEDYUSHIN, B. K.

"One Problem of Relativistic Mechanics of a Body with Variable Rest Mass"

Vopr. Mekhaniki [Problems of Mechanics -- Collection of Works], Moscow University Press, 1971, pp 115-118, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.105 by T. A. Ye.).

Translation: The theory of a relativistic rocket with a single-component reaction jet has been developed in detail on the basis of the relativistic mechanics of a body with variable rest mass. This report analyzes the theory of a relativistic rocket with a multicomponent reaction jet. Particular cases of a relativistic rocket are studied: a thermonuclear relativistic rocket, a photon relativistic rocket and an ionic relativistic rocket. 5 Biblio. Refs.

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USSR

UDC: 533.69.01+533.662.013

KHOLYAVKO, V. I., FEFELOV, M. A.

"Nonlinear Characteristics of a Thin Delta Wing Close to an Interface"

Samoletost. i tekhn. vozd. flota. Resp. mezhved. temat. nauch.-tekhn. sb.
(Airplane Construction and Airfleet Engineering. Republic Interdepartmental
Thematic Scientific and Technical Collection), 1972, vyp. 27, pp 1-8 (from
RZh-Mekhanika, No 9, Sep 72, Abstract No 9B481)

Translation: The authors consider an approximate method for calculating the lift of a thin delta wing of low aspect ratio with a sharp edge close to a solid or free (in the case of a hydrofoil) surface. The calculation is based on the linear theory of an isolated wing (determination of the potential component of lift), on the analogy with a suction force on the leading edge (determination of the nonlinear component), and on the theory of a thin body (accounting for the interface). Simple analytical relations are found for calculating the lift of the wing over a wide range of angles of attack. Authors' abstract.

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USSR

UDC: 51

MAKAROV, V. L., MARSHAK, V. D., FEFELOV, V. F.

"An Algorithm for Formulating Optimum Dynamic Expenditure/Output Models"

V sb. Algoritmy i programmy realizatsii narodnokhoz. modeley (Algorithms and Programs for Realization of National Economic Models--collection of works), Novosibirsk, 1971, pp 116-133 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V437)

[No abstract]

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Powder Metallurgy

USSR

UDC: 621.762.5.001

KARPINOS, D. M., TUCHINSKIY, L. I., FEFER, V. Ya., Institute of Problems of Material Sciences, Academy of Sciences UkrSSR

"The Problem of Compacting of Sandwich Materials by Hot Pressing"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 73, pp 45-50.

Abstract: An analytic dependence is produced, describing the compacting of sandwich-type reinforced material during hot pressing, considering the influence of smoothing of matrix projections pressed into the intervals between fibers. It is assumed that the compacting rate is controlled by the rate of steady-state creep of the matrix. It is shown that in the initial stages of hot pressing, compacting results only from fibers pressing into the matrix, after which the smoothing of the portions of the matrix pressed into the spaces between the fibers becomes significant. Experimental testing with reinforced copper-molybdenum and nickel-molybdenum specimens shows that the dependence produced describes the actual process of compacting of a reinforced material during hot pressing satisfactorily.

FEFER, V. Ya.

ARM/12-160/15-988-73
6-12

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fractional exponent equal to $-1/2$, an integral kernel representation is derived, and time dependences of the real and imaginary parts are computed and plotted. A graphical analysis shows that the representation of an elastic modulus by a complex Q operator assures an energy decrease with tension relaxation in agreement with the second law of thermodynamics.

Karpene, D. M., L. I. Tushinsky, M. L. Gorb, E. S. Umanaky, and V. Ya. Fefer.
Mechanical properties of titanium reinforced by unidirectional molybdenum wires. Problemy Prochnosti, no. 6, 1972, 28-32.

The mechanical properties of type VT 1-0 titanium, reinforced with unidirectional wires of molybdenum M4, were investigated. Reinforcement wires 0.8 mm in diameter were wound unidirectionally on titanium matrix plates 0.08 mm thick. The wire volumetric content was regulated by the winding pitch, and comprised 10, 20, 32, and 44% by volume. Tensile strength and impact viscosity tests were conducted. Non-reinforced titanium plates were tested for comparison. The tensile strength was tested at 20, 400, 600, and 800° C; five specimens for each volumetric content of the reinforcement wire were tested at each temperature. At all investigated temperatures, a practically linear relationship was observed between the short-term tensile strength and the volumetric wire content V_w . An increase of titanium strength due to reinforcement is characterized by the strengthening coefficient K , which represents the ratio of the composition strength to the titanium strength at a specific temperature.

USSR

UDC 621.762.5.001

KARPINOS, D. M., TUCHINSKIY, L. I., and FEFER, V. YA., Institute of Problems of Material Science, Academy of Sciences UkrSSR

"Calculation of the Corrected Work of Compacting During Dynamic Hot Pressing of Stratified Reinforced Materials"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 73, pp 7-15

Abstract: Energy expenditures are analyzed, producing an equation for calculation of the work of dynamic hot pressing of reinforced materials as a function of the plastic properties of the matrix and the geometric parameters of the composition considering the distribution of stress on the contact surface between fiber and matrix and the friction between them. The results of experimental testing of the equation during dynamic hot pressing of copper-molybdenum wire and nickel-molybdenum wire systems show that the work of compacting defined by the formula agrees well with the experimental results.

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KARPINOS, D. M., TUCHINSKIY, L. I., GORB, M. L., UMANSKIY, E. S., FEFER, V. Ya., Kiev

"Mechanical Properties of Titanium Reinforced with Unidirectional Molybdenum Wires"

Kiev, Problemy Prochnosti, No 6, 1972, pp 28-32.

Abstract: This work presents a study of the mechanical properties of reinforced titanium-based materials. Compositions based on type VT-1-0 alloy reinforced with unidirectional M4 molybdenum wires were studied. The specimens were made by vacuum dynamic hot pressing. The volumetric content of wire was adjusted by the winding step and amounted to 10, 20, 32 and 44 vol.%. Each specimen consisted of 20 to 30 plates with wound wires. The dependence of tensile strength, yield point, $\sigma_{0.2}$, Young modulus and impact toughness on molybdenum content was studied. It was found that the tensile strength and modulus of elasticity of compositions increased linearly with increasing volumetric content of wire, which agrees with the additive rule. It is demonstrated that as temperature rises, the strengthening factor of the compositions increases significantly. Impact toughness was found to be dependent on composition and orientation of reinforcing elements.

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USSR

UDC 622.412.3

LISITSA, M. P., and FEKESHGAZI, I. V., Semiconductor Institute, Academy of Sciences Ukrainian SSR

"Technique for Measuring Tensor Components of Nonlinear Polarizability in D_{2d}-Class Single Crystals"

USSR Authors' Certificate No 363021, Cl. G 01n 21/40, filed 27 Apr 71, published 20 Dec 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1973, p 85)

Abstract: The unique feature of the technique is that, for purposes of simultaneously measuring the absolute and relative values of the indicated components, the radiation intensity of the second harmonic is measured at a known and constant value for the principal radiation intensity that occurs in a plane-parallel specimen cut parallel to the crystal X-axis from the angle α between the E-plane and the plane passing through the optical crystal axis and the normal to the specimen. The absolute value of d_{14} is then determined from the intensity value at $\alpha = 0$, and the relative value d_{35}/d_{14} is determined from the intensity ratio at $\alpha = 0$ and $\alpha = \frac{\pi}{4}$.

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USSR

UDC 621.375.82:537.226 + 575.511.333:629.16.01

LISITSA, M.P., FERESHGAZI, I.V.

"Changes Of Characteristics Of Monopulses Of Laser Radiation And Luminous Plasma In The Process Of Formation Of Damages On The Surface Or In The Volume Of Transparent Dielectrics"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 6(12), 1971, pp 61-62

Abstract: The change is studied of the characteristics of monopulses of laser radiation and luminous plasma in the process of formation of damages on the surface or in the volume of K-8, IK-5, and TF-5 Type transparent glasses as well as alkali-halide crystals of NaCl, KCl, and KBr. The effect is investigated of the pressure of the surrounding medium on the energy of the transmitted radiation and the intensity luminescence of the torches. A copy laser with a calculated figure of merit was used in the work. The energy of the radiation pulses amounted to 1.2 joule with durations from 15 to 40 nanosec. The radiation was focused by a lens ($F = 55$ mm), successively at the input surface, in the volume, and at the output surface of a specimen. It is shown that within the region of 15 to 40 nanosec pulse duration the radiative power is a basic reason for the appearance of damage. The surrounding medium only affects the damage process at pressures above 50 mm of mercury. 5 ill. 1 tab. 25 ref. Received by editors, 21 June 1971; after revision, 10 May 1972.

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USSR

UDC 537.226 + 573.311.55:539.16.04

LISITSA, M.F., FEKESNGAZI, I.V.

"Types Of Damage Produced By Laser Radiation On The Surface Or In The Volume Of Transparent Glasses"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, pp 86-88

Abstract: The results are presented of investigations of the form of damage to the surface and the volume of Types K-8, LK-5, and TF-5 glasses, produced by beams of average convergence ($3 < F < 8$ cm) of various intensities. An examination of the form of damage and stresses which appear in the volume of the glass was conducted in natural and polarized light, both along the direction of the beam and perpendicular to it. The damage was caused by the monopulse radiation of a ruby laser with a tunable duration in the interval from 10 to 40 nanosec. The energy of the beam was changed by neutral filters from the maximum value (1.2 joule) to a threshold magnitude which gives rise to damage. In connection with the proximity of the physico-chemical properties of the glasses investigated, the form of the damage at the input surfaces, the volumes, or the output surfaces depends slightly on the brand of glass. 2 refs. 11 ref. Received by editors, 17 May 1971; after revision, 9 Nov 1971.

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1/2 022
UNCLASSIFIED
TITLE--EFFECT OF HIGH PRESSURE ON THE CRYSTALLIZATION OF ARSENIC AND
SULFUR GLASSES -U-
AUTHOR--(05)-TIMOFEYEV, N.V., VINOGRADOVA, G.Z., FEKLICHEV, YE.M.,
DEMBOVSKIY, S.A., KALASHNIKOV, YA.A.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 902-4 (PHYS CHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--HIGH PRESSURE EFFECT, GLASS CRYSTALLIZATION, ARSENIC
COMPOUND, SULFUR COMPOUND, X RAY ANALYSIS, GLASS STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/1575
STEP NO--UR/0020/70/190/004/0902/0904
CIRC ACCESSION NO--AT0100193
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIPC ACCESSION NO--AT0100193

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

ABSTRACT. THE CRYSTN. OF AS SUB2 S SUB3 GLASSES WAS DETD. AT 30-70 KILOBARS AND UP TO 500DEGREES. AS SUB2 S SUB3 CRYSTD. AT 250DEGREES AND 40-70 KILOBARS. X RAY PHASE ANAL. PROVED THAT THE OBTAINING CRYST. AS SUB2 S SUB3 HAS THE SAME STRUCTURE AS THE NATURALLY OCCURRING ORPIMENT (I). BETA AS SUB2 S SUB3 FORMED AT 400DEGREES. IT HAS A STRUCTURE DIFFERENT THAN I. AS SUB2 S SUB5 GLASS (M. 190DEGREES) CRYSTD. AT GREATER THAN 250DEGREES AND 50-70 KILOBARS. AS SUB2 S SUB5 HAS AN ORTHORHOMBIC STRUCTURE WITH A CONGRUENT TO 10.37, B CONGRUENT TO 9.9, AND C CONGRUENT TO 8.66 ANGSTROM.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DETERMINATION OF RESIDUAL AMOUNTS OF DDT IN MILK -U-
AUTHOR--(04)-YERMAKOVA, P.N., OLSHANOVA, K.M., FEKLISOVA, L.S., POTAPOVA,
M.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (2), 221-2
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DDT INSECTICIDE, FOOD CONTAMINATION, PROCESSED ANIMAL PRODUCT,
CHROMATOGRAPHIC ANALYSIS, THIN LAYER CHROMATOGRAPHY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0160 STEP NO--UR/0322/70/000/002/0221/0222
CIRC ACCESSION NO--AT0137304
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0137304
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE METHOD OF THIN LAYER
CHROMATOG. IS PRESENTED. THE BEST ADSORBENT WAS FOUND TO BE A MIXT. OF
AL SUB2 O SUB3 AND SILICA GEL (1:1) WITH PARTICLE DIAM. 0.1-0.25 MM.
THE BEST SOLVENT WAS N. HEXANE, WITH MOTION ON THE PLATE AT THE SLOPE
ANGLE 4-9DEGREES. FACILITY: MOSK. TEKHNOL. INST. MYAS. MOLOCH.
PROM., MOSCOW, USSR.

UNCLASSIFIED

1/2 039
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--DETERMINATION OF THE RATE CONSTANT OF A REACTION OF E SUBAN PRIME
NEGATIVE WITH AN ACCEPTOR IN NEUTRAL WATER BY A PULSED METHOD -U-
AUTHOR--FEL, N.S.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 178-80
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION RATE, WATER, AQUEOUS SOLUTION, HYDROGEN,
HELIUM, RADIATION EFFECT, REACTION MECHANISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/0928
STEP NO--UR/0456/70/040/002/0178/0180
CIRC ACCESSION NO--AP0107457
UNCLASSIFIED

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039

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0107457

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

ABSTRACT. THE METHOD IS BASED ON THE CHARACTERISTIC DEPENDENCE OF THE DISAPPEARANCE OF E SUBAQ PRIME NEGATIVE IN AQ. SOLN. ON THE ACCEPTOR CONC., (ACC). MEASUREMENTS SHOW THAT E SUBAQ PRIME NEGATIVE DISAPPEARS IN PURE NEUTRAL WATER (SATD. WITH H SUB2 OR HE, DOSE RANGE IN THE PULSE 100-3500 RAOS) BY THE LAW OF A REACTION OF THE 1ST ORDER WITH A RATE CONST. K SUBO. THE VALUE OF K SUBO INCREASES WITH THE DOSE IN THE PULSE THUS INDICATING THE BIMOL. REACTIONS OF E SUBAQ PRIME NEGATIVE WITH THE INTERMEDIATE PRODUCTS OF WATER RADIOLYSIS. IN THE PRESENCE OF AN ACCEPTOR UNDER THE CONDITION (ACC) IS GREATER THAN (E SUBAQ PRIME NEGATIVE) THE LOSS OF E SUBAQ PRIME NEGATIVE IS WELL DESCRIBED BY AN EQUATION OF A REACTION OF THE 1ST ORDER. THE OBSD. CONST. K SUB1 LINEARLY DEPENDS ON THE ACCEPTOR CONC.: $K_{SUB1} = K_{SUBO} + \mu (ACC)$. THE VALUE OF μ IS CONST. FOR A GIVEN ACCEPTOR. THE DEPENDENCE IS NONTRIVIAL. THE PROPOSED METHOD IS ESP. VALUABLE FOR STUDYING THE REACTION OF THE ELECTRON WITH THE ACCEPTOR IN MEDIA IN WHICH THE ELECTRON IS SHORT LIVED.

FACILITY: INST. ELEKTROKHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

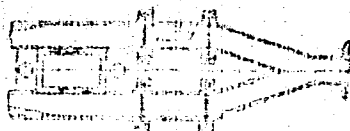
UDC: 621.372.852.5

FEL, S. S., GARB, Kh. L., TROPA, A. D.

"A Waveguide Coupler for Multimode Power of Frequency and Space Harmonics"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334612, Division II, filed 24 Jul 70, published 30 Mar 72, p 193

Translation: This Author's Certificate introduces a waveguide coupler for multimode power of frequency and space harmonics which consists of a section of rectangular multimode waveguide and two rectangular single-mode separator waveguides joined by a Y and connected to the wide wall of the multimode waveguide section by coupling elements. As a distinguishing feature of the patent, in order to provide transition attenuation which is identical for different wave modes, and to reduce overall dimensions, the coupling elements are made in the form of two slots cut through rotating cylindrical insets on the wide walls of the multimode waveguide which are located in a single cross section symmetrically relative to the longitudinal axis.



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Waveguides

USSR

UDC: 621.372.832(088.8)

FEL, S. S., BOKOVA, A. P.

"A Directional Coupler Based on a Rectangular Multiple-Mode Waveguide"

USSR Author's Certificate No 260698, filed 29 Mar 68, published 24 Sep 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2B228 P)

Translation: This Author's Certificate introduces a directional coupler based on a rectangular multiple-mode waveguide. The device contains a section of multiple-mode waveguide, and sections of single-mode waveguides bent in the E-plane and arranged around the perimeter of the multiple-mode guide with narrow walls in contact with each other. The end faces of the single-mode guides are located in a single plane perpendicular to the longitudinal axis of the multiple-mode guide, which gives the directional coupler a wide-band effect.

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USSR

UDC: 621.372.832.4

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FEL, S. S., BOKOVA, A. P.

"A Directional Coupler Based on a Rectangular Multiple-Mode Waveguide"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 260098, filed 29 Mar 68, p 195

Abstract: This author's certificate introduces a directional coupler based on a rectangular multiple-mode waveguide. The device contains a section of multiple-mode waveguide, and sections of single-mode waveguide which are bent in the E-plane. As a distinguishing feature of the patent, the device is designed for directed wide-band branching of the power of the modes. The sections of single-mode waveguides are arranged around the periphery with their narrow walls in contact with each other, the ends of these sections being located in a single plane perpendicular to the longitudinal axis of the multiple-mode waveguide.

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AA0040634

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,
AUTHORS: Vityuk, K. T.; Fel', Yu. I.; and Krutogolov, L. G.

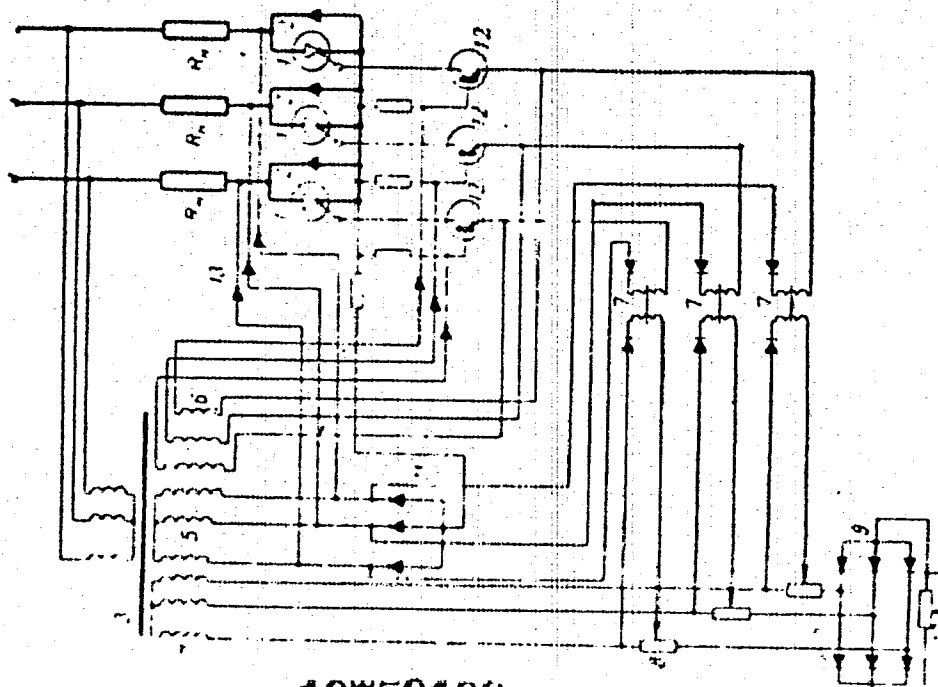
233076 VOLTAGE REGULATION CIRCUIT on three phase loads includes thyristors (1) in a reverse connection with diodes (2), three phase step-down transformer (3) and three single-core half-wave magnetic amplifiers (7). Full-wave rectifier (9) is connected to secondary winding (4) through resistors (8) and its dc circuits includes variable resistor (10). The power windings of the magnetic amplifiers lead to transistors (12), the bases of which receive a voltage from secondary winding (6) and the control windings lead to resistors (8).

2.8.66. as 1095714/24-7, VITYUK, K.T. et al.
Leningrad Inst of Water Transport. (18.4.69)
Bul. 2/18.12.68. Class 21d² Int. Cl. H 02p.

1/2 Leningradskiy Institut Vodnogo Transporta

19750198

AA0040634



19750199

USSR

UDC: 538.56:535

SUKHORUKOV, A. P., FEL'D, S. Ya., KHACHATRYAN, A. M., SHUMILOV, E. N.

"Stationary Thermal Self-Focusing of Laser Beams"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 53-61

Abstract: The paper deals with some problems in the theory of thermal self-focusing of continuous laser emission. A theoretical geometric optics equation is found for a nonlinear absorbing medium which can be used to plot the aberration pattern of thermal self-focusing. An analysis is also made of the structure of the focal region, and the behavior of the field at the focus is discussed for a wide range of variation in the absorption of the medium and in the input power. The stability of stationary thermal self-focusing is investigated, and it is shown that thermal self-focusing of actual high-power beams takes place without breakdown into separate filaments. Four illustrations, bibliography of nine titles.

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USSR

UDC 621.375.82

SUKHORUKOV, A. P., FEL'D, S. Ya., KHACHATRYAN, A. M., SHUMILOV, E. N.

"Steady-State, Thermal Self-Focusing Laser Beam"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works),
No. 2, Moscow, "Sov. radio", 1972, pp 53-60 (from RZh-Fizika, No 10,
Oct 72, Abstract No 10D877)

Translation: Certain problems in the theory of thermal self-focusing of continuous laser radiation are discussed. A ray equation of geometrical optics was obtained for a nonlinear absorption medium; the equation makes it possible to construct an aberration diagram of thermal self-focusing. The structure of the focal region is analyzed, and the behavior of the field at the focus is analyzed over a wide range of change in the absorption medium and the input power. The stability of steady-state, thermal self-focusing is investigated, and it is shown that thermal self-focusing of actual beams of high power occurs without their decay into separate rays. 9 ref. Authors abstract.

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USSR

UDC: 8.74

FEL'DBAUM, A. A.

"Processes of Teaching People and Automata"

V sb. Metody optimiz. avtomat. sistem (Methods of Optimizing Automatic Systems—collection of works), Moscow, "Energiya", 1972, pp 109-148 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V573)

Translation: The problems, goals and methods of teaching are treated from the standpoint of general control theory. A number of methods of search and teaching are considered and levels of teaching are analyzed. A structure is proposed for the process of teaching automata. Bibliography of 23 titles. Author's abstract.

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USSR

UDC: 8.74

FEL'DBAUM, A. A.

"Processes of Teaching People and Automata"

V sb. Metody optimiz. avtomat. sistem (Methods of Optimizing Automatic Systems—collection of works), Moscow, "Energiya", 1972, pp 109-148 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V573)

Translation: The problems, goals and methods of teaching are treated from the standpoint of general control theory. A number of methods of search and teaching are considered and levels of teaching are analyzed. A structure is proposed for the process of teaching automata. Bibliography of 23 titles. Author's abstract.

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USSR

UDC 621.165-19.001.5

ZYSINA MOLOZHEN, L. M., Doctor of Technical Sciences, Professor, FEL'DBERG,
L. A., Engineer

"Holographic Analysis of the Particle Size of Two-Phase Media"

Leningrad, Energomashinostroyeniye, No 1, 1971, pp 10-12

Abstract: The application of hologram techniques for study of the distribution of small-size particles in space is set forth. Among the direct applications of the proposed method is its use for investigation of the structure of moist-steam flows in turbines. Three figures and 2 bibliographic entries.

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- 74 -

1/2 024 UNCLASSIFIED PROCESSING DATE--300CT70
TITLE--MECHANISM AND KINETICS OF ISOHEXENE DIMERIZATION ON AN
ALUMINOSILICATE CATALYST -U-
AUTHOR-(03)-OSOKIN, YU.G., KRYUKOV, S.I., FELDBLYUM, V.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 691-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HEXENE, DIMERIZATION, CHEMICAL KINETICS, ALUMINUM SILICATE,
ACTIVATION ENERGY, CHEMICAL REACTION MECHANISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1959 STEP NO--UR/0366/70/006/004/0691/0698
CIRC ACCESSION NO--AP0125548
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125548

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIMERIZATION OF THE THERMODYNAMIC EQUIL. MIXT. OF H SUB2 C:CMER (I) WITH ME SUB2 C:CHET (II) IN THE PRESENCE OF ALUMINOSILICATE CATALYSTS IS A 2ND ORDER REACTION WITH 15.9 KCAL-MOLE ACTIVATION ENERGY. THE FOLLOWING ISOMERIC C SUB12 ALKENES ARE FORMED: PRME SUB2 CH SUB2 C:CH SUB2)PR, PRME SUB2 CH SUB2 CME:CHET, PRME SUB2 CH:CMER, PRME SUB2 CHETCME:CH SUB2, AND PRME SUB2 CET:CME SUB2. THE DIMERIZATION MECHANISM INVOLVES THE ADDNS. OF ME SUB2 C PRIME POSITIVE PR TO I OR II; I REACTS ABOUT 5 TIMES AS FAST AS II IN THIS ADDN. REACTION. FACILITY: YAROSLAV. TEKHNOL. INST., YAROSLAVL, USSR.

UNCLASSIFIED

USSR

UDC 547.313

PETRUSHANSKAYA, N. V., KURAPOVA, A. I., FEL'DBLYUM, V. Sh., Scientific Research Institute of Monomers for Synthetic Rubber, Yaroslavl'

"Dimerization of Olefins Under the Effect of Bis-(ethylene)-triisopropylphosphine Nickel-(0) and Ethylene-bis-(triisopropylphosphine)-nickel-(0) in Combination With Lewis Acids"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 27 Jul 73, pp 606-607

Abstract: Compounds of nickel in conjunction with Lewis acids and tertiary phosphines form active catalytic systems for dimerization of olefins. The data in the literature relate to π -allyl complexes of nickel or to complex systems of the Ziegler type. It has been hypothesized that in any system catalysis takes place through an olefin coordination stage with the formation of intermediate π -complexes of nickel. The research described in this paper is an attempt to confirm this hypothesis. It was found that individual complexes of nickel(0) containing ethylene and triisopropylphosphine as ligands are not active in dimerization, but with the addition of a Lewis acid oligomerization of the coordinated ethylene occurs and an active catalytic system of olefin dimerization is formed. The results of the research give direct confirmation of the importance of π -complexes of nickel in reactions of catalytic dimerization of olefins.

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1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ELECTRICAL CONDUCTIVITY OF COMPLEX ZIEGLER CATALYSTS AND THEIR
ACTIVITY IN OLEFIN REACTIONS -U-
AUTHOR--(04)-OBESHCHALOVA, N.V., SMIRNOVA, G.A., FELDBLYUM, V.SH., TURVAN,
YA.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 270-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTRIC CONDUCTIVITY, ALKENE, COMPLEX COMPOUND, CATALYST
ACTIVITY, ISOMERIZATION, ORGANALUMINUM COMPOUND, NICKEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1396 STEP NO--UR/0079/70/040/002/0270/0275
CIRC ACCESSION NO--AP0116843
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116843

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE SYSTEM OF ET SUB3 AL SUB2 CL SUB3 WITH NI DI-TERT-BUTYLBENZOATE IN PHCL SOLN. AND CONTG. AN EXCESS OF AL RELATIVE TO NI THE RELATION IS SYMBOLIC OF CATALYTIC ACTIVITY FOR ISOMERIZATION OF 2,METHYL,1,PENTENE TO ELEC. COND. WITH 5 FOLD OR GREATER EXCESS OF AL OVER NI THE COND. OF THE SYSTEM IS GREATER THAN FOUND FOR A LARGE EXCESS OF RALCL SUB2, BUT THE CATALYTIC ACTIVITY IS ABSENT. THE SAME INVERSE EFFECT WAS OBSERVED AFTER THERMAL TREATMENT OF THE CATALYST. THE SYSTEM OF ET SUB3 AL SUB2 CL SUB3 NICKL SUB2 SHOWED A SYMBATIC RELATION AMONG CONC. OF NI, COND., AND CATALYTIC ACTIVITY IN PROPYLENE DIMERIZATION; TREATMENT WITH H RAISED THE COND. AND CATALYTIC ACTIVITY. COND. MAY BE USED AS THE INDEX OF CATALYTIC ACTIVITY ONLY IN CASE OF LARGE EXCESS OF THE ALRCL COMPONENT RELATIVE TO NI SALTS. THIS RULE IS LOST WHEN THE RATIO OF AL TO NI IS LOWERED OR BECAUSE OF HEAT TREATMENT; THIS IS CAUSED BY THE FACT THAT COND. IS THE RESULT OF DISSOCN. OF BOTH ACTIVE CATALYST PARTICLES AS WELL AS OTHER COMPLEXES THAT MAY BE PRESENT. FACILITY: NAUCH.-ISSLED. INST. MONOMEROV SIN. KAUCH., YAROSLAVL, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CODIMERIZATION OF ETHYLENE WITH PROPYLENE UNDER THE INFLUENCE OF
ZIEGLER CATALYTIC SYSTEMS -U-
AUTHOR--(03)-FELDBLYUM, V.SH., LESHCHEVA, A.I., PETRUSHANSKAYA, N.V.
COUNTRY OF INFO--USSR F
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1113-14
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS---ETHYLENE, PROPYLENE, COPOLYMERIZATION, DIMERIZATION, CATALYST,
ALUMINUM CHLORIDE, ORGANOALUMINUM COMPOUND, ISOPRENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1277 STEP NO--UR/0366/70/006/005/1113/1114
CIRC ACCESSION NO--AP0134951
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134951

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PASSAGE OF 1.1 ETHYLENE
PROPYLENE MIXT. AT 25DEGREES THROUGH A SOLN. CONTG. ISO-BU SUB2 ALCL, NI
OLEATE, AND PH SUB3 P OR ISO-PR SUB3 IN PHME GAVE 43.0-4.8PERCENT C SUB5
HYDROCARBONS CONTG. 60.9-89.5PERCENT METHYLBUTENES. THE METHOD MAY BE
OF INDUSTRIAL USE FOR THE PREPN. OF ISOPRENE. WHEN THE CATALYST SOLN.
CONTAINED ONLY ISO-BU SUB2 ALCL AND NI OLEATE, THE MAIN C SUB5 FRACTION
CONSTITUENTS WERE N PENTENES. FACILITY: NAUCH.-ISSLED. INST.
MONOMER. SIN. KAUCH., YAROSLAVL, USSR. ..

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--OLIGOMERIZATION OF ETHYLENE UNDER THE INFLUENCE OF A
DIISOBUTYLALUMINUM CHLORIDE NICKEL OLEATE CATALYTIC SYSTEM -U-
AUTHOR-(03)-FELDBLYUM, V.SH., LESHCHEVA, A.I., DASHCHALOVA, N.V.
COUNTRY OF INFO--USSR F
SOURCE--ZH. ORG. KHIM. 1970, 6(2), 213-18
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ETHYLENE, ALUMINUM CHLORIDE, ORGANIC ALUMINUM COMPOUND,
HEPTANE, BENZENE DERIVATIVE, BUTANE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0212 STEP NO--UR/0366/70/006/002/0213/0219
CIRC ACCESSION NO--AP0113151

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0113151

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION WAS CARRIED OUT BY BUBBLING ETHYLENE (I) UNDER ATM. PRESSURE THROUGH A MIXT. OF ISO-80 SUB2 ALCL IN N-HEPTANE AND NI OLEATE IN TERT BUC SUB6 H SUB4 ME. THE CONVERSION OF I WAS SMALLER THAN OR EQUAL TO 89PERCENT AT SIMILAR TO 30DEGREES AND LOWER AT OTHER TEMPS. THE CONVERSION OF I INCREASED WITH AL-NI RATIO, BUT IT REMAINED APPROX. CONST. AFTER 4:6 RATIO WAS REACHED. THE PRESENCE OF LARGER THAN 4 VOL. PERCENT O IN I DECREASED THE CONVERSION. CHANGING THE TEMP., AL-NI RATIO, OXYGEN CONTENT, AND THE RATE OF I FLOW VARIED THE SELECTIVITY OF THE MAIN PRODUCTS FORMATION SMALLER THAN OR EQUAL TO 100PERCENT FOR BUTENES (MOSTLY 2,BUTENE) AND SMALLER THAN OR EQUAL TO 60PERCENT FOR HEXENES (MOSTLY 3,METHYL,2,PENTENE).

UNCLASSIFIED

USSR

UDC 669.15.018.85

SAVKINA, L. YA., FEL'DGANDLER, E. G.

"Effect of Phase Composition and Alloying of the α and γ -Phases on the Impact Toughness of Ferrite-Austenite Steel"

Sb. tr. TsNII chern. metallurgii (Collection of Works of the Central Scientific Research Institute of Ferrous Metallurgy), 1970, vyp. 77, pp 92-95 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41654)

Translation: A study was made of the effect of phase composition and alloying of the α and γ -phases on impact toughness in steel with 21% Cr and a variable content of Ni (0, 2, 4, and 6%) and C (0.035, 0.10%). There are 2 illustrations.

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USSR

UDC 669.1.017.001.5

SAVKINA, L. YA., and FEL'DGANDLER, E. G.

"Influence of Phase Composition and Alloying of α and γ Phases on Impact Toughness of Ferritic-Austenitic Steels"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 92-95

Translation: In steels with 21% Cr and variable nickel content (0, 2, 4, and 6%) and carbon content (0.035, 0.10%), the influence of phase composition and alloying of α and γ phases on impact toughness is studied. 2 figures.

Mechanical Properties

USSR

UDC 669.15.018.8

FEL'DGANDLER, E. G., and DANILOVA, T. V.

"Investigation of Properties and Industrial Testing of High-Strength Kh17H4MD and Kh16N7M2Yu Stainless Steels"

Sb. tr. TsNII chern. metallurgii (Collection of Works of Central Scientific Research Institute of Ferrous Metallurgy), 1970, vyp. 77, pp 131-141 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3I585 by authors)

Translation: The article presents data regarding the influence of phase composition and heat-treatment procedure on the mechanical properties and corrosion resistance of brands Kh16N7M2Yu and Kh17H4MD transition-class steels. Two illustrations. Four tables. Bibliography with three titles.

Steels

USSR

UDC 669.14.013.841

BABAKOV, A. A., ZHADAN, T. A., LEVIN, F. L., POSYSAEVA, L. I., and MEL'DONIKER, E. G. (Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin)

"Low-Carbon Corrosion-Resistant Steels"

Moscow, Stal', No 9, Sep 72, pp 836-839

Abstract: A survey is presented of investigations on corrosion-resistant -- especially low-carbon -- chromium-nickel steels of the austenitic class. The effect of various components of chemical composition on the susceptibility of the steels to intercrystalline corrosion is considered. It is recommended that carbon content in the steel be reduced and that the solid solution be stabilized by special alloying to prevent the formation of excess phases (σ -phase) or carbides on the grain boundaries. The corrosion properties of new, recently developed steels of the austenitic and ferrite-austenitic class are discussed.

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USSR

UDC 620.186.1:669.013.2.8

BELYAYEVA, V. A., FEL'DGANDLER, E. G., KAPUTKIN, I. I., and SAVKINA, L. YA.,
Central Scientific Research Institute of Ferrous Metallurgy

"Phase Composition and Intercrystalline Corrosion in 000Kh16N15M3 (EI-844) Steel"

Moscow, Metallovedeniye, No 5, May 70, pp 6-8

Abstract: Phase composition and intercrystalline corrosion in EI-844 steel were studied after quenching samples from 1050°C and tempering between 550 and 750°C for periods ranging from 15 minutes to 1000 hours. Nominal composition of the steel was: 0.028% C, 16.04% Cr, 15.5% Ni, 2.84% Mo, 0.41% Si, and 0.003% N. (Two samples contained 0.12 and 0.13% N and one other sample contained 0.6% Mo).

Carbide precipitation was done by using an electrolyte consisting of 200 g KCl + 200 ml HCl (sp. wt. 1.19) + 50 g ammonium citrate in 1000 ml water at a current density of 0.05 a/cm². Isolation of the excess phases in a sample with 0.006% C was done by using an electrolyte of 1150 ml CH₃OH + 50 ml HCl + 30 g citric acid at a current density of 0.02 a/cm² and an exposure time of five hours. Separation of the M₂₃C₆ and AB₂ phases was done by treating the anodic deposit with a mixture of hydrogen peroxide and HCl.

Experimental data revealed that upon tempering the steel at 650-750°C for 100 and 1000 hours the cubic carbide M₂₃C₆ is the primary precipitate. By lowering

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USSR

BELYAYEVA, V. A., et al., Metallovedeniye, No 5, May 70, pp 6-8

carbon content to less than 0.01% and alloying the steel with Si and Nb, the AB_2 hexagonal phase is formed. It was also noted that there is no relationship between the tendency toward intercrystalline corrosion of the steel and an increase in the Cr content of the carbide phase or the amount of Cr-containing phases.

USSR

UDC 669.14.018.8

FEL'DCANDLER, E. G., and DANILOVA, T. V.

"Study of the Properties and Industrial Testing of Kh17N4MD and Kh16N7M2Yu High-Strength Stainless Steels"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 131-141

Translation: The article presents data on the influence of the phase composition and heat treatment mode on the properties of steels in the transitional class including Kh16N7MYu and Kh17N4MD. 2 figures; 4 tables; 3 biblio. refs.

1/1

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USSR

UDC 669.14.018.8:620.192.63

SAVKINA, L. YA., LAZAREVA, N. A., FEL'DGANDLER, E. G., and AGAPOVA, N. P.

"Tendency to Intercrystalline Corrosion of Low-Carbon Steels Containing Chromium and Nickel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1973, pp 55-57

Abstract: Effects of contents of carbon, nickel, chromium, molybdenum, tungsten, and niobium at relations Nb/C=5, 7, 17, and 20 On the tendency of low-carbon steel containing chromium and nickel to intercrystalline corrosion was experimentally investigated by the AM(GOST 6032-52) method on specimens water quenched from 1050°C and tempered at 500-800°C for 0.25-1000 hrs. The 000Kh16N20 steel was not inclined to intercrystalline corrosion at carbon content $\leq 0.08\%$ or by niobium presence according to Nb/C ≥ 17 . Alloying with Mo and W at the rate of about 2% diminishes somewhat the tendency of the steel to intercrystalline corrosion. The latter appears at higher temperatures. The higher the nickel content the lower the allowable carbon content in the steel at which intercrystalline corrosion is absent. Five figures, one table, six bibliographic references.

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Inorganic Compounds

USSR

UDC 539.89 + 548.73

FEL'DGUN, L. I., NIKITINA, T. P., SOKHOR, M. I., and FUTERGENDLER, S. I.,
All-Union Scientific Research Institute of Abrasives and Grinding, Leningrad

"Mechanism of Modification Conversion in Boron Nitride"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, Vyp 12, 1971, pp 3067-3070

Abstract: Cubic boron nitride was synthesized from pyrolytic hexagonal boron nitride and its structure was studied with x-ray diffraction in order to examine the phase conversion mechanism of the hexagonal boron into the cubic form. The synthesis was carried out in a high-pressure chamber loaded with powdered and pyrolytic hexagonal boron nitride. The rate of conversion of powdered hexagonal boron nitride with a three-dimensional lattice was much higher than that of pyrolytic hexagonal boron nitride. It was attributed to a high density of pyrolytic nitride which retarded the flow of the melt between the particles and the solution of hexagonal nitride particles in the melt. The product contained dark and light colored boron nitride crystals with cubic structure. The appearance of the dark-colored crystals was due either to the presence of metal impurities, or to penetration of boron into the crystal lattice of cubic boron nitride. The crystal lattice parameters of the cubic boron nitride varied from $a = 3,6157 \text{ \AA}$ for colorless crystals

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USSR

FEL'DGUN, L. I., et al., Zhurnal Fizicheskoy Khimii, Vol 45, Vyp 12, 1971, pp 3067-3070

to $\alpha = 3,6181 \text{ \AA}$ for dark-colored crystals. The size of the nitride crystals was from $\sim 10^{-3}$ to 10^{-2} cm. It is concluded that there was no direct conversion of the hexagonal boron nitride into a cubic structure, but the latter was crystallized from the melt due to the presence of unordered B - N complexes in it.

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USSR

UDC 632.952.02

MARKH, A. T., FEL'DMAN, A. L., and KOBELEVA, S. M., Odessa Technological Institute of the Food Industry imeni M. V. Lomonosov

"The Influence of Tetramethylthiuram Disulfide on the Metabolism and Biosynthesis of Sulfur-Containing Compounds in the Tissues of Potato Tubers"

Moscow, Khimiya v Sel'skom Khozyaystva, Vol 10, No 6, 1972, pp 35-37

Abstract: A laboratory experiment was conducted with Odessa type potatoes on a Knopp culture solution to which had been added .5 microcuries of ^{35}S with a specific activity of 414242 counts/minute. Exposition was for 3 and 6 days. Sulfur-containing compounds were separated with one-dimensional descending chromatography method. The specific activity of the sulfur (a) of the investigated compounds is determined by the exchange rate and the synthesis of the substance during tagging. The rate of synthesis (K) was calculated by the formula:

$$\underline{K} = \frac{{}^{35}\text{S}}{\text{S}} = \frac{\underline{a}}{\underline{a}_0 - \underline{a}}$$

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USSR

MARKH, A. T., et al., Khimiya v Sel'skom Khozyaystva, Vol 10, No 6, 1972, pp 35-37

where ^{35}S is the amount of sulfur included in the investigated compound, in grams; S is the amount of sulfur in the compound up to the time of tagging; a_0 is the specific activity of the sulfur ^{35}S in the nutrient culture, in counts/min. per 1 g. The standard deviation of the experiment was calculated by the formula $m = 0.67 \sqrt{N}$. Correlation of the fractions derived leads to the conclusion that sulfur in $\text{Na}_2^{35}\text{SO}_4$ first enters the mineral part, witnessed by its higher specific activity, then into the organic acid-soluble part, and finally into the albumin part. The variants with TMTD underwent a quicker distribution of the sulfur fractions. Also, the organic acid-soluble and albumin parts gained sulphur at the expense of the mineral part. It was determined that TMTD speeded the process of sulfate restoration and the intensity of biosynthesis of organic biologically active sulfur-containing compounds. TMTD also preserved thiamin from oxidization.

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FEL'DMAN, A. L.

TECHNICAL TRANSLATION

PSIC-RT-23-327-71

ENGLISH TITLE: Peach Polyphenols and Their Role in Changing the Color of Fruit

FOREIGN TITLE: Not indicated

AUTHOR: A. L. Fel'dman, L. I. Kostinatsya

SOURCE: Perkizatsiya Biokhimiya i Mikrobiologiya, Vol 6, No. 4, 1970, pp 442-446

Translated for PSIC by ACS1

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EFFECT OF TMTD ON THE NUTRITIVE QUALITY OF POTATOES, PEPPERS, AND
EGGPLANT -U-
AUTHOR-(02)-FELDMAN, A.L., KOBELOVA, S.M.
COUNTRY OF INFO--USSR
SOURCE--KHIM. SEL. KHOZ. 1970, 8(3), 182-3
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PESTICIDE, ORGANIC SULFUR COMPOUND, ORGANIC POLYSULFIDE,
VEGETABLE, FOOD ANALYSIS, THIAMINE, RIBOFLAVIN, AMINO ACID, SULFUR
COMPOUND, ASCORBIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/0562 STEP NO--UR/0394/70/003/003/0182/0183
CIRC ACCESSION NO--AP0131185
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131135

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TMTD (TETRAMETHYLTHIURAM DISULFIDE), USED FOR THE PROTECTION OF SUMMER PLANTED POTATOES, IS NOT ACCUMULATED IN THE HARVEST OF THE NEW TUBERS. ANAL. OF PEPPER AND EGGPLANT FRUITS GROWN IN THE PRESENCE OF TMTD SHOWED THAT THE CONTENT OF VITAMINS C, B SUB1, B SUB2, AND PROTEIN WAS HIGHER WHILE THAT OF AMINO ACIDS WAS LOWER THAN THE CONTROL. THE TOTAL AMT. OF S IN FRUITS WAS NOT INFLUENCED BY TMTD, BUT AN INCREASE IN MINERAL S CONTENT TOGETHER WITH DECREASE OF S IN THE ETHER AL. FRACTION WAS FOUND. FACILITY: ODESS. TEKHNOL. INST. IM. LOMONOSOVA, ODESSA, USSR.

UNCLASSIFIED

Hydraulic and Hydrostatic

USSR .

UDC: 551.46.086

FEL'DMAN, A. Ye., KUMAN, V. V., KROTOV, V. A., PYANTKOVSKAYA, E. P.

"A Device for Measuring Wind Parameters From on Board a Moving Ship"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 6, Feb 72, Author's Certificate No 328390, Division G, filed 28 Jul 69, published 2 Feb 72, p 137

Translation: This Author's Certificate introduces: 1. A device for measuring wind parameters from on board a moving ship. The device contains a wind gauge connected to a device for converting wind speed and direction to angle of turn. The conversion device is connected to a vector plotter. The measurement device also contains instruments which relay the ship's course and velocity. As a distinguishing feature of the patent, the device is designed for vector averaging of the true wind speed and direction. For this purpose it is equipped with two averaging blocks, each of which is made in the form of an integrating drive connected through an electromagnetic clutch to a linearly rotating transformer and a device for resetting readings to zero. The device is also equipped with programming and commutating devices. The averaging blocks are connected between the output

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USSR

FEL'DMAN, A. Ye. et al., USSR Author's Certificate No 328390

circuits of the sine-cosine rotating transformer of the central instrument and the vector plotting inputs. The power supply for the electromagnetic clutches is connected through the commutating device, which is controlled by the programming device. The output circuits of the sine-cosine rotating transformer of the central instrument are connected to the inputs of the integrating drives through controlled phasing devices. Connected between the outputs of the linearly rotating transformers of the averaging blocks and the inputs of the sine-cosine rotating transformer in the vector plotter are scaling rotating transformers and resistance-controlled transformers. 2. A modification of this device distinguished by the fact that provision is made for storage of the average vector values found for the wind parameters and for relaying these parameters in the next averaging period. The power supply for the elements of the vector plotter and the linearly rotating transformer of the averaging block is connected through the commutating device controlled by the programming device. The programming device actuates the commutating device at the end of the averaging period before reset of the readings on the averaging block.

2/2

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1/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--INCREASE IN THE STABILITY OF THE GRATE BARS OF SINTERING MACHINES
-U-
AUTHOR--(05)-FELDMAN, B.A., NEIGENBAUER, G.O., GALEMIN, I.M., KVANDV, V.A.,
TERLIKOVSKIY, V.I.
COUNTRY OF INFO--USSR F
SOURCE--METALLURG (MOSCOW) 1970, 15(1), 6-8
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--SINTERING FURNACE, MATERIAL FAILURE, CAST IRON, HIGH CARBON
STEEL, CHROMIUM STEEL/1UICSH18 36 CAST IRON

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FKAME--1989/1934 STEP NO--UK/0130/70/025/001/0006/0008
CIRC ACCESSION NO--AP0108263
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0103263

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNTIL RECENTLY THE KARAGANDINSK METALLURGICAL PLANT USED BARS FOR SINTERING MACHINES MADE FROM GSH18-36 GRAY CAST IRON WITH A LIFE OF 4 MONTHS AND A CONSUMPTION OF 400 G-TON OF SINTER. VARIOUS ALLOYS WITH DIFFERENT CR AND FE CONCNS. WERE TRIED. BEST WAS BB ALLOY CONTG.: C 1.10, CR 19.07, SI 2.00PERCENT. THE NEW BARS LAST 1.5-2 YR.

UNCLASSIFIED

USSR

UDC 616.921.5-085.37

BAKALOV, A. N., FEL'DMAN, E. B., and SVINARENKO, K. I., Mogilevskaya Oblast Health Department

"Some Data on the Effectiveness of Anti-Influenza Vaccination Under Conditions of an Epidemic Increase in the Incidence of Influenza and Acute Respiratory Diseases"

Minsk, Zdravookhraneniye Belorussii, No 9, Sep 70, pp 81-83

Abstract: Data on the incidence of influenza from 59 industrial enterprises were analyzed in an attempt to correlate them with the level of vaccination. It was concluded that prophylactic vaccination against influenza is ineffective and unjustifiable unless the total population is covered. Immunoprophylaxis against influenza is epidemiologically effective only when 86-99% of the population are vaccinated with dry live vaccine.

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USSR

UDC: 8.74

MATER, Ye. A., FEL'DMAN, G. L.

"Concerning a Method of Joining Data Files"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Computer Technology and Programming--collection of works), vyp. 7, Moscow, "Sov. radio", 1972, pp 83-93 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V624)

Translation: An algorithm is proposed for uniting data blocks of various lengths recorded on magnetic tape into a single ordered data file. The algorithm is based on Hoffman's idea of synthesizing codes of minimum redundancy and the corresponding tree of interconnection. Estimates are given of the effectiveness of a modified algorithm with respect to the number of tape passes, and the procedure is compared with the merging method. Authors' abstract.

1/1

- 60 -

USSR

UDC 622.011.43

PETUKHOV, I. M., FEL'DMAN, I. A., YAKUBSON, G. G.

"Experimental Study of the Deformation of Worked Strata"

Tr. VNII gorn. geomekh. i marksheyd. dela (Works of the All-Union Scientific Research Institute of Mining Geomechanics and Surveying), 1970, Collection 74, pp 423-428 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V690)

Translation: The technique and experimental results are presented on measuring deformations of the elastic restoration of worked strata at the "Vorkutaugol" combine. It was found that deformations attenuate with distance from the working according to the exponential law $\epsilon = 0.0007 \cdot e^{-7y/2x_0}$ (where ϵ is the deformation, $2x_0$ is the width of the working, and y is the distance from the working). It is pointed out that it is possible to use these results in calculating cleaned zones in cold beds dangerous for strata shocks. A. B. Fadeyev.

1/1

USSR

UDC 547.783:543.422.4.6

USAYEVICH, YU. YA., BOKSINER, YE. I., and FEL'DMAN, I. KH., Leningrad Chemical-Pharmaceutical Institute

"Imidazolones. IV. Aminomethylation and Phosphorylation of Imidazolone-4(5) 2,5(4)-Substituted Derivatives"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 804-806

Abstract: Imidazolones-4(5) substituted in 2,5(4) positions do not react with formaldehyde according to the Knoevenagel reaction, but in presence of equimolar quantity of dimethylamine react easily to give Mannich reaction products. A mixture of 1.37 g of 2-(3',4'-dimethoxyphenyl)-5(4)-methylimidazolone-4(5), 1 ml 20% aqueous dimethylamine, 0.45 ml of 36% aqueous formaldehyde, and 7 ml acetic acid is heated at 60° to achieve solution, then left to stand for 24 hrs. The mixture is treated with NaOH, filtered and the product -- 2-(3',4'-dimethoxyphenyl)-5(4)-methyl-5(4)-dimethylaminomethylimidazolone-4(5), m.p. 138-139° is recrystallized from a benzene-ether mixture. Treating 2,4(5)-substituted imidazolones-4(5) with phosphorus oxychloride gives phosphorylation products. To 1.37 g 2-(3',4'-dimethoxyphenyl)-5(4)-isobutylimidazolone-4(5) in 5 ml dry benzene, 0.3 ml dimethylaniline is added, the mixture is cooled and 1.5 ml phosphorus oxychloride is added dropwise, followed by a 3 hrs reflux.

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USSR

USAYEVICH, YU. YA., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 6,
Jun 71, pp 804-806

Upon cooling, tri-(2-(3',4'-dimethoxyphenyl)-5-isobutyl-4-ketoimidazol-1)
phosphine oxide, m.p. 298-300° precipitates.

2/2

- 20 -

USSR

UDC 632.95

FEL'DMAN, I. N., MALISHKEVICH, Yu. Ya., FILIMONOV, B. F., and GEYD, Yu. P.

"An Information-Search System for the Technology of Pesticides"

V. sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- Collection of Works), No 3, Moscow, 1973, pp 155-159 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N502)

Translation: The principles underlying the preparation of punch cards for pesticides are described. The cards contain information on the classes of chemical compounds, process flow diagram, preparatory forms, toxicology, effectiveness, residues, manufacturing companies, prices on the world market.

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- 48 -

Acc. Nr:

AP0052449

Abstracting Service:
GEOPHYSICAL ABST.

5/70

Ref. Code:

UR0455

91739y Extractive distillation. Barboi, V. M.; Garber, Yu. N.; Fel'dman, I. N. (Kiev. Tekhnol. Inst. Legk. Prom., Kiev, USSR). *Teor. Osn. Khim. Tekhnol.* 1976, 4(1), 115-18 (Russ). The effects on distillate quality by changes in temp., amt. of reflux, concn. of extractive solvent, and component ratio in binary mixts. to be sepd. were evaluated quant. from an equation derived by replacing the reflux ratio in distn. calens. by the theoretically effective one for extractive distn. of a mixt. introduced in the vapor state, $dx_{10}/dt = [(1 - x_{10})\alpha_{21}/(\alpha_{21} - 1)][B_1/(t + C_1)^2] + [x_{10}/(\alpha_{21} - 1)][B_1/(t + C_1)^2]$, and a special case of it for equimolar mixts. A , B , and C are the consts. of Antoine equation, x_{10} is the reboiler solvent concn., t is the reboiler temp., and α_{21} the coeff. of relative volatility of the difficultly volatile component and solvent. Lucile S. Davison

REEL/FRAME
19821083

1/3 009 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EMULSION LACQUER NTS 542 -U-
AUTHOR-(03)-LUCHANSKIY, L.N., ZURABAN, K.M., FELDMAN, I.S.
COUNTRY OF INFO--USSR
SOURCE--KOZH-OBUV. PROM. 1970, 12(2), 56-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--LACQUER, LEATHER, EMULSION, POLYETHYLENE, PRYDXYLIN/(U)NTS542
LACQUER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0558 STEP NO--UR/0498/70/012/002/0056/0059
CIRC ACCESSION NO--AP0119477
UNCLASSIFIED

2/3 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119477

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LACQUER NTS 542, USEFUL FOR COATING LEATHER, IS THE PRODUCT OF EMULSIFICATION OF A SOLN. OF PLASTICIZED COLLOXYLIN IN WATER. CAREFUL TESTING OF MATERIALS, ADDNL. PURIFICATION OF ALIZARIN OIL, AND USE OF DEMINERALIZED WATER ENSURE THE STABILITY OF THE EMULSION FOR 4-6 MONTHS. THE EMULSION MUST BE STORED AT 5-25DEGREES. REFRIGERATION ALTERS THE SOLY. OF THE EMULSIFIER IN THE DIFFERENT PHASES AND LEADS TO COALESCENCE OF THE EMULSION ON THAWING. INCREASE IN TEMP. LEADS TO AN INCREASE IN PARTICLE COLLISIONS WHICH DESTROY THE EMULSION. THE PRESENCE OF AN ELECTROLYTE DECREASES THE POTENTIAL OF THE ELEC. DOUBLE LAYER SURROUNDING THE PARTICLES AND DESTROYS THE EMULSION. THE EMULSION FORMED USING WATER WITH A HARDNESS OF 7-9 MG EQUIVS.-1. IS ONLY USABLE FOR 24-48 HR. DILG. THE EMULSION FOR USE MAY UPSET THE BALANCE BETWEEN WATER AND SOLVENT IN THE EMULSION. THE FILM THUS OBTAINED RETAINS WATER, WHICH CAUSES LOSS OF WHITENESS. THIS IS AVOIDED BY ADDING 10 WT. PARTS SOLVENT (CYCLOHEXANONE OR BUOAC) TO 100 WT. PARTS LACQUER, HOMOGENIZING THE MIST., AND DILG. WITH 10-11 WT. PARTS DEMINERALIZED OR DISTO. WATER. AN EMULSION OF VISCOSITY 15-18 SEC (AT 20DEGREES IN A VZ-3 FUNNEL), WHICH IS SUITABLE FOR APPLICATION BY A PAINT SPRAY, IS OBTAINED. THE LACQUER IS APPLIED TO LEATHER PRECOATED WITH A COLORING COATING BASED ON A SYNTHETIC FILM FORMING MATERIAL AND AN ALBUMIN BINDER. APPLICATION IS BY PAINT SPRAYING FROM A DISTANCE OF 30-40 CM, WITH AN AIR PRESSURE OF 3 ATM. FOR A JET DIAM. OF 1.1-1.3 MM AND 4.5-6.0 ATM. FOR A DIAM. OF 1.8 MM. THE COATING IS DRIED AT 35-40DEGREES.

UNCLASSIFIED

3/3 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119477

ABSTRACT/EXTRACT--THE LACQUER SHOULD BE STORED IN POLYETHYLENE BAGS IN 40

1. TIN PLATED FLAGONS OR IN 50 1. POLYETHYLENE BARRELS.

UNCLASSIFIED

USSR

DUBOVITSKAYA, R. K., KULAKOVSKAYA, V. P., ROMANOVSKAYA, L. M., SAVCHENKO, T. A.,
STOLYAROV, G. K., FEDOROV, A. T., FEL'DMAN, L. S.

Sistema Avtomaticheskoy Obrabotki Dannykh na Baze Yazyka COBOL (Automated Data
Processing System Based on COBOL), Moscow, Statistika Press, 1971, 280 pp

Translation of Foreword [pp 3-4]: In the improvement of the efficiency of
national production, the most important role belongs to further introduction
of computers into the sphere of economics. Progress in this area is determined
to a great extent by the presence of automatic data processing systems for
economically important algorithmic languages available to a broad circle
of people working in the above area.

The first of the data processing systems described in this book for the Minsk-
22K computer (COBOL) is based on a Russian version of COBOL (Common Business
Oriented Language) of the American data processing language which is wide-
spread and well known. This version was developed at the Minsk Engineering Office of
the plant in the U.S.S.R. in close cooperation with the participation of the Mathematics Institute
of the Academy of Sciences of the U.S.S.R., and it is the first system using
COBOL for the development of programs in the development of the language and
translation of the programs from the working group of algorithmic
economic languages into the language (COBOL) of the Minsk-22K computer.
3/3

R

UBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Dannykh na Baze Yazyka ROPOL, Moscow, Statistika Press, 1971, 280 pp

Cooperation of the Academies of Sciences of the Socialist Countries were used.

The book is devoted to a description of the SAOD system and its components from the point of view of the user. The system consists of writing the program in the initial language, preparing the programs and data for computer input, translation and execution of the working program during computations by the finished working program and also during special system servicing procedures.

The book contains information required by programmers and system administrators for the equipment for preparing the data, and organizing the operation of the SAOD system. It is useful to developers of programs for automatic programming and the application of computers to solving problems.

When using the book as a practical guide, the reader should also be acquainted with the following materials on the software system for the Minch-22 computer:

1. Software for the Minch-22 (-2) computer in the T.M. No 1. Standard

2/3

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BOVITSEVA, E. K., et al., Sistema Avtomaticheskoy Obrabotki Danykh na Baze
azyka KODOL, Moscow, Statistika Press, 1971, 280 pp.

Program Library. Minsk, Mathematics Institute of the Belorussian SSR Academy of
Sciences, 1968.

2. Software of the Minsk-2 (22) computer in the T mode. No 3. Symbolic
coding system. Minsk. Mathematics Institute of the Belorussian SSR Academy of
Sciences, 1969.

The authors consider it necessary to note that the success in using SAOB,
just as any modern automatic data processing system, depends to a great extent
on the clarity of organization of the operations with respect to its utiliza-
tion within the framework of the general-enterprise control system.

In addition to the authors, the following people participated in the
development of the system at various stages: V. I. Gorbatshevich, M. L. Gruzdoma,
V. A. Borodchik, L. A. Konysho, M. Ye. Nemenman, L. I. Panchina, V. N. Pionov,
M. S. Pramon, V. M. Shripnikova, et al.

The authors express their sincere appreciation to all who were of assis-
tance in preparing this paper for publication, and they will be grateful to
the readers of the journal for comments, remarks, and suggestions.

USSR

UDC 621.791.763.1.05:434.669.715

FEL'DMAN, L. S., Candidate of Technical Sciences, BURCHENKOVA, L. M.,
ORYSHICH, I. V., and GRECHUKHA, A. V., Engineers

"Effect of Certain Defects During Point Welding of Aluminum Alloys on
the Fatigue Strength of Joints"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 45-46

Abstract: In order to estimate the effect of point welding defects on the fatigue characteristics of joints welded in D16T alloy, the fatigue strength and viability of welded specimens with defects were measured. Defect types tested included external cracks, internal cracks with length over one-third the diameter of the fused core, internal splashes, and pore penetration. The fatigue strength of point joints of D16T alloy produced by resistance welding was found to be decreased by shrinkage cracks extending over more than one-third the diameter of the welded point. Fatigue cracks are formed and develop around the periphery of the welded spot in the area of heat application. Variations in fusion depth between 20 and 80% and variations in the diameter of the weld nugget by $\pm 30\%$ had no significant effect on the durability of welded joints.

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USSR

UDC 620.179.2

FEL'DMAN, L. S., BURCHENKOVA, L. M., ORYSHICH, I. V., and GRECHUKHA, A. V.

"Quality Norms for Welded Joints Made by Spot Resistance Welding"

Moscow, Defektoskopiya, No 6, 1970, pp 126-132

Abstract: Results are presented from statistical processing of data from long-term testing of the quality of electric spot welding, as well as the results of fatigue testing of spot welded joints with various welding defects, various depths of fusion, and spot diameters. The fatigue durability of spot welded joints of D16 alloy with fatigue cracks extending over one-third of the diameter of the welded point decreases as a function of stress levels as follows: internal -- 22-73%, external -- 37-80%. Fatigue cracks arise and develop at the periphery of the welded spot in the thermally affected area. The point of formation and development of fatigue cracks is unrelated to defects already present. A change in the depth of fusion at welded joints between 20 and 80% and a change of the welded spot diameter by $\pm 30\%$ have no significant influence on the fatigue durability of specimens.

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USSR

UDC: 621.396.6

FEL'DMAN, N. B., TYULYAYEVA, N. G., ZIVZAKH, R. M., KUZNETSOVA, G. A.

"Effect Which Grain Orientation has on the Parameters of TsTS-22 Piezoceramic"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 96-99 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V387)

Translation: The authors study the effect of TsTS-22 ceramic grain size on fundamental parameters and the temperature coefficient of the resonance frequency. It is shown that an increase in grain size entails an increase in the permittivity and piezoelectric activity of the ceramic.

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USSR

FELDMAN, N. I. (Chair of Mathematical Analysis)

"Diophantine Equations with a Finite Number of Solutions"

Moscow, Vestnik Moskovskogo Universiteta: Matematika i Mekhanika; July-August, 1971; pp 52-8

ABSTRACT:

Let $\omega_k = (\omega_1, \omega_2, \omega_3)^T$; a_k ($k = 1, 2, 3$) be rational integers; $a > 0$ and v are rational integers satisfying some additional conditions; $v = ab^{-1}$, $b = 5, 8, 10$ or 12 ; a is an integer, $0 < a < b$. Then the Diophantine equation

$$\text{Norm}(x_1\omega_1 + x_2\omega_2 + x_3\omega_3) = Q(x_1, x_2, x_3),$$

$$|Q(x_1, x_2, x_3)| < CX^{b^2-25}, \quad X = \max |x_k|$$

has only a finite number of solutions in rational integers x_1, x_2, x_3 . The boundary for X is effective.

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- 24 -

Acc. Nr:

AP0049800

Abstracting Service:
CHEMICAL ABST. J-70

Ref. Code:

UR0138

101517r Use of "Karbost" in Paronit production. Kanevskii, I. M.; Fel'dman, R. I.; Shossel, E. Z. (Chelvyabinsk. Traktor. Zavod, Chelvyabinsk, USSR). *Kauch. Rezina* 1970, 29(1), 43-4 (Russ). Karbost (I) (a by-product of wood pulping industry) was used for filling Paronit (sealing compn.) based on rubber SKS-30. The new filler has low thermal cond. coeff. ($<0.10-0.17$ kcal/m hr degree in $80-330^{\circ}$ range) and high elec. resistance (60,000 ohm cm at 20°). Paronit filled with I had greater tensile strength at break than Paronit contg. graphite.

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USSR

~~FEL'DMAN~~ Y., GRIS, D.

"Systems for Construction of Translators"

Algoritmy i Algoritmich. Yazyki [Algorithms and Algorithmic Languages -- Collection of Works], No 5, Moscow Acad. Sci. USSR Computer Center, 1971, pp 105-214, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V525, unsigned).

Translation: A critical review is presented of contemporary works on automation of the construction of translators for programming languages. The second chapter studies formal investigations of syntax and its applications to the construction of translators. Various approaches to automation of post syntactic (semantic) aspects of the construction of translators are studied in the third chapter and certain related problems -- in the fourth chapter.

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USSR

FEL'DMAN, Ya.

"On Nomography, Computers, and Economics"

Moscow, Voprosy Ekonomiki, No 6, June 70, pp 157-158

Abstract: In the USSR all work on nomography is coordinated by the Nomography Sector of the Computing Center of the Academy of Sciences, USSR. At the end of 1969 at a display of the achievements of the national economy of the USSR, this center conducted an All-Union Scientific-Technical Seminar on the theme "Use of Nomographic Methods in the National Economy." This was the third scientific meeting in recent years of nomographists and specialists of various branches of science and the national economy who use nomographic methods in their work. V. Ditkin, the Deputy Director of the Computing Center, told the seminar that in recent times electronic computers had come to be considered as the universal computing means. However, small computations with limited precision are inadvisedly conducted on electronic computers. For them the nomographic method is more suitable. V. Ditkin proposed to turn more attention to an investigation of automation of the construction of nomograms on an electronic computer. In his report "On Nomography and Its Possibilities" G. Khovanskiy, Chief of the Nomography

1/2

USSR

FEL'DMAN, Ya., Voprosy Ekonomiki, No 6, June 70, pp 157-158

Sector of the Computing Center, gave a long list of units where nomographs are now used. I. Denisyuk, one of the USSR's oldest nomographers, reported on "Nomography and Economic Problems." The State Public Library imeni M. Ye. Saltykov--Shchedrin in Leningrad, jointly with the Leningrad Institute of Precision Mechanics, prepared the bibliographical guide "Nomography, Graphic Methods of Computing and Their Use in Various Branches of Science and Technology," which included literature up to 1964 inclusively (more than 2500 titles — in the book "Collection of Bibliographic Works to Help Libraries." Tekhnika, 1966, Leningrad, 1967). Work now continues at this library on expansion of such a guide. It is planned to conduct the next nomographic conference at Minsk.

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CSO: 1863-W

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- 178 -

Information Theory & Pattern Recognition

USSR

UDC 002.513.5:681.322-523.8:658.511.54

FEIDMAN Ye. M.

"Certain Problems in the Development of Documentary-Factographic Automatic Information Retrieval Systems for Handling Documentation on Technical Norms"

Moscow, Nauchno-Tekhnicheskaya Informatsiya - Seriya 2, Informatsionnyye Protsessy i Sistemy, No. 4, 1972, pp 36-39

Abstract: The basic problems in organizing an automated system for information maintenance on technical norms are discussed. Important problems of an automated information maintenance system were solved by the All-Union Information Fund of Standards and Technical Specifications and Gosstandart USSR in conjunction with the Publishing House of Standards. Traditional methods of solving these problems on the relatively limited information base of the All-Union Information Fund and the absence of the necessary amount of feedback did not provide the necessary functioning efficiency of the entire system as a whole, however. An information maintenance system for technical norms documentation is being developed at the present time as one of the functional systems of the automated information-control systems of Gosstandart USSR which consists of the following

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USSR

- FEL'DMAN, Ye. M., Nauchno-tekhnicheskaya informatsiya - Seriya 2,
Informatsionnyye protsessy i sistemy, No. 4, 1972, pp 36-39

two subsystems: (1) documentary-factographic maintenance and (2) accounting-statistical information. The documentary-factographic servicing system consists of three interconnected subsystems: signal information on the presence of active norms, selective distribution of information, and answers to requests (the documentary-factographic automatic information retrieval system). The present article is devoted to the principles of the design of the automated documentary-factographic information retrieval system for technical norm documentation, a subsystem for answers to requests, since the solution of problems posed by this subsystem is of greatest interest at the present time. The machine-oriented standards certificate, the information retrieval language, and the organization of the data bank are discussed.

Waveguides

USSR

UDC 621.372.852.1

FEL'DSHEYN, ALEKSANDR L'VOVICH; RAVICH, LEV RAFAELOVICH

"Synthesis Of Microwave Quadripoles And Octupoles"

Sintez chetyrekhpol'yusnikov i vos'mipol'yusnikov na SVCh (cf English above),
Moscow, Izd. "Svyaz", 1971, 2nd ed., revised and supplemented, 388 pp, 192 ill.,
29 tab. 146 ref. 1 r 62 k.

Abstract: In the monograph timely problems are considered of the analysis and synthesis (of specified frequency characteristics) of various units of a waveguide channel -- filters, directional couplers, abrupt and smooth junctions. Four directions are developed: theory of quadripoles and octupoles with use of wave matrices, synthesis of abrupt and smooth junctions, synthesis of directional couplers (including synthesis of multistage couplers), and microwave filters. The material discussed in the book is designed for engineering workers occupied with problems of microwave channels. The book is also of interest for students of radio engineering faculties and graduate students.

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USSR

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USSR

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USSR

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UDC 621.372.852

BACHININA, YE. L., PROKHOROVA, N. I., FEL'DSHTEYN, A. L., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics, and Communications

"Losses in Superhigh Frequency Filters and the Problems of Miniaturization"

Moscow, Radiotekhnika, Vol 26, No 10, 1971, pp 46-52

Abstract: The effect of dissipative losses on the frequency characteristics of superhigh frequency filters was analyzed, and a study was made of the conditions determining the minimum losses. The limits of miniaturization were established from the point of view of dissipative losses in the filter. The methods of strict synthesis of filters considering losses are not considered inasmuch as in the filters calculated by this procedure, the mean loss level increases significantly. The so-called pseudochebyshev and pseudomaximally planar characteristics interpreted as the frequency characteristics of the filter of the corresponding type calculated without considering the losses are investigated. The loss effect is further considered by introducing a complex constant transmission of the $\gamma = \alpha + i\beta$ lines and subsequent analysis of the system. Greater simplicity of the physical and mathematical concepts and greater generality are obtained than in previous papers. Specific numerical characteristics are found which permit fast, simple calculation of filters with losses. Filters

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BACHININA, YE. L., et al., Radiotekhnika, Vol 26, No 10, 1971, pp 46-52

with direct and quarter-wave couplings were compared, and the losses at the center of the pass band for both types of filters compared for three types of lines (wave guide, air cavity and printed ceramic) demonstrated complete identicalness in both types of filters under other equal conditions. The universal curves for the filters and their approximation by a hyperbola are investigated and illustrated. The conditions of minimum losses are discussed, and an example calculation is given.

The law established in the paper -- the product of the average losses in the filter circuit times the width of its pass band is constant -- facilitates the investigation of a filter with losses. By using the universal curves it is possible to determine the losses in the filter with any number of circuits n and any pass band and to find the conditions of minimum losses. The minimum dissipative losses in a filter is highly uncritical. When $k = 1.8-3$ [k is the coefficient of rectangularity], the losses almost do not vary. When $k \rightarrow 1$, the losses increase sharply. The type of characteristic (Chebyshev or maximally planar) essentially has no effect on the minimum magnitude of the losses. A table of values of the constants "a" [the product of the average losses in the filter circuit times the filter pass band] permits construction of the required hyperbolas for each specific case. Graphs are presented which demonstrate that the dissipative losses in miniature filters increase sharply.

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Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

230111 CONCENTRATED CYANAMIDE SOLUTIONS as an intermediate in the manufacture of crystalline cyanamide, obtained by vacuum evaporation of dilute 5-10% solutions acidified by sulphuric acid, are produced more effectively by evaporating in two stages, at maximum residual pressures of 60 and 30 mmHg respectively, and by bringing the cyanamide solution concentration to 20-30% in the first stage. In an example, after feeding 10 m³/h of 5% cyanamide solution acidified to pH 4.5-5.5 into a tank, 30-50 m³/h of the solution were circulated via an evaporator and a separator back to the tank. Vapour was fed into the inter-tube space of the evaporator at below 3 atm, steam also being passed into a surface condenser, where it was condensed and mixed with calcium cyanide; the residual pressure was 50-60 mmHg. 2.4 m³/h of 20% solution were passed from the first tank to a second tank for repetition of the above-men-

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tioned cycle, the steam and vapour being condensed
in a mixing condenser. 1.2 m³/h of 40% solution
were passed to the collector tank, at a total loss
of cyanamide in solution of not more than 5%.

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Dzerzhinski Sec. Nitrogen Ind. and Organic
Synthesis Products Res. Inst. (18.3.69.) Bul.34/
30.10.68. Class 12k. Int.Cl. Colc.

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