USSR

UDC 666.764.23:543.062

KOROBKA, L. A., TRET'YAK, Z. A., and KONIK, L. P., Ukrainian Scientific Research Institute of Refractories

"Photometric Determination of Aluminum in Zirconium-Containing Refractories"

Moscow, Ogneupory, No 8, 70, pp 49-51

Abstract: A photometric method of alkaline separation of aluminum from zirconium-containing materials using chromasurol S is described. Use was made of salt solutions and artificial mixtures of refractory oxides to study the techniques of preparing solutions of the real materials to be analyzed, as well as of methods of quantitative separation of aluminum and zirconium and specifications for photometric determination. The study indicates the possibility of determining aluminum in zirconium-containing refractories without having to remove the fusing agent used for the alkaline separation of aluminum from zirconium, hafnium, titanium, and iron. The statistical method of processing the analytical data on Al_2O_3 in zirconium refractories by photometry using chromasurol S is presented in a table in the original article. The photometric method provides high accuracy and reproducibility of results.

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USSR UDC 621.171.237

TRET'YAKOV, A. V., ZINOV'YEV, YE. G., ZUYEV, B. P., SHEBANITS, E. N., and NALCHA, G. I., Scientific Research Institute of Heavy Machine Building of the Urals Machine Building Plant and the Zhdanov Metallurgical Plant imeni Il'ich

"Increasing the Quality of Strip During Coiling Using an Electrohydraulic System of Working Rolls Bending"

Moscow, Stal', No 7, Jul 73, pp 628-632

Abstract: The graphic relationship of corrected height of nonplaneness to the relative difference of elongation along the strip width, having a parabolic nature, was determined. It was established that strip and sheet dimensions affect the height of the wave forming the non-planeness. Effectiveness of the action of additional bending of the working rolls on the relative difference of elongations and strip non-planeness surpasses the effectiveness of the action of the pressure device (with the exception of narrow and thin strip). Hydroshaping of the working rolls promotes improvement of the mechanical properties of low-carbon steel during finishing owing to an insignificant change of the average relative reduction along the strip width in the limits of 0.8-1.4%. Adjustment of the hydroshaping system for the initial non-planeness of strip leads to producing heterogeneous mechanical properties along the width. Therefore, it is

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TRET'YAKOV, A. V., et al., Stal', No 7, Jul 73, pp 628-632

advantageous to equip continuous cold rolling mills with electrohydraulic systems of forced roll bending. Operation of the system of hydraulic shaping of the working rolls on a 1700 finishing mill made it possible to, along with a 1.5-3.0-fold reduction of rejection of cold-rolled sheet for roughness and waviness, substantially stabilize the mode of reductions and to increase the output of 1.5-2.0 mm thick sheet for very deep drawing by 10%. Six figures, two tables, six bibliographic references.

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USSR UDC 621.7.011

TRET'YAKOV, A. V., TROFIMOV, G. K., and GUR'YANOVA, M. K.

Mekhanicheskiye Svoystva Staley i Splavov pri Plasticheskom Deformirovanii. Spravochnik (Mechanical Properties of Steels and Alloys at Plastic Deformation. Handbook), Moscow, "Mashinostroyeniye," 1971, 63 pp.

Abstract: Data are presented on the variation of mechanical properties of steels and alloys in the presence of plastic deformation. Empirical formulas are given for determining nominal yield point, temporary strength, relative elongation, and hardness as a function of the degree of deformation for any kind of steel and alloy at room temperature.

Empirical formulas for deformation conditions at high temperatures, as well as tables of real strength variation with temperature and rate and degree of deformation are presented.

The handbook is intended for designers and industrial engineers at machine building and metallurgical plants. It may also be useful for scientific personnel, graduate students, and students of related specialties. 36 tables, 10 figures, and 18 references.
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USSR

TRET'YAKOV, A. V., et al., "Mashinostroyeniye," 1971, 63 pp

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TRET'YAKOV, A. V., et al., "Mashinostroyeniye," 1971, 63 pp

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USSR UDC 621.315.592

ALFEROV, Zh. I., KOROL'KOV, V. I., NIKITIN, V. G., and TRET'YAKOV, D. N.

"Solid-State Infrared Radiation Converter"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 5, No 8, 1971, pp 1503-1507

Abstract: The work described in this article is based in part upon earlier articles by the same authors in the same journal (Vol 4, 1970, p 578, and Vol 4, 1970, p 2035) in which it was shown that GaAs diodes with an S-shaped volt-ampere characteristic are sensitive to infrared radiation, and that p-n-p-n structures emit visible light when switched to conduct. The present article describes experiments performed on the four-layered structures of $n\text{-}Al_xGa_{1-x}As\text{--}p\text{-}Al_xGa_{1-x}As\text{--}si\text{-}GaAs\text{--}p\text{-}Al_xGa_{1-x}As$, solid-state converters in which the infrared-sensitive si region acts as the sensor. A description is given of how this four-layered structure is obtained. The specimens used in the experimentation were rectangular, with an area of 0.1-0.3 mm^2, and their switching voltage, which increased with increased thickness of the semiinsulating region, was from 20-80 volts. An oscillogram of the forward section of the device's volt-ampere characteristic is reproduced, the volt-ampere characteristics of the device before switching are plotted for

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ALFEROV, Zh. I., et al., Fizika i tekhnika poluprovodnikov, Vol 5, No 8, 1971, pp 1503-1507

several different temperatures, and the spectra for the n-p-si-p structure recombination radiation at 300°K are given. The authors express their thanks to V. M. Tuchkevich for his interest in the work, and to N. A. Nikitina and V. P. Dvortsova for their help in preparing the specimens and making the measurements. They are associated with the A. F. Ioffe Physico-Technical Institute of Leningrad.

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USSR

UDC 621.382.2

ALFEROV, Zh. I., ANDREYEV, V. M., KOROL'KOV, V. I., PORTNOY, Ye. L., TRET'YAKOV, D. N.

"Heterojunctions $Al_xGa_{1-x}As$--GaAs"

V sb. Fiz. elektronno-dyrochn. perekhodov i poluprovodn. priborov (Zh. fiz. i tekhn. poluprovodnikov) (Physics of Electron-Hole Junctions and Semiconductor Devices -- Collection of Works [Journal of Physics and Technology of Semiconductors]), Leningrad, "Nauka," 1969, pp 260-267 (from RZh--Elektronika i yeye primeneniye, No 3, Mar 70, Abstract No 3B170)

Translation: The electrical properties and the injection luminescence of heterojunctions (H) of $Al_xGa_{1-x}As$--GaAs with different contents of Al are investigated. The H were obtained by epitaxial depositing of solid solutions of $Al_xGa_{1-x}As$ on a monocrystalline substrate of GaAs. A band model was established for n-p and p-n H and its basic parameters were determined. A comparison was made of the mechanism for the flow of current through it and the properties of the spectra of electroluminescence for H. A. Ye.

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USSR UDC 533.6.071:621.002

PANIN, I. D. and TRET'YAKOV, G. P.

"Special Features of the Manufacture of Wind Tunnel Nozzles"

Novosibirsk, Izvestita Sibirskogo Otedeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, Issue 1, No 3, 1973, pp 136-139

Abstract: For more than 10 years the Experimental Plant of Siberian Department has been preparing wind tunnel nozzles of various design; this work represents a complex evolution ranging from primitive manual methods for working aluminum alloys, to the mechanized template-based industrial production of heat-resistant, stainless steel nozzles.

Master forms, templates and plane tables are essential in mechanised nozzle production. The template is simply a plate with cut-out whose outline corresponds to a given contour of the complex surface of a part or unit; the master form is a device which assures appropriate direction of feed to the copying machine or cutting instrument.

Other production equipment, illustrated and discussed in the article, is the horizontal milling machine 6N33 for preparing curvilinear surfaces of plane-parallel nozzles, the 6441E machine for the same purpose, the 163 model

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PANIN, I. D., and TRET'YAKOV, G. P., Izvestiya Sibirskogo Otedeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, Issue 1, No 3, 1973, pp 136-139

for processing curvilinear surfaces of axisymmetrical nozzles, and a installation for producing supersonic nozzles by the galvanic method. An experimental nozzle with critical channel cross-section of 24.9 mm is discussed.

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1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--FLUORINE-19 NMR SPECTRA OF SOLUTIONS OF XENON TETRAFLUORIDE IN IODINE PENTAFLUORIDE -U-

AUTHOR-(04)-NIKOLAYEV, A.V., OPALOVSKIY, A.A., NAZAROV, A.S., TRETYAKOV, G.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 629-31

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--XENON COMPOUND, FLUORIDE ISOTOPE, IODINE COMPOUND, NMR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1071 STEP NO--UR/0020/70/191/003/0629/0631

CIRC ACCESSION NO--AT0119930

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119930

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRIMEI9 F CHEM. SHIFTS AND LINEWIDTHS OF NMR SIGNALS OF SOLNS. OF XEF SUB4 IN IF SUB5 AT 3EDEGREES ARE GIVEN. ABSENCE OF LOW FIELD MULTIPLETS OF IF SUB5 WAS PROBABLY DUE TO RAPID EXCHANGE OF THE AXIAL F ATOMS IN IF SUB5 WITH THE EQUATORIAL F ATOMS IN THE PRESENCE OF XEF SUB4. THE RESULTS POINT TO A MOL. NATURE OF THE SOLN. OF XEF SUB4 IN IF SUB5 AND TO STRONGER INTERACTION BETWEEN COMPONENTS OF THE XEF SUB4 IF SUB5 SYSTEM COMPARED WITH XEF SUB4 HF.

FACILITY: INST. NEORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CATALYSIS BY METALS PURIFIED IN AN ULTRAHIGH VACUUM -U-

AUTHOR-(03)-TRETYAKOV, I.I., SKLYAROV, A.V., SHUB, B.R.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(2), 479-89

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--VACUUM TECHNIQUE, CHEMICAL PURIFICATION, CHEMICAL REACTION KINETICS, METAL CATALYST, HYDROGEN, OXYGEN, NITROGEN, CARBON MONOXIDE, CARBON DIOXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0972 STEP NO--UR/0195/70/011/002/0479/0489

CIRC ACCESSION NO--AP0131557
UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0131557
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW OF THE KINETICS OF THE REACTIONS OF H SUB2 PLUS O SUB2, N SUB2 O PLUS H SUB2, CO PLUS O SUB2, N SUB2 PLUS H SUB2, AND CO SUB2 PLUS H SUB2 CATALYZED BY METALS PURIFIED IN ULTRAHIGH VACUUM. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--KINETICS AND MECHANISM OF CARBON MONOXIDE OXIDATION ON PLATINUM PURIFIED IN AN ULTRAVACUUM -U-

AUTHOR-(03)-TRETYAKOV, I.I., SKLYAROV, A.V., SHUB, B.R.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 166-75

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CARBON MONOXIDE, PLATINUM, METAL PURIFICATION, ULTRAHIGH VACUUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1460 STEP NO--UR/0195/70/011/001/0166/0175

CIRC ACCESSION NO--AP0120247

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120247

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXION. OF CO ON PT WAS STUDIED AT 175-1000DEGREES AND 10 PRIME NEGATIVE6-10 PRIME NEGATIVE2 TORR. THE KINETICS OF THIS REACTION IS EXPLAINED BY A MECHANISM IN WHICH CO COLLIDES WITH AN O ATOM ADSORBED ON AN ACTIVE CENTER OF PT. A KINETIC EQUATION WAS DERIVED BY ASSUMING STEADY STATE ACTIVITY OF THE O SPECIES ADSORBED ON THE PT. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.317.443

KOVAL'KO, L. M., SKORODUMOV, S. A., STARIKOV, I. V., TRET'YAKOV, L. M.

"Multichannel Analog Magnetic Measuring System"

Tr. VNII elektroizmerit. priborov (Works of the All-Union Scientific Research Institute of Electrical Measurement Instruments), 1971, 7, pp 82-90 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.1752)

Translation: The parameters of a magnetic measuring system that is intended for measuring and recording magnetic field strength at ten points up to 3000 oe where the field varies with a frequency up to 30 Hz are given. The operation and characteristics of the field convertor in the form of a Hall transducer excited by an alternating current are described. Static and dynamic errors in the system are analyzed and methods for reducing them are noted.

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USSR UDC: 621.317.089.68:621.396.62

VASIL'YEV, N. M., TRET'YAKOV, L. N., TUGARINOV, I. M., MOROZ, A. M.

"Equipment for Receiving the Carrier Frequencies of Centimeter Wavelength Radio Stations"

Dokl. Nauchno-tekhn. seminara "Metrologiya v radioelektronike". Tezisy. Ch. 2 (Reports of the Scientific and Technical Conference on Metrology in Radio Electronics. Summaries. Part 2), Moscow, 1970, pp 92-101 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A206)

Translation: The paper describes equipment developed at the All-Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements for receiving the carrier frequencies of centimeter wavelength radio stations and comparing them with the frequency of a secondary standard. Block diagrams are given for the systems of reception and comparison, the circuits of the mixer and multipliers, and also the results of an investigation of the phase stability of the receivers and synthesizers. The results are analyzed. E. L.

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USSR UDC 681.335.713

TRET'YAKOV, N. M., TRET'YAKOVA, N. M., BERNSHTEYN, A. Ye., Vorkuta Affiliate of the Leningrad Mining Institute imeni G. V. Plekhanov

"A Differentiating Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 16, Jun 71, Author's Certificate No 303632, Division G, filed 25 Mar 69, published 13 May 71, p 178

Translation: This Author's Certificate introduces a differentiating device for electric signals. The device contains a multiple-level quantizer connected to a circuit for isolating the sign of the derivative. As a distinguishing feature of the patent, the band of frequencies of the signals to be differentiated is extended into the very low-frequency region by adding an OR circuit with its inputs connected to the circuit for isolating the sign of the derivative, and its output connected to a frequency meter.

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USSR UDC 681.335.713

TRET'YAKOV, N. M., TRET'YAKOVA, N. M., BERNSHTEYN, A. Ye., Vorkuta Affiliate of the Leningrad Mining Institute imeni G. V. Plekhanov

"A Differentiating Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 16, Jun 71, Author's Certificate No 303632, Division G, filed 25 Mar 69, published 13 May 71, p 178

Translation: This Author's Certificate introduces a differentiating device for electric signals. The device contains a multiple-level quantizer connected to a circuit for isolating the sign of the derivative. As a distinguishing feature of the patent, the band of frequencies of the signals to be differentiated is extended into the very low-frequency region by adding an OR circuit with its inputs connected to the circuit for isolating the sign of the derivative, and its output connected to a frequency meter.

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USSR

PLATONOV, V. V., TRET'YAKOV, N. Ye., FILIMONOV, V. N.

"Infrared Spectra of the OH Groups on the Surfaces of Oxides"

Uspekhi Fotoniki [The Successes of Photonics -- Collection of Works], No 2, Leningrad University Press, 1971, pp 92-129 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 B1505 by S. Grigorovich).

Translation: This review is dedicated to the IR spectra of the OH groups on the surfaces of the oxides of Be, Mg, Ca, Zn, Y, Al, Ga, In, Ti, Zr, Hf, Th, Si, Ge, Ta and Ni. Primary attention is given to the following problems: 1) detection and clarification of the specifics of the structure of the hydroxyl cover on the oxides; 2) conditions of removal of water adsorbed in molecular form from the surface and conditions of dehydroxylation of the surface; 3) interaction of OH groups with physically adsorbed molecules. 85 Biblio. Refs.

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USSR

UDC 621.372.8:538.577

TRET'YAKOVA, S.S., TRET'YAKOV, O.A., SHESTOPALOV, V.P.

"Diffraction Of Wave Beams At Plane Periodic Structures"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1566-1575

Abstract: The paper studies the diffraction at plane periodic structures and dielectric plates of paraxial wave beams, i.e., complex waves with nonuniform amplitudes and phase characteristics in the transverse direction of propagation of the plane which change as transmission of the beam proceeds. It is shown that with fixed conditions a wave beam passing through a diffraction structure has the same transverse distribution of the field as in the primary beam incident at an obstacle. Only its characteristics undergo a change -- the beam width and radius of curvature of the phase front. Analytical expressions are derived for the diffracted field, and simple explicit formulas are derived for the beam width and radius of curvature. 1 fig. 11 ref. Received by editors, 27 May 1971.

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1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EXPERIMENTAL STUDY OF OPEN RESONATORS WITH REFLECTIVE DIFFRACTION GRATES. I -U-

AUTHOR-(04)-BALAKLITSKIY, I.M., PETRUSHIN, A.A., TRETYAKOV, O.A., SHESTOPALOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 5, P. 724-38 (MAY 1970)

DATE PUBLISHED----MAY70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--OPEN RESONATOR, OPTIC MIRROR, DIFFRACTION GRATING, HARMONIC OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1808 STEP NO--UR/0185/70/015/005/0724/0738

CIRC ACCESSION NO--AP0133713

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0133713 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEMI SPHERIC OPEN RESONATORS (OR) WITH A FLAT MIRROR COVERED PARTIALLY BY A REFLECTIVE DIFFRACTION GRATE WERE STUDIED EXPERIMENTALLY. SPECTRA AND FIELD DISTRIBUTIONS OF NATURAL OSCILLATIONS WERE EXAMINED IN DEPENDENCE ON THE DISTANCE BETWEEN THE MIRRORS FOR VARIOUS GRATE PARAMETERS. SIMILAR DEPENDENCES OBTAINED WHEN INVESTIGATING BOTH A CONVENTIONAL HEMI SPHERIC OR AND THAT WITH A FLAT MIRROR COMPLETELY COVERED BY A REFLECTIVE DIFFRACTION GRATE ARE PRESENTED FOR COMPARISON. THE SPECTRUM AND FIELD DISTRIBUTIONS OF NATURAL OSCILLATIONS OF OR WITH A TROUGH SHAPED ROUND APERTURE MIRROR INSTEAD OF A SPHERIC ONE ARE CONSIDERED.

UNCLASSIFIED

USSR

UDC: 621.372.2

BUTORIN, V. M., DMITRIYEV, V. M., KRIVOSHEYEV, Ye. F., PAVLYUK, V. A., TRET'YAKOV, O. A.

"Impedance Matching Between a System of Superconducting Thin-Film Tunnel Contacts and Free Space"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1885-1892

Abstract: The paper deals with the problem of plane electromagnetic wave excitation of a periodic system of strip lines (see figure) consisting of superconducting metal strips separated by a thin layer of a homogeneous isotropic dielectric material with thickness $2l \sim 10^{-7}$ cm. Conditions are found for matching between the impedance of this system and that of free space, and the passband and amplitude of the field within the contact at resonance are determined. The results may be treated as part of the solution of the general problem for synthesis of tunnel contacts in which the effect of weak superconductivity is observed. In reality, in the small-signal approximation the Josephson effect is described by a system of linear equations which in this instance must be solved simultaneously with the Maxwell equations and the equation for the normal and superconducting current components

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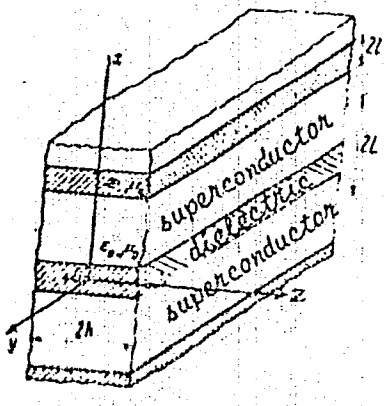
USSR

BUTORIN, V. M. et al., Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1885-1892

as functions of the electric field intensity. The results of the work would seem to imply that the tunnel effect will introduce certain corrections into the condition found for impedance matching, but will not change it in any essential way, and that matching of a system of Josephson contacts with free space will be possible.



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USSR

UDC 621.372.413

GORLACH, A. A., TRET'YAKOV, O. A., and CHUMACHENKO, V. S.

"The Natural Frequencies of a Cylindrical Resonator With a Dielectric and With a Periodic Structure"

V sb. Radioelektron. letatel'n. apparatov (Aviation Radioelectronics — collection of works), Vyp.4, Khar'kov, Khar'kov. aviats. in-t, 1972, pp 125-127 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B121)

Translation: Characteristics are obtained of an equation for the natural frequencies of a cylindrical resonator on whose axis is located a section of cylindrical periodic structure of the reflection, diffraction grating type with a dielectric. A particular case of axially-symmetric E-oscillation is studied. Original article: two bibliographic entries. V.S.

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USSR

UDC: 621.372.413

SYSOYEV, A. S., TRET'YAKOV, O. A.

"Cavity Resonators With a Diffraction Grating Acting as One Mirror"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1951-1953

Abstract: Natural oscillations in open resonators with a diffraction grating replacing one of the mirrors are considered with regard to applications in diffraction electronics. Two types of gratings are considered: a reflecting grating of the "corrugated" type, and a flat strip grating. The other mirror is a cylindrical reflector. The analysis is based on substituting an impedance plane for the diffraction grating with the assumption that the diffraction properties of the grating for natural oscillations remain the same as when a plane wave is incident on the grating. The most promising field of application for such structures is as resonant systems in diffraction emission oscillators of the orotron type.

USSR

SNURNIKOVA, G. K., TRET'YAKOV, O. A. UDC 621.372.825

"Channel Wave Guide"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 19-24 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B108)

Translation: The problem of propagation of H-waves in a channel wave guide is solved in the strict statement. There is 1 illustration and a 4-entry bibliography.

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USSR

UDC: 536.46

BAYEV, V. K., TRET'YAKOV, P. K., YASAKOV, V. A.

"Experimental Study of Processes of Combustion of Gaseous Fuels"

Aerofiz. Issledovaniya [Aerophysical Research -- Collection of Works], Novosibirsk, 1972, pp 83-85 (Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 5, 1973, Abstract No 5.34.91, from the Resume).

Translation: An experimental study is performed of the combustion of homogeneous mixtures in a flat channel with a sudden expansion with velocities at the input to the channel of up to M = 1.25 for the case of diffusion combustion of a stream of hydrogen in an open wake and in a channel of constant cross section in the range of weight M numbers of 0.4 to 1.58.

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USSR

BAYEV, V. K., TRET'YAKOV, P. K., YASAKOV, V. A. UDC 536.46:533.6

"Experimental Study of the Combustion of Gas-Air Mixtures in a Channel and of Diffusion Combustion in a Satellite Flow at High Velocities"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 357-360 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B952)

Translation: The results of an experimental determination of the lengths of flames of homogeneous mixtures in a plane channel with sudden expansion at velocities at the input to the channel up to M = 1.25 are presented. Also determined were the length of separation and the total length of the flame under combustion of an axisymmetric jet in a satellite coaxial free flow of air and in a channel of constant cross section in the Mach number range 0.4--1.58. The measurements of the flame lengths based on photometric measurement and on the distribution of static pressures are compared. It is shown that a universal representation of the geometric characteristics of the flames is possible. 7 ref. Authors' abstract.

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USSR

UDC 629.7.036.3:536.46

BAYEV, V. K., TRET'YAKOV, P. K., and YASAKOV, V. A.

"An Experimental Investigation of the Combustion of Gas-Air Mixtures in a Channel and Diffuse Combustion in a Cocurrent Stream at High Velocities"

Moscow, Goreniye i Vzryv--Sbornik (Combustion and Explosion--Collection of Works), Nauka, 1972, pp 357-360 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract Ni 2.34.33 Resume)

Translation: Results are presented of an experimental determination of the flame lengths of homogeneous mixtures in a two-dimensional channel with sudden expansion at velocities of up to 1.25 Mach at the channel entry; the separation length and the total length of the flame during the combustion of an axisymmetric jet in a cocurrent coaxial free stream of air and in a channel of constant cross section within the Mach-number range of 0.4--1.58. Results of measurement of the flame lengths are compared on the basis of photometry and on the basis of distribution of the static pressures. The possibility of criterial generalization of the geometric characteristics of the flame are shown. 8 figures. 7 references.

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USSR

UDC 621.892.8

PANOK, K. K., TRET'YAKOV, P. P., ZUSEVA, B. S., GRIGOR'YEV, P. F., KULIKOV, I. N., GLAVATI, O. L., GORDASH, Yu. T., RABINOVICH, I. L.

"New Aviation Oils with Dipole Type Additives"

Neftepererabotka i Neftekhimiya. Resp. Mezhved. sb. [Oil Refining and Petrochemistry, Republic Interdepartmental Collection], No 5, 1971, pp 38-41, (Translated from Referativnyy Zhurnal Aviatsiyonnye i Raketnye Dvigateli, No 12, 1971, Abstract No 12.34.9, from the Resume).

Translation: The results of studies of the physical, chemical and operational properties of a new aviation oil containing a Dipole-type additive by laboratory methods, and the results of 50 hours tests of this oil in a Type EU-82T one-cylinder installation indicate that this oil is significantly superior to Type MS-20 oil without additives, presently used for piston aviation engines, and is equal to and in some respects superior to aeroshell oil W-100, a foreign type. 3 Tables; 3 Biblio. Refs.

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USSR

UDC: 669.293.5:621.785(088.8)

PROKOSHKIN, D. A., VASIL'YEVA, Ye. V., TRET'YAKOV, V. I., LUPAKOV, I. S.

"Method of Heat Treatment of Niobium and its Alloys"

USSR Author's Certificate Number 352882, Filed 18/06/71, Published 27/02/73 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8I871).

Translation: This method, including annealing, differs in that in order to increase the elastic properties before annealing cold plastic deformation is conducted with compression greater than 50%, and annealing is performed at 500-900°. Unalloyed Nb, treated by this method, has an elastic limit of 56 kg/mm^2.

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USSR

UDC: 669.293.5:539.434

PROKOSHKIN, D. A., VASIL'YEVA, Ye. V., TRET'YAKOV, V. I., CHIZHOV, I. N., Moscow

"Study of the Heat Resistance of Nb-Mo Alloys, Alloyed with Titanium and Zirconium"

Izvestiya Akademii Nauk SSSR, No 4, Jul-Aug 73, pp 230-235.

Abstract: This work studies the regularities of the influence of titanium and zirconium on the heat resistance of the alloys Nb + 10 wt. % Mo and Nb + + 15 wt. % Mo. The titanium was introduced to the alloys in order to improve the technological characteristics and increase oxidation resistance. It was found that the addition of up to 3% titanium to the alloy Nb + 10 % Mo produces almost no change in the stable creep rate; intensive softening is observed as the titanium content is increased to over 3%. The hardening effect of the addition of (1 wt. %) zirconium to Nb + 10 % Mo + Ti depends on the titanium content and appears most clearly with titanium concentrations of not over 3%. An increase in the content of molybdenum to 15% facilitates increasing heat resistance of niobium alloys. The expediency of alloying Nb + 15 % Mo with titanium at 3% is demonstrated, since further increases in titanium

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USSR

Prokoshkin, D. A., Vasil'yeva, Ye. V., Tret'yakov, V. I., Chizhov, I. N., Izvestiya Akademii Nauk SSSR, No 4, Jul-Aug 73, pp 230-235.

content cause significant reduction of the heat resistance. Additional hardening of Nb + 15 % Mo + 3 % Ti can be achieved by the addition of 1% zirconium. The alloys produced have good technological properties and can be recommended for use as structural materials to operate at 1100° C and higher.

2/2

USSR

UDC 546.94:541.124.7

BARABANOV, V. P., TSENTOVSKIY, V. M., TRET'YAKOVA, A. YA., ZAGIBULLINA, D. SH., KHARRASOVA, F. M., ERRE, E. A., and RAKHIMOVA, G. I., Kazan Chemical Technological Institute imeni S. M. Kirova

"Ionization Constants of Alkyl(aryl)phosphonic and Arylphosphonous Acids in Acetone"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2431-2434

Abstract: The influence of the nature of the substitution groups on the ionization constants was determined for the title compounds. The pK_a was determined in acetone from the potentiometric titration curve. The behavior of phosphinic and phosphonic acids in acetone is different from that in water. Compounds having two different pK_a values for the loss of two different protons in water show only one pK_a in acetone and it is much higher than either of the Pk_a's in the water environment. The Pk_a increases in the series: $p\text{-}ClC_6H_4 < C_6H_5$, $p\text{-}CH_2C_6H_4 < Et < p\text{-}CH_3OC_6H_4$. The Pk_a in acetone may be calculated from the standard pK_a by the following formula:

$$pK = pK_{cr.} \pm \frac{E_{1/2} - E_{1/2\,cr.}}{0.059}$$

1/1

USSR

UDC 621.372.8:538.577

TRET'YAKOVA, S.S., TRET'YAKOV, O.A., SHESTOPALOV, V.P.

"Diffraction Of Wave Beams At Plane Periodic Structures"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1366-1373

Abstract: The paper studies the diffraction at plane periodic structures and dielectric plates of paraxial wave beams, i.e., complex waves with nonuniform amplitudes and phase characteristics in the transverse direction of propagation of the plane which change as transmission of the beam proceeds. It is shown that with fixed conditions a wave beam passing through a diffraction structure has the same transverse distribution of the field as in the primary beam incident at an obstacle. Only its characteristics undergo a change -- the beam width and radius of curvature of the phase front. Analytical expressions are derived for the diffracted field, and simple explicit formulas are derived for the beam width and radius of curvature. 1 fig. 11 ref. Received by editors, 27 May 1971.

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USSR

UDC 669.29:539.376

PROKOSHKIN, D. A., VASIL'YEVA, YE. V., and TRET'YAKOV, V. I., Moscow Higher Technical School imeni N. E. Bauman

"Effect of Zirconium Concentration on Creep of Niobium-Zirconium Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 1045-1051

Abstract: The creep of Nb-Zr alloys containing 1, 5, 10, and 20 weight percent Zr was studied on 15-mm rods at 1040-1200°C. Samples were prepared from an ingot annealed at 1400°C for 5 hours. The alloy containing 1% Zr showed the highest resistance to creep. This is attributed to the nature of the physico-chemical interaction of Nb and Zr and to the ability of zirconium in this concentration to saturate by almost 100% the lattice defects (grain boundaries, subgrains, and individual dislocations). An increase in the zirconium concentration above 1% lowered the heat-resistant properties of alloys because the melting temperature of Zr is lower compared with Nb and its higher diffusion mobility.

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IRE'YAKOV, V. I.

USSR 62-501.21

OPTIMIZATION OF THE PROCESS OF TUNGSTEN TRIOXIDE REDUCTION

[Article by P. I. Lukhtenskiy, V. I. Yeryukov, V. A. Ivanov, Ye. I. Gurov, Moscow Institute of Steel and Alloys, Department of Control and Automation of Nonferrous and Rare Metal Production; Ordzhonikidze, Izvestiya VUZov, Tsvetnaya Metallurgiya, Russian, No 5, 1971, signed to press 29 May 1971, pp 150-152]

The reduction of tungsten trioxide (WO_3) with hydrogen in furnaces with a rotating tube is a complex multifactor process that is virtually not amenable to determinant description. To construct a statistical model for it, it is necessary to solve the question of how many and what kind of factors should be taken into consideration. An intuitive (intuitive) choice may lead to an increase in the number of tests in investigating the surface of response. An inclusive results in investigating the surface of response.

We used a statistical method of formalization of a priori information, which permits evaluating the comparative influence of the individual independent variables (factors) on the process of reduction [1].

A group of seven specialists has suggested ranking the X_i ($i = 1, 2, \ldots, 17$) variables: X_1 is the amount of WO_3 immersed into the furnace, X_2 is the amount of hydrogen fed into the furnace, X_3 is the temperature of the third zone, X_4 is the temperature of the second zone, X_5 is the temperature of the first zone, X_6 is the angle of slope of the furnace tube, X_7 is the rate of rotation of the furnace tube, X_8 is the humidity of the hydrogen supplied, X_9 is the temperature of heating the hydrogen, X_{10} is the temperature of heating the WO_3, X_{11} is the number of impacts of the shaking mechanism, X_{12} is the grain size of the WO_3, X_{13} is the bulk density of the WO_3, X_{14} is the amount of WO_3, X_{15} is the amount of oxygen in the WO_3, X_{16} is the length of the furnace condenser, X_{17} is the number of furnace temperature zones in accordance with the degree of

USSR 62-501.21

- 38 -

TRET'YAKOV, V. I.

JPRS 53980
4 March 1971
UDC 62-501.12

OPTIMIZATION OF THE PROCESS OF TUNGSTEN TRIOXIDE REDUCTION

[Article by D. I. Lisovskiy, V. I. Tret'yakov, V. A. Ivanov, Yu. I. Gutov, Moscow Institute of Steel and Alloys, Department of Control and Automation of Nonferrous and Rare Metal Production; Ordzhonikidze, Izvestiya VUZ: Tsvetnaya Metallurgiya, Russian, No 6, 1971, pp 150-152] signed to press 20 May 1971

The reduction of tungsten trioxide (WO_3) with hydrogen in furnaces with a rotating tube is a complex multifactor process that is virtually not amenable to deterministic description. To construct a statistical model for it, it is necessary to solve the question of how many and what kind of factors should be taken into consideration. An intuitive) choice may lead to an increase in the number of tests in the selective experiment and to ineffective results in investigating the surface of response.

We used a statistical method of formalization of a priori information, which permits evaluating the comparative influence of the individual independent variables (factors) on the process of reduction [1].

A group of seven specialists has suggested ranking immersed into the furnace, X_1 is the amount of WO_3 the X_i (i = 1, 2, ..., 17) variables: X_1 is the amount of WO_3 into the furnace, X_2 is the temperature of hydrogen fed X_4 is the temperature of the temperature of the third zone, furnace tube, X_7 is the rate of rotation of the tempe- X_8 is the humidity of the hydrogen supplied, X_9 is the temperature of heating the WO_3, X_{11} is the number of impacts of the heating mechanism, X_{12} is the grain size of the shaking the bulk density of the immersed WO_3, X_{13} is the WO_3, X_{15} is the amount of molybdenum in the WO_3, X_{16} is the length of the furnace condenser, X_{17} is the number of furnace temperature zones in accordance with the degree of

USSR

UDC 621.762.001:669.27

TRET'YAKOV, V. I., PIVOVAROV, L. Kh., NOVIKOVA, M. B., LIDER, V. Ya., NOVIKOVA, T. A., VRZHESHCH, Ye. Ya., and KARASEV, G. F.

"Influence of Surface Layer on Plates of Titanium-Tungsten Hard Alloys on Wear Resistance During Cutting"

Sb. tr. Vses. n.-i. i proyektn. in-t tugoplavk. met. i tverd. splavov [Collected Works of All-Union Scientific Research and Planning Institute for Refractory Metals and Hard Alloys], No. 10, 1970, pp. 55-60 (Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G413 by the authors)

Translation: Results are described from determination of the resistance factor to cutting of specimens of titanium-tungsten hard alloys, when layers of altered composition and structure are formed on the cutting edges with certain sintering modes. It is established that the presence of surface layers on the cutting edges of the cutting plates increases their wear resistance during cutting by an average of 1.6 times. 2 figures; 2 tables; 3 biblio. refs.

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USSR

UDC 621.762.002.5(088.8)

MEL'NIKOV, V. N., TRET'YAKOV, V. I., YEMEL'YANOVA, M. D., MUKHAMEDZHANOV, A. K., KAMENSKAYA, D. S., MORGUN, G. N., CHAVRIKOV, M. G., and GRACHEV, Yu. S.

"Rotating Electrical Furnace for Production of Metallic Powders"

USSR Author's Certificate No 267823, Filed 23/06/66, Published 23/07/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G477 P)

Translation: The furnace includes a hopper, loading and unloading chambers with worms, a body, rotating tube, and a device for removal of the layer of powder accumulating on the surface of the tube. In order to increase productivity of the process and improve working conditions, the device for removal of the powder layer from the surface of the tube is firmly fastened in the working space of the tube so that its leading edge is located parallel to its axis and its working face is at an angle to the radius. The device is attached to parts of the loading and unloading chambers.

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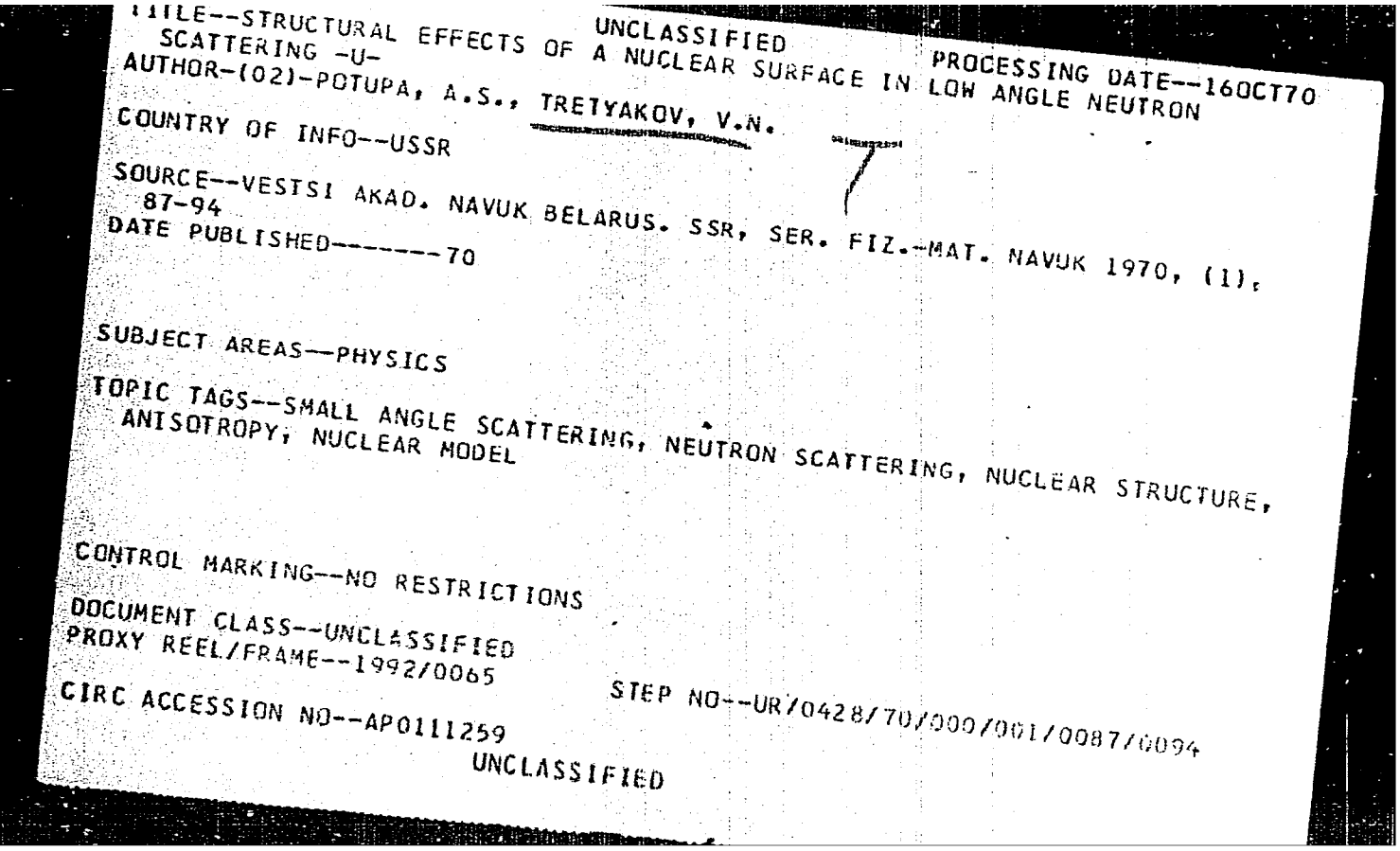


UNCLASSIFIED

TITLE--STRUCTURAL EFFECTS OF A NUCLEAR SURFACE IN LOW ANGLE NEUTRON SCATTERING -U-

PROCESSING DATE--16OCT70

AUTHOR-(02)-POTUPA, A.S., TRETYAKOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. FIZ.-MAT. NAVUK 1970, (1), 87-94

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SMALL ANGLE SCATTERING, NEUTRON SCATTERING, NUCLEAR STRUCTURE, ANISOTROPY, NUCLEAR MODEL

CONTROL MARKING--NO RESTRICTIONS

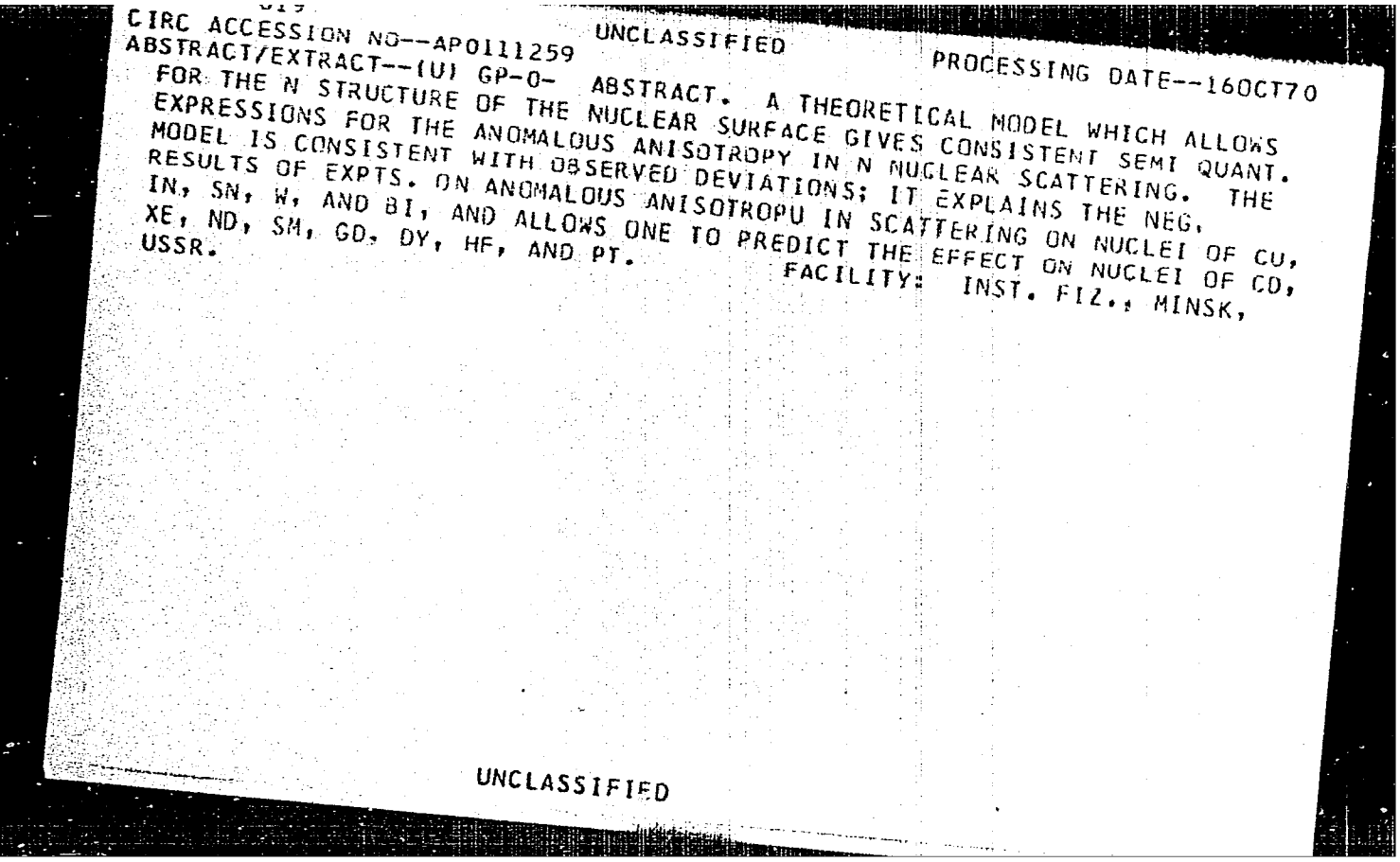
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0065

STEP NO--UR/0428/70/000/001/0087/0094

CIRC ACCESSION NO--AP0111259

UNCLASSIFIED



CIRC ACCESSION NO--AP0111259 UNCLASSIFIED PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORETICAL MODEL WHICH ALLOWS FOR THE N STRUCTURE OF THE NUCLEAR SURFACE GIVES CONSISTENT SEMI QUANT. EXPRESSIONS FOR THE ANOMALOUS ANISOTROPY IN N NUCLEAR SCATTERING. THE MODEL IS CONSISTENT WITH OBSERVED DEVIATIONS; IT EXPLAINS THE NEG. RESULTS OF EXPTS. ON ANOMALOUS ANISOTROPU IN SCATTERING ON NUCLEI OF CU, IN, SN, W, AND BI, AND ALLOWS ONE TO PREDICT THE EFFECT ON NUCLEI OF CD, XE, ND, SM, GD, DY, HF, AND PT. FACILITY: INST. FIZ., MINSK, USSR.

UNCLASSIFIED

USSR

POTUPA, A. S., TRET'YAKOV, V. N.

UDC 539.12.01+125.5+173.4

"Effects of the Structured Nature of the Nuclear Surface in Small-Angle Neutron Scattering"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Matematicheskikh Nauk, No 1, 1970, pp 87-94

Abstract: The present paper demonstrates that within the framework of the dispersion approach and under certain rational assumptions, consideration of the nucleon structure of the nuclear surface gives a consistent semiquantitative description of anomalous anisotropy in neutron-nuclear scattering. Certain problems of the relation of the optical-potential and diagramatic approaches and also the special role of the delta diagram, the contribution of which to the investigated process is also evaluated, are discussed. Arguments are presented in favor of "partial complementation" of the delta diagram, and basic conclusions from a simulation of the process are presented.

A model is proposed which considers the effect of direct surface processes the contribution of which is approximated by the delta diagram. Within

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POTUPA, A. S., TRET'YAKOV, V. N. Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Matematicheskikh Nauk, No 1, 1970, pp 87-94

the framework of this scheme, satisfactory semiquantitative agreement with experimentation is obtained. It is pointed out that the proposed approach does not fix the limit of fissionable and nonfissionable nuclei (which corresponds to the experimental situation: the effect was observed not only in U, Th, and Pu, but also in Pb). The criteria for selecting the nuclei convenient in studying anomalous anisotropy were the magnitude of the imaginary part of the scattering amplitude in the small-angle range and also the position of the singularity during scattering in each isotope of the mixture and its abundance. A table of characteristics of elements ($A \geq 63$) essential for neutron-nuclear scattering is presented. This table permits us to understand how the heavy target nuclei are isolated, and it explains the negative results of the experiments with respect to detecting anomalous anisotropy in scattering in Cu, In, Sn, W, and Bi nuclei and predicting the possibility of observing the effect in Cd, Xe, Nd, Sm, Gd, Dy, Hf, and Pg nuclei. From the model it is definitely concluded that the magnitude of the effect increases with energy. This is also confirmed by the experiments. The possibility of observing the effect is connected with satisfaction of the condition $\Delta\sigma/\delta\sigma > 1$ ($\delta\sigma$ is the experimental error). Inasmuch as the variation of increase is $\delta\sigma$ with energy is unknown, it is difficult to predict the energy range most convenient for study.

2/2

TRET'YAKOV, V. V.

SC: FOREIGN PRESS DIGEST
31 AUG 71

COMPUTERS
(& CODERS)

71. USSR

UDC 002.513.5:681.3

BALAFANOV, Ye., KACHURINA, O. K., KIRDYASHKIN, A. P., KUDRYAVOV, B., LYAN, E. N., USTINOV, V. A., TAZHIBAYEV, B. B., TRET'YAKOV, V. V., and FEDOROV, V. V.

"The MS-1 Information Retrieval System"

Tr. In-ta Mat. i Mekh. AN KazSSR (Works of the Institute of Mathematics and Mechanics of the Academy of Sciences, Kazakh SSR), No 1, 1970, pp 298-302 (from R-Zh -- Informatika, No 4, Apr 71, Abstract No 71.4.169 (71R--1250))

Translation: An approach to the creation of a system for collection, storage, and processing of technological information from a controlled process is described. One variant of an information retrieval system is presented. It includes technical resources, the organization of information arrays in computer storage, and a complex of programs for processing information.

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USSR

LOBANOV, G., GONCHAROV, V., TRET'YAKOV, YE., Journal Correspondents

"Reservoir on the Kuban'"

Moscow, Gidrotekhnika i melioratsiya, No. 12, Dec 71, pp 4-18

Abstract: The Krasnodar Reservoir was built to equalize the flow of the Kuban' River which changes by a factor of 20 over a year, from 100 to 2,000 m^3/sec. The basic dam is located at the eastern boundary of Krasnodar. This dam and the high right bank of the Kuban' form the basin of the dam. Its capacity is 3100 million cubic meters and the area is 40,000 hectares. At the present time 600,000 hectares are under constant flooding. The dam ensures a stable water supply for the fishing industry and improves shipping conditions on the Kuban'. The story of the construction of the reservoir is given.

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USSR

UDC 541.1:538.22:546.73.4

ANASTASYUK, N. V., KLENOV, E. N., OLEYNIKOV, N. N., and TRETYAKOV, YU. D.,
Department of Chemistry, Moscow State University imeni M. V. Lomonosov

"Properties of Nickel-Cobalt Ferrites with a Different Chemical Prehistory"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye materialy, Vol 8, No 1, 1972, pp 198-199

Abstract: The objective of the study was to determine the extent to which sintering conditions can eliminate the distinctions related to the chemical prehistory of ferrite powders and the extent to which sintering conditions would compensate for the inhomogeneity and low activity of ceramic specimens compared to schoenite specimens. Involved in the experiment were specimens of $Ni_{1-x}Co_xFe_2O_4$ ($x = 0.0; 0.2; 0.4; 0.6; 0.8; 1.0$). Regardless of the x value in the formula $Ni_{1-x}Co_xFe_2O_4$, the optimal sintering temperature for the schoenite specimens was determined to be 1270°C and for ceramic specimens 1350°C. The mean crystallite size was slightly smaller in the ceramic specimens as compared to that in the schoenite specimens (5.5 ± 0.3 and 6 ± 0.3 respectively). A major factor here is that the state of magnetostriction saturation is attained in much lower fields in schoenite materials than in ceramic materials. This is obviously related to the different degree of

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USSR

ANASTASYUK, N. V., et al., Neorganicheskiye materialy, Vol 8, No 1, 1972, pp 198-199

chemical inhomogeneity and density, which indicates that distinctions due to the chemical prehistory of the powders cannot be completely eliminated by adjustments in sintering conditions. (Two illustrations, 1 bibliographic reference).

2/2

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--ENTHALPY OF LITHIUM ORTHOFERRITE FORMATION -U-

AUTHOR--TRETYAKOV, YU.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 403-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ENTHALPY, LITHIUM COMPOUND, FERRITE, OXIDE

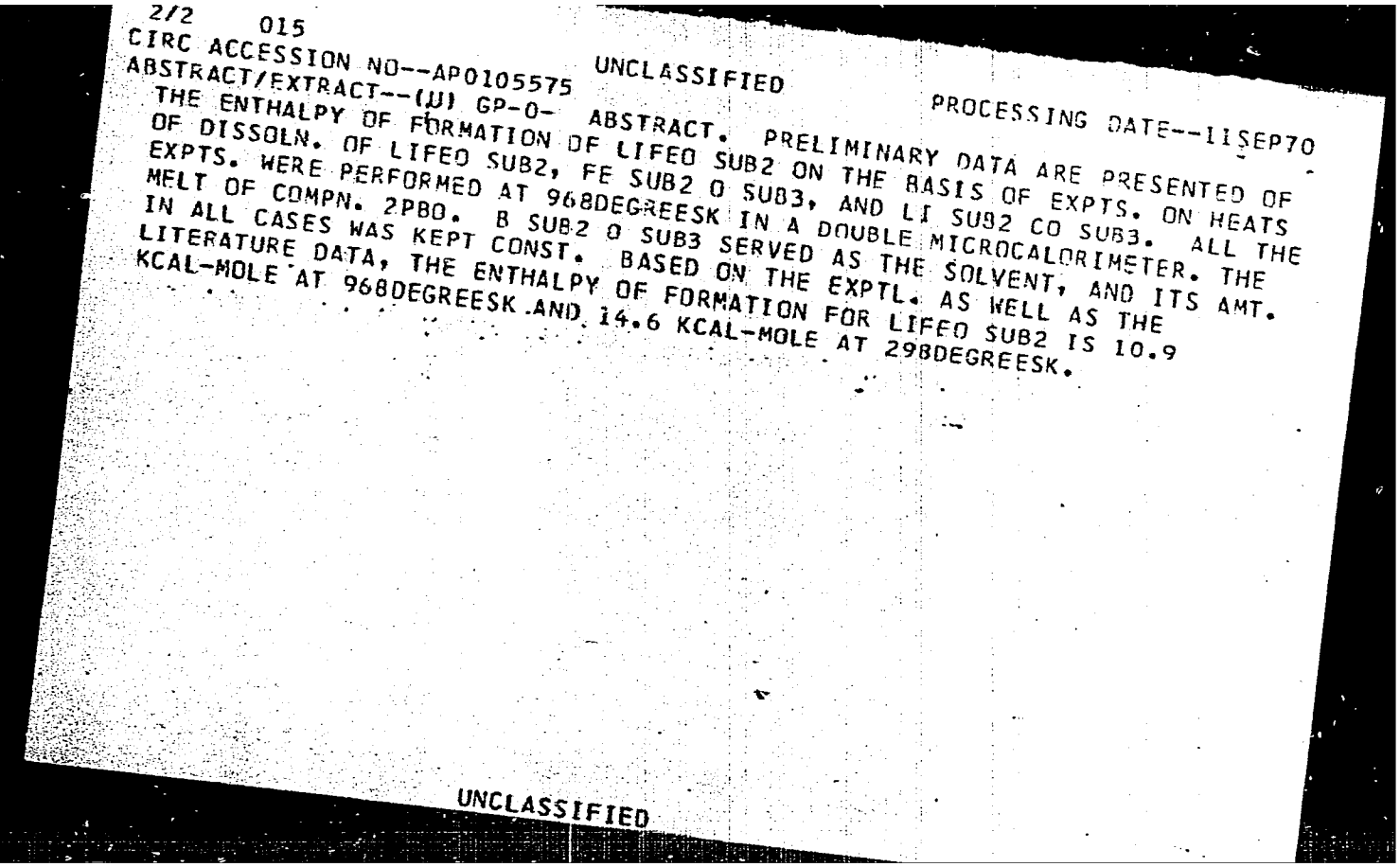
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0592 STEP NO--UR/0363/70/006/002/0403/0404

CIRC ACCESSION NO--AP0105575

UNCLASSIFIED



2/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105575

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRELIMINARY DATA ARE PRESENTED OF THE ENTHALPY OF FORMATION OF LIFEO SUB2 ON THE BASIS OF EXPTS. ON HEATS OF DISSOLN. OF LIFEO SUB2, FE SUB2 O SUB3, AND LI SUB2 CO SUB3. ALL THE EXPTS. WERE PERFORMED AT 968DEGREESK IN A DOUBLE MICROCALORIMETER. THE MELT OF COMPN. 2PBO. B SUB2 O SUB3 SERVED AS THE SOLVENT, AND ITS AMT. IN ALL CASES WAS KEPT CONST. BASED ON THE EXPTL. AS WELL AS THE LITERATURE DATA, THE ENTHALPY OF FORMATION FOR LIFEO SUB2 IS 10.9 KCAL-MOLE AT 968DEGREESK AND 14.6 KCAL-MOLE AT 298DEGREESK.

UNCLASSIFIED

USSR

UDC 539.1.03

TRETYAKOV, Yu. P., KUL'KINA, L. P., KUZNETSOV, V. I., and PASYUK, A. S., Institute of Nuclear Research, Dubna

"An Economical Source of Multiply-Charged Ions of Calcium and Zinc"

Moscow, Pribory i Tekhnika Eksperimenta (Instruments and Experimental Technology), No. 5, Sept-Oct 1970, p 40-44

Abstract: An ion source, illustrated and described in detail, consists of a stainless steel discharge chamber and a molybdenum insert with an emission slit. The chamber, provided with titanium heat isolators, is temperature-controlled by a chrome-alumel thermocouple. The evaporating electrode is mounted on a water-cooled holder in a slender tube between a cathode and plate, just to the side of the discharge path. Adjustable screws move the evaporation surface into the discharge path. Xenon was used as the initiating gas for the calcium, and krypton for the zinc. Argon was also used. When the chamber is cold, a large proportion of the working substance is deposited on the walls, but when the chamber is heated, the substance readily sublimes. The evaporated substance is completely ionized and passes through the slit. A small portion is deposited on the cold parts of the source near the evaporating electrode. Heating the chamber makes it possible to economize on the consumption of the substance. The proposed

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USSR

TRETYAKOV, Yu. P., et al, Pribory i Tekhnika Eksperimenta, No 5, Sept-Oct 1970, p 40-44

cyclotron source is only one of several possible configurations of a hot discharge chamber with a cathode evaporator. The distribution of Ca atoms and ions along the discharge chamber was measured and found to be higher than the distribution in a cold chamber. The authors thank G. M. Solov'yeva for designing the source, Y Dude for technical assistance, and Ye. D. Vorob'yev for supporting the work. Orig. art. has 2 figs. and 4 refs.

2/2

USSR

UDC 546.9 + 541.124.7

BARABANOV, V. P., TSENTOVSKIY, V. M., TRET'YAKOVA, A. YA., KHARRASOV F. M., and BREYENKOVA, V., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Ionization Constants of Some Arylphosphonic, Aryltrichloromethylphosphinic, and Arylphosphonous Acids in Dimethylformamide and Acetone"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1147-1150

Abstract: Thermodynamic ionization constants for some aryl(alkyl)phosphonic and arylphosphinic acids in dimethylformamide at 25° were determined by the potentiometric method. It was established that the substituent at the phosphorus atom has a strong effect on the ionization of the acids. In connection with a change in electronegativity of the substituent, ethylphosphonic acid is weaker than the phenylphosphonic acid. Introduction of a chlorine atom into the para position of the phenyl group increases the proton donating ability of the compound. Replacing one hydroxyl group by trichloromethyl radical increases the acid strength by almost a 4 fold order.

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USSR

UDC 518.5:681.3.06

TRET'YAKOVA, E. V.

"Algorithm for Computer Calculation of 3-Dimensional Rod Systems of Arbitary Shape with Articulated Connection of Units"

Tr. TSTNII Stroit. Konstruktsiy, [Works of Central Scientific Research Institute for Structural Designs], No 9, 1970, pp 116-123, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1970, Abstract No. 5V663).

No Abstract.

1/1

USSR

UDC: 620.197.3

TRET'YAKOVA, G. A., Engineer, BARANNIK, V. P., Doctor of Technical Sciences

"Protecting Components from Corrosion in Precision Instrument Making"

Kiev, Tekhnologiya i Organizatsiya Proizvodstva, No 4, Jul/Aug 72, pp 85-87

Abstract: The authors discuss means of preventing corrosion of precision metal parts due to perspiration deposits accumulated during handling. An investigation was made into the feasibility of protecting metal from such corrosion by washing in benzine containing inhibitors. Tests showed that washing in solvents containing corrosion-inhibiting additives creates a barrier which prevents penetration of aggressive substances to the surface of the part. The best corrosion inhibitor was found to be a mixture of fatty acids with at least 20 hydrocarbon atoms separated from still residues. The film formed by washing in a 1% solution is entirely imperceptible and does not interfere with any operations.

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USSR

UDC 546.193'131

NISEL'SON, L. A., TRET'YAKOVA, K. V., and AKHMADEYEV, V. YA., State Scientific Research and Development Institute of Rare Earth Metal Industry

"The Liquid-Vapor Equilibrium in the Systems Formed by Arsenic Trichloride With Some Sulfur and Phosphorus Containing Admixtures"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 18, No 4, Apr 73, pp 1092-1097

Abstract: The liquid-vapor equilibrium was studied ebuliometrically in the systems formed by $AsCl_3$ with $SCCl_2$, SO_2Cl_2, $PSCl_3$ and $POCl_3$. Using the method of simple equilibrium distillation, relative volatilities have been refined for the area of pure $AsCl_3$. It has been established that $POCl_3$ and $PSCl_3$ ($\alpha POCl_3/AsCl_3 = 1.1$ and $\alpha PSCl_3/AsCl_3 = 1.5$ at 760 mm Hg) are the most difficult of the admixtures to remove by fractional distillation. The density of binary mixtures has been determined as a function of temperature. The correspondence between the type of the systems studied and the degree of deviation from Raoul law and the molar volumes of the mixtures from the additive rule have been confirmed.

1/1

USSR

ANZON, Z. V., et al, Institute of Nuclear Physics, Academy of Sciences, Kazakh SSR, Alma-Ata; BOZOKI, G., et al, Central Research Institute of Physics, Budapest; DALKHAZHAV, N., et al, High-Energy Laboratory, Joint Institute of Nuclear Research, Dubna; BABETSKIY, Ya., et al, Laboratory of High-Energy Physics, Institute of Nuclear Research, Polish Academy of Sciences, Krakow; MASLENNIKOVA, N. V., TRET'YAKOVA, M. I., CHERNYAVSKIY, M. M., Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR, Moscow; ALEKSEYEVA, K. I., Scientific Research Institute of Nuclear Physics, Moscow State University, Moscow; CHERNEV, Kh., TODOROV, P. T., Institute of Nuclear Physics, Academy of Sciences of the People's Republic of Bulgaria, Sofia; TUVDENDORZH, D., SHARKHI, D., CHADRAA, V., Institute of Physics and Mathematics of the Academy of Sciences, Mongol People's Republic, Ulan-Bator); AZIMOV, S. A., et al, Institute of Nuclear Physics Academy of Sciences, Uzbek SSR, Tashkent

"Coherent Generation of Particles by π^--Mesons With Momenta of 45 and 60 Giga-electron-Volts/Sec on the Basis of Photoemulsion Nuclei"

Moscow, Izvestiya Akademii Nauk SSR. Seriya Fizicheskaya, No 9, 1970, pp 1938-1943

Abstract: In the present report are presented data concerning the coherent generation of π^--mesons by π^--mesons at 45 and 60 gigaelectron-volts/sec, obtained by means of nuclear photoemulsion by the laboratories of a number of institutes

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USSR

ANZON, Z. V., ET AL, Izvestiya Akademii Nauk SSR. Seriya Fizicheskaya, No 9, 1970, pp 1938-1943

of the Soviet Union and countries of the Soviet bloc. The joint study was organized by the Photoemulsion Committee of the Joint Institute of Nuclear Research. The preliminary results of this project were presented at the International Conference on Elementary Particles in Lund in June 1969 and at the International Conference on Cosmic Rays in Budapest in August 1969. The path value of the coherent generation of three and five charged particles is obtained from the distribution of charged particles and the angular characteristics of secondary particles on the basis of multiplicity. Comparison of the path value with the corresponding values at lower and higher energies shows a decrease of the run (and, consequently, an increase of the coherent particle-generation cross section) as the energy increases. 5 figures, 11 bibliographic entries.

2/2

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THE X RAY DIAGNOSIS OF TUMORS OF THE SMALL INTESTINE -U-

AUTHOR-(03)-TRETYAKOVA, T.A., BRAYTSEVA, N.N., YAKUSHIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 91-95

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SMALL INTESTINE, TUMOR, X RAY, DIAGNOSTIC METHODS, BARIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1792 STEP NO--UR/0497/70/048/006/0091/0095

CIRC ACCESSION NO--AP0129160

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129160

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN OBSCURE GASTROINTESTINAL HEMORRHAGES X RAY INVESTIGATION OF THE SMALL INTESTINE IS ALWAYS RECOMMENDED. THE FOLLOWING TECHNIQUE OF INVESTIGATION IS PROPOSED: AFTER THE INTAKE OF A BARIUM MEDIUM THE PATIENTS ARE GIVEN A GLASS OF COLD WATER, WHICH IS A PECULIAR "ACCELERATOR" FOR THE RAPID FILLING OF THE ENTIRE SMALL INTESTINE. THEN THE PATIENTS ARE FED, CAUSING A GASTROILIAC REFLEX (AFTER YU. N. SOKOLOV), THIS ALSO BEING CONDUCIVE TO AN ACCELERATED MOVEMENT OF THE CONTRAST MEDIUM ALONG THE LOOP OF THE SMALL INTESTINE. THUS, FOR A PERIOD OF ONE TO TWO HOURS THE ROENTGENOLOGIST COULD STUDY THE ENTURE SMALL INTESTINE AND TO DETECT EXISTING ORGANIC CHANGES. WITH THE AID OF THIS TECHNIQUE FOR A PERIOD OF FOUR YEARS IN 12 PATIENTS THE AUTHORS REVEALED TUMORS OF THE SMALL INTESTINE (7 BENIGN AND 5 MALIGNANT). OPERATIVE TREATMENT WAS PERFORMED IN 11 PATIENTS; 8 OF THEM ARE ALIVE. FACILITY: KAFEDRA KLINICHESKOY RENTGENOLOGII I 1-YA KAFEDRA KHIRURGII TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY NA BAZE MOSKOVSKOY KLINICHESKOY BOL'NITSY IM. BOTKINA.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--THE EMPLOYMENT OF CYCLOPROPANE CONTAINING MIXTURES FOR ANESTHESIA -U-

AUTHOR--SHABANOV, A.N., YELSHANSKIY, V.I., YERIVANTSEV, N.A., TRETYAKOVA, V.I.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 1, PP 74-79

DATE PUBLISHED--------70

22
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27

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANESTHESTHESIA, CYCLOPROPANE, OXYGEN, HYPERTENSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1977/1710 STEP NO--UR/0531/70/000/001/0074/0079

CIRC ACCESSION NO--AP0044855

UNCLASSIFIED

Acc. Nr: AP9044855 Ref. Code: UR0531

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1, pp 74-79

THE EMPLOYMENT OF CYCLOPROPANE-CONTAINING MIXTURES FOR ANESTHESIA

Shabanov, A. N.; Yelshanskiy, V. I.; Yerivantsev, N. A.; Tretyakova, V. I.

The authors carried out 184 anesthesias with cyclopropane-oxygen and nitrous-oxide-cyclopropane-oxygen (in different proportions) mixtures in aged and senile patients during operations on abdominal organs and on the extremities. Before, during and after anesthesia the authors studied the function of the cardiovascular system, the state of respiration and gas exchange, function of the liver and kidneys, and glucocorticoid metabolism. Clinical observations and the results of investigations made it possible to arrive at the following conclusions: 1) there were no absolute contraindications to the use of modern cyclopropane anesthesia in the referred to patients; 2) high arterial hypertension and renal insufficiency are relative contraindications; 3) combined nitrous-oxide-cyclopropane-oxygen anesthesia is the most rational technique.

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02 DI

REEL/FRAME
19771710

USSR

TRET'YAKOVA, Ye. I.

"Some Results of Computer Modeling of Codes with Variable Parameters"

Informatsiyonnye Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika" AN SSSR [Information Materials, Scientific Counsel on the Combined Problems of "Cybernetics" Academy of Sciences USSR[, No 3(50), 1971, pp 30-36 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2V484 by L. Bassalygo).

Translation: Codes are studied, the components of which are machine words, i.e., 39-bit binary sequences. The component operation is ordinary addition with cyclical carry. Matrix H of 0 and 1 fixed as a code with a variable parameter, if only those words a for which all components of the syndrome $\bar{s} = H\bar{a}$ are identical (the total value of the components of the syndrome is called the parameter of the code word) are code words. A computer was used to study the correcting capability and number of operations involved in decoding for codes with matrix H, constructed using a pair of orthogonal Latin squares. Experimental results are presented.

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1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--POWERFUL AUTONOMIC VOLTAGE INVERTERS -U-

AUTHOR-(02)-KOSHCHEYEV, L.G., TRETYEK, T.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ELEKTRICHESTVO, NO 3, 1970, PP 61-65

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., ENERGY CONVERSION (NON-PROPULSIVE)

TOPIC TAGS--ELECTRIC INVERTER, ALTERNATING CURRENT, DIRECT CURRENT, CIRCUIT DESIGN, NONROTARY ELECTRIC POWER CONVERTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1204 STEP NO--UR/0105/70/000/003/0061/0065

CIRC ACCESSION NO--AP0123169

UNCLASSIFIED

2/2 019 UNCLASSIFIED

CIRC ACCESSION NO--AP0123169 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN AUTONOMOUS VOLTAGE INVERTER INTENDED FOR THE CONVERSION OF THE D-C CURRENT TO THE A-C CURRENT OF HIGHER FREQUENCY IS DESCRIBED. THE INVERTER FOLLOWS THE PATTERN OF AN ANTIPARALLEL CONNECTION OF THE CONTROLLED AND UNCONTROLLED VALVES. THE BASIC DESIGN RELATIONS ARE GIVEN, WHICH CHARACTERIZE THE OPERATION OF THE INVERTER AND PERMIT THE DETERMINATION OF BASIC PARAMETERS OF ITS ARRANGEMENT AND ITS LOAD CHARACTERISTICS. RESULTS OF EXPERIMENTAL INVESTIGATIONS OF THE INVERTER'S OPERATION UNDER CONDITIONS OF ACTIVE LOAD AT A FREQUENCY OF 1000 HZ ARE EXAMINED. BASED ON THIS INVERTER THERE HAS BEEN DEVELOPED A STATIC CONVERTER OF THE D-C CURRENT WITH A CAPACITY OF 3000 KW FOR THE REDUCTION OF VOLTAGE FROM 6600 TO 3300 V.

UNCLASSIFIED

Acc. Nr: AT0040575 Abstracting Service: CHEMICAL ABST. 4-75 Ref. Code: UR0020

83707w Crystal structure of sodium silicate zirconate, Na_2ZrSiO_5. Treushnikov, E. N.; Ilyukhin, V. V.; Belov, N. V. (Inst. Kristallogr., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(2), 334–7 [Crystallogr] (Russ). Monoclinic single crystals of Na_2ZrSiO_5 have a = 13.92, b = 5.46, c = 13.70 Å; β = 120°; Z = 8, space group $P2_1/c$. The structure was solved by the Patterson and Fourier techniques and refined by the method of least squares to R = 0.131 for the 1500 nonzero reflections. The 2 independent Zr atoms are both in octahedral surroundings with Zr–O distances of 1.99–2.17 Å. The Zr octahedra are joined at the vertices to form chains in the y direction. The chains are joined together by fairly regular SiO_4 tetrahedra to form sheets in the xy plane. Three of the 4 independent Na atom have somewhat distorted octahedral surroundings; the 4th is surrounded by 7 O atoms in the shape of a capped trigonal prism.

Mary Frances Richardson

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REEL/FRAME
19750096

18

USSR

UDC 548.736.6

TREUSHNIKOV, E. N., ILYUKHIN, V. V., and BELOV, N. V., Academician, Institute of Crystallography, Academy of Sciences USSR, Moscow

"The Crystalline Structure of Na, Zr-Oxyorthosilicate $Na_2ZrSiO_5 = Na_2O \cdot ZrSiO_4$"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp 334-337

Abstract: A structural investigation was made of single crystals of Na_2ZrSiO_5 obtained from V. G. Chukhlantsev of Ural'sk Polytechnical Institute imeni S. M. Kirov. Interest in sodium-zirconium silicates was prompted by the increased demands on heat resistant enamels, ceramics, and adsorbents. X-ray analysis showed the parameters of a monoclinic cell to be: a = 15.92, b = 5.46, c = = 13.70 Å; β = 120°. The coordinates of the basal atoms and the interatomic distances calculated on the basis of these coordinates are presented in a table. Both independent Zr atoms were localized in an almost perfect oxygen octahedron. The deviations of the six ZrO distances from the sum of the ion radii did not exceed 10%. The basic structural features of Na_2ZrSiO_5 are the chain-columns of Zr-octahedra extending along the short b-axis and connected with one another by the common vertices $[ZrO_5]_\infty$. In a complete cell there are

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TREUSHNIKOV, E. N., et al, Doklady Akademii nauk SSSR, Vol. 190, No. 2, 1970, pp 334-337

four Zr-columns which separate into two crystallographically independent pairs, one along the 2_1 axis with $x = 0$ and the other along the 2_1 axis with $x = \frac{1}{2}$. The different orientation of the planes in which the Zr-octahedra of alternating height are in the two types of columns is another feature of the structure.

2/2

USSR

UDC 629.78.015:532.526

DRUKER, I. G. and TREYER, L. Ya.

"Calculation of a Hypersonic Boundary Layer With Injection of Liquid Coolant"

Minsk, Teplo- i Massoperenos (Heat and Mass Transfer), Vol 1, 1972, pp 167-170; (Referativnyy Zhurnal, Series 41, No 6, 1972, Abstract No 6.41.170)

Abstract: This paper is a study of the effect exerted on flow at the critical point by a distributed supply of a liquid coolant. Determined were 1) thickness of the liquid film as it depends on coolant discharge, 2) proportion of evaporated material, and 3) optimal (or extreme) discharges of coolant for which 100 percent of cooling liquid is evaporated, so that maximal utilization of latent heat of evaporation is achieved. Specific calculations are made for the vicinity of the critical point of a sphere around which partially dissociated oxygen is flowing. Water is taken as the coolant. Biblio. 4, illus. 2.

T. A. Ye.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SELECTION OF THE SMALLEST NUMBER OF TEST SAMPLES FOR STUDY OF RELIABILITY AND SERVICE LIFE OF MASS PRODUCED ARTICLES, BASED ON

AUTHOR--TREYER, V.N.

COUNTRY OF INFO--USSR

SOURCE--MINSK, DOKLADY AKADEMII NAUK BSSR, VOL 14, NO 2, 1970, PP 128-130

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, METHODS AND EQUIPMENT, MATHEMATICAL SCIENCES

TOPIC TAGS--RELIABILITY, MASS PRODUCTION, MACHINE TOOL COMPONENT, MANUFACTURING METHOD, COMPONENT LIFE EXPECTANCY, PROBABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0713 STEP NO--UR/0250/70/014/002/0128/0130

CIRC ACCESSION NO--AT0122796

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0122796

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEST SAMPLES FOR THE STUDY OF THE SERVICE LIFE OF MACHINES, MACHINE PARTS, AND INSTRUMENTS RELATE TO PHYSICAL SYSTEMS WHICH, FOR THE PURPOSE OF THIS STUDY, ARE ANALYZED WITH RESPECT TO TWO CONDITIONS: GOOD WORKING CONDITION AND UNSUITABLE FOR WORK. THE AMOUNT OF ENTROPY AND CORRESPONDING INFORMATION IN I TEST SAMPLES WHICH BREAK DOWN DURING TIME T IS DETERMINED BY MEANS OF THE FOLLOWING FUNCTION: SHOWN ON MICROFICHE. WHERE Q PRIMEI (T), IS THE PROBABILITY OF BREAKING DOWN OF THE I PRIMETH TEST SAMPLE, AND L-Q PRIMEI (T), IS THE PROBABILITY OF ITS GOOD WORKING CONDITION DURING TIME T. FUNCTION (1) REACHES ITS MAXIMUM AT Q PRIMEI (T) EQUALS Q PRIMEM (T SUBM) EQUALS ONE HALF. THIS PROBABILITY IS MATCHED BY A MEDIAN USEFUL T SUBM OF A GIVEN BATCH OF TEST SAMPLES. THIS INFORMATION CAN BE USED FOR DETERMINING WHERE IDENTICAL ARTICLES WILL NOT EXCEED A PREDETERMINED PROBABILITY Q(T) OF A PERMISSIBLE PREMATURE BREAK DOWN DURING TIME T. IT FOLLOWS FROM THE ABOVE THAT Q(T) Q(T SUBM) EQUALS 0.5, I (Q(T)) 1, DOWN DURING USEFUL LIFE T BY M SUBI EQUALS I(T)N, WHERE N NEGATIVE IS THE TOTAL NUMBER OF TEST SAMPLES, THEN FOR A GIVEN VALUE OF Q(T) WE WILL FIND THE FOLLOWING BY FORMULA (1): I(Q(T SUBM)) OVER I(Q(T)) EQUALS 1 OVER I(Q(T)) EQUALS M SUBI Q(T SUBM) N EQUALS 0.5 Q(T)N. THE SMALLEST NUMBER OF TEST SAMPLES N SUBMIN CAN BE DETERMINED FROM THE FOLLOWING EQUATION: N SUBMIN EQUALS SQUARE ROOT 2 OVER I(Q(T))Q(T).

FACILITY: ACADEMY OF SCIENCES BSSR, MINSK RADIO ENGINEERING INSTITUTE.

UNCLASSIFIED

USSR

UDC 621.030

TREYER, V. N., Corresponding Member of the Academy of Sciences BSSR, Minsk Radio-Engineering Institute

"Selection of the Smallest Number of Test Samples for Study of Reliability and Service Life of Mass-Produced Articles, Based on Information Theory Principles"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 128-130

Abstract: Test samples for the study of the service life of machines, machine parts, and instruments relate to physical systems which, for the purpose of this study, are analyzed with respect to two conditions: good working condition and unsuitable for work. The amount of entropy and corresponding information in i test samples which break down during time t is determined by means of the following function:

$$I[q^i(t)] = -q^i(t)\lg_2 q^i(t) - [1-q^i(t)]\lg_2[1-q^i(t)], \qquad (1)$$

where $q^i(t)$ - is the probability of breaking down of the i^{th} test sample, and $1-q^i(t)$ - is the probability of its good working condition

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TREYER, V. N., et al., Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 128-130

during time t. Function (1) reaches its maximum at $q^i(t) = q^m(t_m) =$ ½. This probability is matched by a median useful t_m of a given batch of test samples. This information can be used for determining where identical articles will not exceed a predetermined probability q(t) of a permissible premature break-down during time t. It follows from the above that $q(t) \quad q(t_m) = 0.5$, I $\overline{q(t)}$ 1, down during useful life t by $m_1 = q(t)n$, where n- is the total number of test samples, then for a given value of q(t) we will find the following by formula (1):

$$\frac{I[q(t_m)]}{I[q(t)]} = \frac{1}{I[q(t)]} = m_1 q(t_m) n = 0.5\, q(t)\, n.$$

The smallest number of test samples n_{min} can be determined from the following equation:

$$n_{min} = \sqrt{\frac{2}{I[q(t)]\, q(t)}}.$$

2/2

USSR

UDC: 621.318.8:53.082.75

TREYER, V. V., STROGANOV, V. S.

"Possibilities for Use of Electrochemical Controlled Resistors in Automatic Devices"

Pribory i Sistemy Upravleniya, No. 5, 1970, pp 41-43

Abstract: In electrochemically controlled resistors the value of the output parameter (resistance) changes due to processes of electrolysis occurring when an electrical current is passed through the input circuit (control circuit). The main characteristics of ECR are: range of change of resistance; time required to change resistance through entire range; drift of resistance during a fixed time interval when no control current is applied. In the opinion of the authors, ECR can be recommended for use in two main modes: as a contactless control element and as an analog memory element. Three circuits for transistorized amplifiers with controlled gain and analog memory properties are diagrammed and described. A linear analog memory device is also diagrammed and described. The circuits are of interest for automation devices, particularly when the use of electromechanical elements is difficult due to the requirements for low weight, small size, low power consumption, and cost.

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USSR

UDC 613.633+613.648]:666.76

LEMYASEV, M. F., BABUSHKINA, L. G., SEMENOV, G. V., (Deceased), KATSNEL'SON, B. A., KARAGODINA, I. V., TREYGER, S. I., and BELOBRAGINA, G. V., Scientific Research Institute of Hygiene and Occupational Diseases, Medical Institute, Oblast Sanitary-Epidemiological Station, Sverdlovsk

"Dust and Radiation Factors in the Production of Fireproof Articles From Zirconium Dioxide"

Moscow, Gigiyena i Sanitariya, No 10, Oct 1970, pp 38-41

Abstract: Tests with rats confirmed that the fibrogenic character of "pure" ZrO_2 dust is lower than that of the commercial product. This difference is attributed to the admixture of radioactive elements in the dust of the insoluble commerical ZrO_2, which is used as raw material in the production of various fireproof objects, so that the fibrogenic action of this dust on the lungs is intensified. On the basis of data from this experiment and from studies in an industrial environment, it is recommended that maximum permissible concentrations of ZrO_2 dust and similar substances be established which taken into account the radioactive contamination present in these dusts.
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USSR

UDC: 669.18:66.011.56

TREYSTER, Yu. Ya., IZMAYLOV, G. A., KLESHKO, O. B., KRASNOV, B. I., PIROZHNIKOV, V. Ye., All-Union Scientific Research Institute of Automation of Ferrous Metallurgy

"New Developments in the Automation of Steel Smelting Production"

Moscow, Metallurg, No 6, 1973, pp 21-24

Abstract: This article deals with new processes for the automation of steel production in accordance with the statement of the Central Committee of the Communist Party that implementation of the complex automation of technological processes is one of the decisive factors in the successful fulfillment of technical-economic aims. The All-Union Scientific Research Institute of Automation of Ferrous Metallurgy (VNIIAchermet) has done much to automate converters, various installations for continuous pouring of steel, arc steel smelting ovens, and electroslag remelting. A dynamic system for controlling the converter process has been put into use in the Chelyabinsk Metallurgical Plant; the block diagram of the operating algorithm for this system is reproduced and explained. The demand for continuous pouring of steel is being satisfied by an automatic system of continuous pouring using an all-purpose computer for controlling the converter shop of the "Azovstal'" metallurgical

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USSR

TREYSTER, Yu. Ya., et al., Metallurg, No 6, 1973, pp 21-24

plant. This system was developed by VNIIAchermet in cooperation with the Ul'yanovsk State Pedagogical Institute "Metallurgavtomatika." The structural diagram for the system is also given. Other achievements in the field of automatic control of metallurgical production are cited and described.

2/2

ACC. NR: AP0041735 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR0459

79591m Degradation of aromatic-aliphatic polyamides. Kolesnikov, G. S.; Fedotova, O. Ya.; Trezvov, V. V.; Gorokhov, V. T. (Mosk. Khim.-Tekhnol. Inst. im. Mendeleeva, Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 177–81 (Russ). The thermal and oxidative thermal degradation of polyamides derived from $H_2N(CH_2)_{12}NH_2$ and aromatic dicarboxylic acid chlorides such as terephthaloyl chloride and 4,4'-bis(chloroformyl)biphenyl were studied by following the gas evolution and loss in wt. during heating. Paramagnetic centers were detected in the polyamides >340° and were apparently due to the formation of conjugated structures arising from secondary reactions. An induction period of 10–40 min was obsd. for the formation of the paramagnetic centers. The centers apparently catalyzed the thermal degradation since degradation was more rapid in resins contg. greater concns. of such centers. A thermal degradation mechanism is discussed.

DBJR

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REEL/FRAME
19751612

USSR

UDC 632.95.02:632.732

TRIBEL', S. A., Candidate of Agricultural Sciences, Ukrainian Scientific Research Institute of Plant Protection

"Effectiveness of Granulated Insecticides Against Sugar Beet Root Aphid"

Moscow, Khimiya v sel'skom khozyaystve, No 11, 1972, pp 37-40

Abstract: The application procedures, climatic conditions and other factors and effectiveness coefficients are presented from a study made in 1969-1971 at the kolkhoz imeni Lenin in Savranskiy Rayon in Odessa Oblast of granulated insecticides for use against sugar beet root aphid. The following foreign compounds were tested: 10% bazudin (diazinone) made by the Geigy Company and insecticides from the Carbamate group -- 10% C 13963 and 6% C 10015 made by the Siba Company (Switzerland), 10% diphonate made by the Stauffer Company in the USA and 10% birlan made by the Shell Company (England). Among the Soviet granulates made on the basis of double superphosphate, the following compounds were used: rogor containing 1.6% active substance, phosphamane (1.6% rogor and 0.8% gamma-isomer of hexachlorocyclohexane) and lindane containing 2% gamma-isomer of hexachlorocyclohexane. Laboratory samples of granulated compounds manufactured on the basis of superphosphate -- 2.5% metaphos, 2.5% carbophos and 5% rogor -- were also tested. Granules

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USSR

TRIBEL', S. A., Khimiya v sel'skom Khozyaystve, No 11, 1972, pp 37-40

0.6-0.9 mm were used for laboratory testing and surface treatment, and granules 2-2.5 mm, for injection into the soil. Sufficiently reliable protection of the beet fields from migrating larvae of the sugar beet root aphid was provided by treating the edges of the field with the granulated insecticides. Under the conditions of the Odessa Oblast, 10% basudine (diazione) and finely granulated metaphos were the most effective. A single surface application to the beets (50 kg/hectare) in the middle of June, before the beginning of migration of the aphid larvae protected the beet plants throughout the entire vegetative period.

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USSR

PLATONOV, P. N., Doctor of Technical Sciences, TRIBEL'GORN, E. V., Candidate of Technical Sciences, BOGDANOV, B. K., Engineer

"Methods of Changing Over to Automatic Control of Continuous Mass Production Systems"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 9, 1970, pp 16-19

Abstract: An analysis of continuous mass production systems in various sectors of the national economy conducted at the Odessa Technological Institute imeni M. V. Lomonosov made it possible to isolate the general functional singularities of various segments of the systems and to reduce them to eight types. The classification of segments of the continuous mass production system and the principles of setting up a dispatcher automated control system on this basis comprised of standard general-purpose modules were taken up at the Third All-Union Conference on Automatic Control. The analysis was based on the example of a modular dispatcher automated control system for the most complex production line segment requiring sixteen modules. Further studies showed that the number of modules required for realization of this segment can be reduced to ten. It is shown that further automation of continuous mass production systems should be based on a transition from dispatcher automated control to operatorless programmed

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320015-3"

USSR

PLATONOV, P. N., et al, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 9, 1970, pp 16-19

control. This will require analysis of the dispatcher's functions for purposes of algorithmic description, classification of the dispatcher's functions, and a description of the information which must be stored. A simple formula is found for the optimum control system from the standpoint of cost. It is shown that the function of route analysis can be handled by an automatic device without extensive modification of the dispatcher control system.

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USSR

UDC: 8.74

SLAVINA, L. A., TRIBIS, L. I.

"On Algorithmic Elimination of Bilingual Lexical Ambiguity"

Minsk, Chastnyye vopr. avtomat. analiza tekstov--sbornik works) (Special Problems of Automatic Text Analysis--collection of works), 1972, pp 290-310 (from RZh-Kibernetika, No 5, May 73, abstract No 5V894 by T. Nikolayeva)

Translation: The paper deals with the specifics of a linguistic symbol for a computer: machine perception of a symbol has to do only with the signifier. Therefore to translate polysemous words into another language it becomes essential to pick the signifier in the other language. It is necessary to find diagnosing features which determine the translation equivalent in the given context. The paper is an investigation on algorithmic elimination of machine lexical ambiguity of 137 English word forms representing 50 nouns and verbs. A preliminary experiment on a text mass of 1.5 million words and work with four informants made it possible to dis-

1/3

USSR

SLAVINA, L. A., TRIBIS, L. I., Chastnyye vopr. avtomat. analiza tekstov, 1972, pp 290-310

tinguish 270 Russian word equivalents. The following are distinguished: 1) lexical diagnosing features; 2) morphological diagnosing features; 3) formal graphemic features. Types of lexical diagnosing features are described. The concept of text segmentation is introduced to define the context (papers by M. V. Daneyko and V. M. Petrovskaya). A segmentation fragment is presented. The authors define the diagnosing force of isolated segments with respect to a zero segment containing the word to be translated. A list of standard operators is given. For more effective access to the computer memory the diagnosing features are arranged in order of decreasing frequency. A set of codes is described -- information interdependent with the word form to be analyzed. Examples are given of machine processing of English words. The article ends with a description of the work of an algorithm for eliminating lexical ambiguity; the flowchart of the algorithm is given. An algorithm is presented for

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USSR

SLAVINA, L. A., TRIBIS, L. I., Chastnyye vopr. avtomat. analiza tekstov, 1972, pp 290-310

eliminating bilingual lexical ambiguity of the noun "adjustment" and a list is given of the diagnosing features for this word.

3/3

USSR

UDC: 620.191.32

TRIBUNSKIY, V. V., KALINICHENKO, I. I., and KHADYYEV, M. S.

"Study of Composition and Structure of Scale from Nickel (NP2 and NK0.2), Alumel and Chromel Wire Rod"

Izv. VUZ, Tsvetnaya Metallurgiya, No 3, 1970, pp 131-134

Abstract: Electronographic and chemical studies indicated that the scale from NP2 and NK0.2 alloy wire rod consists of NiO, $NiFe_2O_4$, and traces of nickel. The scale on alumel wire consists of NiO, $NiAl_2O_4$, $NiMn_2O_4$, Fe_3O_4, and traces of nickel, the scale from chromel wire - of NiO, $NiCr_2O_4$, Cr_2O_3, and $(Fe, Cr)_2O_3$. It is established that the upper layer of the scale on the wire rod of the alloys studied consists of NiO. The $NiCr_2O_4$, Cr_2O_3, $(Fe, Cr)_2O_3$ phases, as well as $NiAl_2O_4$ and $NiMn_2O_4$ are present as individual crystals, dispersed in the NiO. The $NiFe_2O_4$ and Fe_3O_4 spinels are present in the scale in the form of individual interlayers.

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1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SATURATED ALIPHATIC ALDEHYDES -U-

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SATD. ALIPHATIC ALDEHYDES ARE PREPD. BY CONDENSING LOWER ALDEHYDES OVER CO NAPHTHENATE OR STEARATE, AND HYDROGENATING THE UNSATD. ALDEHYDES OVER THE SAME SALTS WITH SYNTHESIS GAS (CO-H SUB2 1:1) AT 100-800EGREES TO 150-250 ATM.

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UDC [621.362:538]:666.777:620.1

AKOPOV, V.R., SOLODOV, Yu.P., TRIFONOV, A.D., REKOV, A.I., ROMANOV, A.I., and TARABANOV, A.S.

"Studying High-Temperature Materials for a Channel of an Open Cycle Type MHD-Installation"

Materialy dlya kanala MGD-generatora (Materials for an MHD-Generator Channel -- collection of works), Moscow, "Nauka", 1969, pp 143-145 (from RZh-Elektrotekhnika i Energetika, Moscow, No 5, 1970, Abstract No 5A150)

Translation: A problem is discussed associated with maintaining a temperature on the working surface of the walls of an MHD-generator channel which will ensure the preservation of the insulating and conducting properties of materials along with their resistance to erosion carry-off. Experimental results are analyzed from the study of electrical insulating (high-alumina and magnesian grades of concrete) and electrode (siliconized graphite and SiC - borosilicocarbides modified with admixtures of Mo and Ti) materials in a gas flow. It is ascertained that cooling is the main condition to be met in using existing high-temperature materials in open cycle type MHD channels. Gas flow parameters are ascertained which determine the critical heat flux responsible for the destruction of the materials tested. As far as prospectives are concerned, the authors recommend

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AKOPOV, V.R., et al., Materialy dlya kanala MGD-generatora, Moscow, "Nauka", 1969, pp 143-145

thin-layer coatings made from high-temperature materials having good heat contact with the cooling backing.

Original article: four illustrations, four tables, and six bibliographic entries.

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UDC [621.362.538.4]:666.777:620.1

USSR

TRIFONOV, A. P.

"Asymptotic Behavior of Bayes Estimates of a Signal Parameter in the Presence of Unstable Normal Noise"

Probl. Peredachi Inform. [Problems of Information Transmission], 1972, Vol 8, No 4, pp 46-54 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V272, by the author).

Translation: It is demonstrated that for broad classes of a priori distributions and loss functions, the Bayes estimate converges to a conditional estimate of the maximum likelihood with unlimited increase in the signal/noise ratio. Approximate calculation of the accuracy of approximation of the Bayes estimate by its limiting value is performed for high but not infinite signal/noise ratios.

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USSR

UDC 621.391.14

KULIKOV, YE. I., TRIFONOV, A. P., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Optimal Estimate of the Energy Parameter of a Signal During Reception Against a Background of Normal Noise"

Moscow, Radiotekhnika, Vol 27, No 1, 1972, pp 10-13

Abstract: The theory of estimating an arbitrary energy parameter of a signal by the method of the maximum plausibility function was developed for optimal reception of a completely known signal and a signal with a random initial phase against a background of additive stationary normal noise with a zero mean value and a given correlation function. As an illustration of the derived expressions, the bias and the dispersion of the estimate of the "duration" τ_0 of a radio pulse with a gaussian envelope was calculated for reception against a background of white noise with given spectral density. From the expressions obtained it is obvious that for fixed signal energy and spectral noise density the bias and dispersion of the duration estimate of a gaussian radio pulse are proportional to the true value of τ_0. These results are explained by the fact that with an increase in duration the leading and trailing edges of the signal function

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KULIKOV, YE. I., et al., Radiotekhnika, Vol 27, No 1, 1972, pp 10-13

increase. Consequently, the effect of the nonstationary noise within the limits of the width of the signal function increases.

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UDC: 621.391.81

TRIFONOV, A. P.

"Combined Evaluation of Several Signal Parameters for the Case of Reception in Normal Noise"

V sb. Radiofiz. i mikroelektronika (Radio Physics and Microelectronics), Voronezh, 1970, pp 3-6 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A78)

Translation: The author determines the correlation matrix for estimates of several arbitrary parameters of an unknown deterministic signal received by an optimum (with respect to maximum probability function) receiver against a background of stationary normal noise with zero average value. It is shown that in the first approximation this matrix coincides completely with the correlation matrix of joint-effect estimates. Bibliography of four titles. N. S.

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Pulse Technique

USSR

TRIFONOV, A. P.

UDD: 621.391.2.018.756

"Parameter Estimation in Sequential Pulse Reception in Nonstationary Normal Noise"

Moscow, Radiotekhnika i elektronika, No. 11, 1970, pp 2234-2244

Abstract: While other papers dealing with the same subject assume that the noise is stationary, with known statistical characteristics, it cannot be considered a stationary random process in many practical problems involving sequences of pulses. This paper therefore deals with the simplest model of such nonstationary noise, one whose dispersion varies over different periods of repeated pulses but remains constant during the reception of a single pulse. The assumption is made that the repetition period of the pulses is much larger than the noise correlation time. To illustrate the basic relationships he derives, the author uses the practical example of reception of a sequence of bell-shaped pulses, assuming that the period of the pulse is much less than the repetition period and that there are an even number of pulses. He considers both coherent and noncoherent sequential pulse reception, and derives an expression for an asymptotically optimal receiver for the latter type.

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