

USSR

UDC 621.51:681.3

CHUDAKOV, A. D., Tsifrovye Ustroystva Pnevmoniki, Mořcow, Energiya Press, 1971, 112 pages.

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UDC 621.51:681.3

CHUDAKOV, A. D., Tsifrovye Ustroystva Pnevmoniki, Moscow, Energiya Press, 1971, 112 pages.

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USSR

UDC: 621.5:681.325.65

BEL'SKIY, V. K., Engineer, and ZHOLKOV, YU. A. AND CHUDAKOV, A. D., Candidates of Technical Sciences

"Set of Fluidic Computer Devices"

Moscow, Pribory i Sistemy Upravleniya, No. 5, 1970, pp 17-19.

Abstract: A set of fluidics computer devices has been developed at the State Scientific Research Institute for Heat Engineering Instrument Building. The devices are discrete, modular units containing no moving parts. They are designed for the performance of the main digital and logic operations involved in the input, processing, storage and output of discrete information. These standard devices are designed for the construction of various control and computation equipment; devices of this type have never been described in the literature either in the USSR or abroad and have not as yet been manufactured by industry. The devices are manufactured on plates which can be stacked into blocks designed to fit into modular plug-in units performing various control and computational operations. Operating speeds include five cycles of addition or subtraction per second, 15 comparison operations per second, 25 code conversion operations per 1/2

USSR

BEL'SKIY, V. K., Engineer, and ZHOLKOV, YU. A. AND CHUDAKOV, A. D., Candidates of Technical Sciences, Moscow, Pribory i Sistemy Upravleniya, No. 5, 1970, pp 17-19.

second, 20 cycles of instruction readout per second or 4 cycles of manual information input per second.

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USSR

UDC: 621.3-182-525

ZHOLKOV, Yu. A., KLYUKINA, G. V., CHUDAKOV, A. D., State Scientific Research Institute of Heat and Power Engineering Equipment Building

"A Fluidic Logic Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 25, Soviet Patent No 278208, class 42, filed 22 May 69, published 5 Aug 70, pp 129-130

Translation: This Author's Certificate introduces a fluidic logic device which can be used for controlling a shifted code converter. The device contains a NOR element with two input channels, and an "inhibit" element with main and inhibiting input channels. As a distinguishing feature of the patent, reliability is improved by connecting the input channel of the device to the first input channel of the NOR element and to the main input channel of the "inhibit" element, connecting the output channel of the NOR element to the inhibiting input channel of the "inhibit" element and to the first output channel of the device, and connecting the output channel of the "inhibit" element to the second input channel of the NOR element and to the second output channel of the device.

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Physical Properties

USSR

UDC 669.25:537.311.3

BEREZINA, A. L., CHUDAKOV, A. F., and CHUISTOV, K. V., Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Study of the Recovery in Alloy Co -- 9 at. % Ti. Resistometric Investigations"

Sverdlovsk, Fizika Metallov i Metalovedeniye, Vol 30, No 4, Oct 70, pp 774-779

Abstract: An investigation was made of the effect of short-duration high-temperature heating ($T = 800^{\circ}\text{C} -- 2 \text{ min}$ and $900^{\circ}\text{C} -- 1 \text{ min}$) on the magnitude of electrical resistance R and the magnetization saturation I_s of alloy Co -- 9 at. % Ti, which was pre-aged at much lower temperatures ($500 -- 700^{\circ}$). The effect of recovery of the studied properties of the alloy after high-temperature treatment was established. It was assumed that the effect of recovery depends on the diffusion of concentration waves or separations whose dimensions are smaller than the critical one at the recovery temperature. The possibility of cyclical recovery R and I_s was determined. Study of the step-wise heating of the pre-aged Co--Ti alloy made it possible to define more accurately the nature of change of the spectrum of concentration waves as a result of gradual heating of pre-aged alloys.

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USSR

UDC 551.511

FUZHLYAKOVA, G. A., ~~CHUDAKOV, I. G.~~

"Coefficient of Turbulence of a Planetary Boundary Layer"

V sb. Vopr. klimata i pogody Nizhn. Povolzh'ya. Vyp. 7 (Problems of the Climate and Weather of Lower Povolzh'ye. No 7--collection of works), Saratov, Saratov. un-t 1971, pp 3-14 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10B747)

Translation: The well known Ackerblom solution for wind speed components in an atmospheric boundary layer is found with a number of simplifying assumptions which are frequently not satisfied in reality. This shows up in particular when this solution is taken as the basis for determining the coefficient of turbulence in the boundary layer. In this connection it is proposed that the simplifications be applied not to the boundary layer in its entirety, but rather to individual thin layers where the development of turbulence corresponds to the ruling principles of the Ekman spiral.

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USSR

PUZHLYAKOVA, G. A., CHUDAKOV, I. G., Vopr. klimata i pogody Nizhn. Povolzh'ya. Vyp. 7, Saratov, Saratov. un-t, 1971, pp 3-14

In order to get around the problem of determining the geostrophic wind speed on the upper surface of the boundary layer, an expression is found for the velocity field which is invariant in the entire boundary layer with respect to the change in the thermobaric field, and which depends only on the coefficient of turbulence. If the values of this invariant are calculated in turn from data of weather balloon observations of the wind, the coefficient of turbulence may be found for each individual turbulent layer. To facilitate calculations of the coefficient of turbulence directly from the data of weather balloon observations, an auxiliary table is appended. Mean values of the coefficient of turbulence are presented for a specific locality. S. A. Bortnikov.

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USSR

UDC 539.214;539.374

CHUDAKOV, P. D.

"Two-Sided Evaluation of the Force of the Final Stage of Plane Inverse Stamping"

Tr. Voronezh. tekhnol. in-ta (Works of Voronezh Technological Institute),
1972, Vol. 19, No. 1, pp 13-20 (from RZh-Mekhanika, No 3, Mar 73, Abstract
No 3V482)

Translation: Analytical expressions are given for determining the values of
the upper and lower estimates of forces of the final stage of plane inverse
stamping on the basis of the use of extremal principles of elasticity theory.
It is assumed in the solution that the material is unstrengthened and that con-
tact tangential stresses achieve a limiting value. Author's abstract.

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USSR

UDC 539.214;539.374

CHUDAKOV, P. D.

"Two-Sided Estimate of the Sag Force of Cylindrical Blanks"

Tr. Voronezh. tekhnol. in-ta (Works of Voronezh Technological Institute),
1972, Vol. 19, No. 1, pp 7-12 (from RZh-Mekhanika, No 3, Mar 73, Abstract
No 3V485)

Translation: The possibility of constructing static solutions of axisymmetric problems without making the assumption of constant tangential stresses is discussed. This possibility is shown in the example of determining the sag force by parallel plates of cylindrical blanks from unstrengthened material under constant forces of contact friction. 7 ref. Author's abstract.

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USSR

UDC 621.791.1:621.57

KHRENOV, K. K., CHUDAKOV, V. A., KOZOLUP, P. M., LYMAR, P. I.,
and SKLYAR, I. D.

"Magnetic Impulse Welding of Domestic Refrigerator Tubes"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 70, pp 74-75

Abstract: A brief description is given of technology for the magnetic-impulse welding of copper and aluminum tubes 6 and 8 mm in diameter, respectively. The technology was developed jointly by the Institute of Electric Welding imeni Ye. O. Paton and the Dnepropetrovsk Plant for Radio Relay Devices (DZARP). A copper tube is introduced inside the aluminum tube with a certain clearance. In order to retain the inside diameter of the copper tube a 30KhGS steel rod is inserted inside it, and is removed after welding by a special device. The welding is achieved by an inductor, supplied by an 80-microfarad capacitor bank with a voltage of 20 kv and capacity of 16 kilojoule. The energy required for welding is 4.4-6.5 kilojoule and is determined by the inductor parameters. The current is about 165-200 kilo amperes. The inductor coils are water cooled.

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1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PHOTOMULTIPLIER SPECTRAL SENSITIVITY AS A FUNCITON OF VOLTAGE AND
I.R. ILLUMINATION -U-
AUTHOR--(04)-TJLKACH, P.N., PERTSEV, A.N., CHUDAKOV, V.A., LEVKOVICH, A.D.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKLAD. SPEKTROSK. (USSR) VO. 12. NO. 1. P. 126-128 (JAN.
1970).
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--IR PHOTOMULTIPLIER, PULSED ILLUMINATION, PHOTOCATHODE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/1764 STEP NO--UR/0368/70/012/001/0126/0128
CIRC ACCESSION NO--AP0122094
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122094

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CURRENTS OF PHOTOCATHODE, DIAPHRAGM, AND FIRST DYNODE WERE MEASURED DURING IRRADIATION OF THE PHOTOCATHODE BY LIGHT WITH A WAVELENGTH OF λ_{SUB1} EQUALS 650 NM AND λ_{SUB2} EQUALS 450 NM, AND AS A FUNCTION OF SUPPLY VOLTAGE, AS WELL AS WITH (AND WITHOUT) I.R. ILLUMINATION. THE I.R. ILLUMINATION IN THE REGIME OF SATURATION INCREASES THE PHOTOCATHODE CURRENT, WHILE THE DIFFERENCE BETWEEN THE DYNODE AND CATHODE CURRENTS IS POSITIVE. AT THE SAME TIME, THE RATIO OF LATTER DIFFERENCE AND OF THE DYNODE CURRENT IS A FUNCTION OF THE WAVELENGTH. THE RATIO OF DYNODE CURRENTS FOR THE TWO WAVELENGTHS DEPENDS UPON THE VOLTAGE BEFORE THE SATURATION REGIME. THE OBSERVED EFFECTS, WHICH AMOUNT TO SEVERAL PERCENTS, ARE INTERPRETED ON THE BASIS OF SB-CS PHOTOCATHODE MODEL.

UNCLASSIFIED

USSR

ABDUZHAMILOV, Sh., AZIMOV, S. A., SAIDKHANOV, N. Sh., and CHUDAKOV, V. M.

UDC: none

"Coherent Diffraction Generation of Ions by Protons in Photo-emulsive Nuclei"

Moscow, Yadernaya Fizika, vol. 15, No 2, 1972, pp 300-312

Abstract: This paper is a study of reactions of the type $p + A \rightarrow A + N + n\pi$, in which a nucleus with an atomic number of A does not vary in charge and is not excited: i.e., coherent diffraction generation of ions by protons takes place. The results of experiments in which a stack of Ilford K5 emulsions was irradiated by neutrons with an impulse of 20.8 GeV/s, and 3550 m of primary proton traces were scanned at an average rate of 1 m/hr, are given in tabular form and analyzed. The irradiation of the emulsion in a strong magnetic field of about 7 kilogauss permitted measurement of secondary particle impulses with good accuracy. Angular correlations are investigated through the use of the Lorentz-invariant azimuthal angles, and a mechanism for the reaction given above is developed. The authors express their gratitude to M. I. Podgoretskiy for his comments.

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USSR

AZIMOV, S. A., BEYSEMBAYEV, R. U., MULLADZHANOV, E. ZH.,
CHUDAKOV, V. M., YUDASHBAYEV, T. S., Institute of Nuclear
Physics, Academy of Sciences, Uzbek SSR

"Azimuthal Relations and Fireballs"

Moscow, Yadernaya Fizika, Vol 11, No 6, 1970, pp 1248-1254

Abstract: Azimuthal correlations are detected in nuclear inter-
actions at energies of hundreds of Gev. From the point of view
of a model of a single fireball, the cause of the correlations
may be its formation and "rotation."

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USSR

CHUDAKOV, V. N.

"The Isomorphism of Thought Structures at the Neuron and Psychological (Operational) Levels"

Probl. Bioniki. Resp. Mezhd. Temat. Nauch.-Tekhn. Sb. [Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection], 1975, No 10, pp 66-73 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V802)

Translation: The apparatus of algebraic systems is used to reveal the isomorphism of neuron and operational (psychological) thought structures. A theorem of agreement of algebraic and logic structures is proven. The concept of neuron structures are formulated, corresponding to the operational structures of specific and formal levels of thought. A theorem is proven on the group properties of neuron structures. 10 Biblio. Refs.
Author's view

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USSR

UDC: 8.74

CHUDAKOV, V. N.

"Concerning Isomorphism of Structures of Thought on the Neural and Psychological (Operational) Levels"

Probl. bioniki. Resp. mezhved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp. 10, pp 66-73 (from RZh-Matematika, No 10, Oct 73, abstract No 10V802 by the author)

Translation: To reveal the isomorphism of neural and operational (mental) structures of thought, the apparatus of algebraic systems is used. A theorem on correspondence of algebraic and logical structures is proved. The concept of neural and operational structures of thought is given. Axioms are formulated for neuron structures corresponding to operational structures of concrete and formal levels of thought. A theorem on group properties of neuron structures is proved. Bibliography of ten titles.

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USSR

UDC: 8.74

CHUDAKOV, V. N.

"Algebraic Nature of Structures of Developing Thought"

Probl. bioniki. Resp. mezhved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp. 10, pp 49-57 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V710 by the author)

Translation: The paper deals with the algebraic properties of structures of thought: reversibility, properties of groups and structures of order. Theorems are proved on the reversibility of thought operations, on the necessary and sufficient conditions of the process of logical thought, and on the group properties of structures of thought. Structures of thought on the formal level are described. Bibliography of 11 titles.

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1/2 030 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--DOMAIN BOUNDARY RESONANCE AS A MEASURE OF THE NUMBER OF DEFECTS IN
YTTRIUM IRON GARNET CRYSTALS -U-
AUTHOR--(02)--ZALESSKIY, A.V., CHUDAKOV, V.S.
COUNTRY OF INFO--USSR C
SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 299-301
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS
TOPIC TAGS--GARNET, CRYSTAL LATTICE DEFECT, IR SPECTRUM, YTTRIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/1452 STEP NO--UR/0070/70/015/002/0299/0301
CIRC ACCESSION NO--AP0109512
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109512

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DOMAIN BOUNDARY RESONANCE WAS STUDIED BY USING A RADIOSPECTROMETER DESCRIBED EARLIER (Z., ET AL., 1969) FOR GARNET CRYSTALS CONTG. DIFFERENT AMTS. OF DEFECTS. THE DEVELOPMENT OF THE CRYSTAL WAS STUDIED IN IR LIGHT. AS THE NO. OF DEFECTS ATTACHED TO THE DOMAIN BOUNDARIES IS INCREASED, THE RESONANCE INTENSITY DECREASES SHARPLY. THIS CAN BE USED TO DET. THE QUALITY OF THE CRYSTALS. FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

172 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--NONSCALE ANNEALING OF BRASS -U-

AUTHOR--(02)-CHUDAREV, L.F., PINUS, L.N.

COUNTRY OF INFO--USSR

SOURCE--TR. GOS. T.-T. I PROYEKTN. IN-TA SPLAVOV I OBRABOTKI TSVEVN. MET.
REFERENCE--REF. ZH., METALURGIYA, NO 4, 1970, ABSTRACT NO 4D233E OF ALLOYS
DATE PUBLISHED-----70



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

TOPIC TAGS--THERMAL EFFECT, METAL HEAT TREATMENT, BRASS, METAL ROLLING,
ALLOY, ENGINE RADIATOR/(U)168 ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/0776

STEP NO--UR/0000/70/000/031/0050/0053

CIRC ACCESSION NO--AR0128288

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AR0128288

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

ABSTRACT. RESULTS ARE PRESENTED OF THE ANNEALING OF BRASS RADIATOR STRIP MADE OF L-68 ALLOY IN A PULL THROUGH FURNACE. IT WAS SHOWN THAT HIGH SPEED STRIP ANNEALING IN A STEAM ATMOSPHERE PRODUCES UNIFORMITY OF MECHANICAL PROPERTIES AND GRAIN SIZE ALONG THE LENGTH OF THE ROLL; THE STRIP SURFACE STATE PERMITS ELIMINATION OF THE ETCHING OPERATION FROM THE TECHNOLOGICAL CYCLE. THE EFFECT OF TEMPERATURE AND ANNEALING TIME ON THE VALUE OF THE REFLECTION COEFFICIENT WAS LEARNED.

UNCLASSIFIED

USSR

CHUDAREV, P. E., GOLOVIN, D. L.

"Model of Description of Shape of Parts for Input of Geometric Information to a Computer"

Tr. Mosk. Aviats. In-ta. [Works of Moscow Aviation Institute], 1972, No 243, pp 23-25 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V717 by V. Mikheyev).

Translation: The possibility is studied of tabular definition of the shape of a part limited by flat "terminal" and cylindrical circular surfaces, all axes of which are parallel to the X direction. The mathematical model of the problem is as follows: suppose S is the set of surfaces F_i limiting part D_i . For each point $m_{i0} \in F_i$, linear trajectories of examination η_j are fixed, over which points m_{i0} can move in direction i. The trajectories of examination η_j pass through points $m_{i0} \in F_i$ parallel to the X axis. The trajectories of examination η_2 pass through points $m_{i0} \in F_i$ originating at points (or a point) on the X axis and perpendicular to the X axis. Theorem. If the surfaces of identical limitation F_{ik} and F_{ip} are such

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CHUDAREV, P. F., GOLOVIN, D. L., Tr. Mosk. Aviats. In-ta., 1972, No 243, pp 23-25.

that $F_{ik} \subset F_i$ and $F_{ip} \not\subset F_i$, then $F_{ik} \cap F_{ip} = \emptyset$ and the surfaces F_{ik} and F_{ip} contain no common points m_i .

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USSR

UDC 539.3

LIGAY, L. B., CHUDAYEV, Ya. F., GARIPOV, M. Sh.

"Bending of a Square Plate With Two Restrained and Two Free Edges"

V sb. Materialy k predstoyashch. nauch.-tekhn. konf. Sib. metallurg. in-t. Sekts. stroit. proiz-va. Vyp. 3 (Materials for a Forthcoming Scientific-Technical Conference. Siberian Metallurgical Institute. Construction Industry Section. No. 3 -- Collection of Works), Novokuznetsk, 1972, pp 200-206 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V189)

Translation: The stress-deformation state of a thin elastic square plate under the action of a uniformly distributed surface of a load perpendicular to the middle of the surface is discussed. Two adjacent edges of the plate are rigidly constrained and the two others are free. The differential equation from the theory of plates is solved on a computer by the grid method with a step equal to $1/8$ of the length of a side of the plate. Values of the bends of the plate are given in tabular form. G. K. Aksentyan.

1/1

D. Programming and Theory of Mathematical Machines

USSR

SHAPOV, N. YU. and CHUDIN, A. A.

"Arithmetic in Redundant Codes for an Associative Processor"

Vopr. Kibernet. Odnorod. Mikroelektron. Struktury [Problems of Cybernetics, Homogeneous Microelectronic Structures -- Collection of Works], Moscow, 1973, pp 37-48 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V581)

Translation: It is noted that the time of processing of operands in an associative processor depends essentially on their length. The use of redundant character codes allows operations such as addition to be performed with operands of various length in a fixed number of cycles. However, this redundant coding of numbers causes an increase in the number of associative memory elements by approximately 1.5-2.2 times in comparison to ordinary binary coding of numbers.

O. Belkin

1/1

CHUDIN, A.A.

COMPUTERS

NEW BOOKS
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AMU
PSC
PASC
7/16

Homogeneous Microelectric Associative Processors

V. Pringshteyn, G. M. Danova, O. G. Smirnov, A. A. Chudin, et al.
Problemy mikroelektroniki i informatsionnykh protsessov. Sovetskoe Radio, Moscow, 280 pp. The principles of constructing a homogeneous associative parallel processor used for solving a wide class of problems involving batch processing of information is described. This processor has three times the productivity and much greater efficiency than modern computers.

Methods of executing arithmetic, logic, and retrieval operations using the processor are described, and appropriate algorithms and programs are presented. Examples of solving various problems via the processor are examined and comparative evaluations of the times required for their solution using the processor and ordinary computers are given. Problems of high level and identification, and situations involving economic planning and management, medical and technical diagnostics, radar and sonar, weather forecast, etc., are discussed.

A survey is made of some of the more interesting foreign work on the construction of associative parallel processors. Current capabilities of microelectronics for the execution of these processors using LSI are examined. The book will be of interest to a wide range of engineering, technical, and scientific personnel, and to students of higher educational institutions who are interested in computers, engineering cybernetics, and microelectronics.

Printed Circuits in Instrument Design, Computer Technology, and Control Systems Automation

N. A. T. Belyaev, *Problemy razvitiya i primeneniya tekhnologii razvitiya i primeneniya tekhnologii*. Mashinostroyeniye, Moscow, 1973, 269 pp. A systematic description of the basic problems of design, production technology, and use of printed circuits is presented in this book. The most advanced experience and achievements of domestic and foreign technology are included. Material used for the production of printed circuits; methods of preparing the prototypes of these circuits; special features of constructing printed circuits, including analysis of the basic design-engineering problems and design versions, are described in detail. Much attention is devoted to the design of printed circuit conductors and basic printed elements for lower and higher frequencies. In examining the problems of manufacturing printed plates, a step by step description is presented of plate production, design of printed

Soviet Chemistry Review, July 1973

USSR

UDC 615.214.015.43

MATVEYEV, V. F. and CHUDINA, E. Kh., Institute of Psychiatry, RSFSR Ministry of Health and Institute of Human Morphology, USSR Academy of Sciences, Moscow

"Histochemical Study of the Brain and Viscera After Prolonged Administration of LSD"

Moscow, Zhurnal Nevropatologii i Psikhatrii, No 7, 1973, pp 1,064-1,070

Abstract: Rats were given 0.04 mg/kg of LSD₂₅ daily for 4 weeks. Histochemical study revealed distinct changes, especially after the fourth week, in the activity of various enzymes in the brain, liver, kidneys, and heart. Glutamic acid and succinic dehydrogenase activity decreased in all the structures under study. Mitochondrial α -glycerophosphate dehydrogenase activity was normal in brain tissues but decreased in the viscera. These changes show that prolonged administration of LSD₂₅ impairs the metabolic processes not only in the brain but in the viscera as well. The effects were correlated with alterations in the animals' behavior.

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USSR

UDC 678.675:678.06-419.8:677.521

CHUDINA, L. I., TANUNINA, P. M., LITOVCHENKO, S. I., CHERVINSKAYA, M. A.,
CHERDASOV, M. V., VOROB'YEV, V. D., VLASOVA, K. N., KISELEV, B. A., and
DAVYDOVA, I. F.

"Polyimides and Polybenzimidazols for Plexiglasses and Cements"

Moscow, Plasticheskiye Massy, No 4, 1973, pp 15-17

Abstract: The physical and chemical properties were determined for a number of thermoplastics -- such as the polyimides (PI), polyamidoimides (PAI), and polybenzimidazols (PBI) -- forming 15-60% solutions with different solvents. The PAI and PBI plus three of the PI resins formed linear structures; two of the PI resins formed a three-dimensional structure. The linear resins have a greater strength than the crosslinked below temperatures of about 300°C. The data are given in several tables and graphs.

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USSR

UDC 542.61:(546.799.5+546.799.6)

CHUDINOV, E. G., PIROZHKOVA, S. V., and STEPANCHIKOV, V. I.

"Studies of the Separation of Americium and Curium During the Extraction With Methyl-dioctylammonium Nitrate From Lithium Nitrate Solutions"

Leningrad, Radiokhimiya, Vol XIII, No 2, 1971, pp 208-215

Abstract: The example of extraction with methyl-dioctylammonium nitrate is used to determine the dependence of the americium and curium separation factor on the concentration of the extractant, lithium nitrate and nitric acid. The experimental procedure and results are described. Statistical methods of planning the experiments were used to find the optimal separation conditions. The data obtained made it possible not only to discover the effective extraction conditions but also to obtain information about the mechanism of extraction of trivalent actinide elements with trialkylammonium salts.

The separation of Am and Cm in the trivalent state by extraction by methyl-dioctylammonium nitrate from LiNO_3 solutions was studied as a function of variation of the concentration of methyl-dioctylammonium nitrate, LiNO_3 and the pH. Equations relating the separation factor and the distribution
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USSR

CHUDINOV, E. G., et al., Radiokhimiya, Vol XIII, No 2, 1971, pp 208-215

coefficients to the variation of the above parameters were obtained. In the given system a relatively high Am and Cm separation factor (~ 3) is achieved, and it depends little on the methyldioctylammonium nitrate and LiNO_3 concentrations. Analysis of the regression equations from the point of view of the extraction mechanism permits reproduction of the true form of the extraction function.

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USSR

UDC 541.1:546.799.3

CHUDINOV, E. G., and CHOPOROV, D. Ya.

"Pressure Measurement of Saturated Neptunium Tetrafluoride Vapor"

Leningrad, Radiochimiya 12, No 3, 1970, pp 525-527

Abstract: The differential diffusion method was used in the temperature range from 603-818.5°C for the vapor pressure measurement. An equation is derived which satisfactorily describes the data of two experimental series. The expression for the free energy of sublimation for a change in heat capacity of $\Delta C_p = -6$ cal/degree·mole has the form $\Delta F = 77,700 + 6T \ln T - 93.6T$.

1/1

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USSR

UDC 620.181

CHUDINOV, E. G., and CHOPOROV, D. YA.

"Saturation Vapor Pressure of Solid Uranium Tetrafluoride"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 8, Aug 70, pp 1955-1961

Abstract: The authors measured the saturation vapor pressure of solid uranium tetrafluoride by the effusion method in the 555-1007° C range. On the basis of the measurement results the least-squares method was used to calculate on an M-20 computer the equations connecting variations in saturation vapor pressure with temperature. The best regression equation describing the experimental results was found to be

$$\lg p = 28,539 - 16504.9/T - 4,876 \lg T$$

The authors thank G. M. KUKAVADZE for making the mass-spectrometric study.

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Acc. Nr:

AP0047502

Abstracting Service:
NUCLEAR SCI. ABST. 4-70

Ref. Code:

UR0089

C

13852 SUBLIMATION OF AMERICIUM TETRAFLUORIDE.
Chudimov, E. G.; Choporov, D. Ya. At. Energ. (USSR); 28:
62-4(Jan 1970). (In Russian).
The vapor pressure of americium tetrafluoride was determined
from 456 to 668°C. It was revealed that the behavior of americium
tetrafluoride was similar to that of plutonium tetrafluoride, which
indicated that the dissociation mechanisms of these compounds are
identical. (R.V.J.)

pc

REEL/FRAME
19791061

18

USSR

CHUDINOV, I. L.

"Realization of the Simplex Method on the MIR-1 Computer"

Kibernetika i vuz. [Cybernetics and the University -- Collection of Works], Tomsk, Tomsk University Press, No 4, 1971, pp 160-163, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V720 by the author).

Translation: A program is described for realization of a simplex method on the MIR-1 computer, and the algorithm realized is described.

1/1

- 58 -

Optical

USSR

UDC: 528.52

IVANDIKOV, Ya. M., Docent, Candidate of Technical Sciences, CHUDINOV, K. A., Senior Instructor, Moscow Institute of Engineers of Geodesy, Aerial Photography and Cartography

"An Optical Coordinator With Mirror Cone"

Moscow, Izvestiya VUZov: Geodeziya i Aerofotos"yemka, No 2, 1972, pp 127-132

Abstract: The paper discusses the possibilities for developing wide-angle angle-measurement systems in which one of the main elements of the optical coordinator is a reflecting cone or a toroidal annular mirror. Systems of this type may be useful in developing instruments for spacecraft orientation. Geometric methods of image construction are presented which permit first-approximation judgment of image quality and energy distribution when a mirror cone is used as an optical coordinator element.

1/1

USSR

UDC 616.988.25-022.395.42-084(-21)

CHUDINOV, P. I., NETSKIY, G. I., CHERNUKHA, A. D., YEVSTIGNEYEVA, N. S., PASTUKHOVA, A. N., SHCHEGLOVA, Ye. Ye., and PRIGORODOV, V. I., Omsk Scientific Research Institute of Natural Focus Infections, Ministry of Health RSFSR, and Novosibirskaya Oblast Sanitary Epidemiological Station

"Prevention of Tickborne Encephalitis in a Large City"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 588-591

Abstract: The rapid growth of industrial centers in Western Siberia near endemic regions of tickborne encephalitis has increased the incidence of this disease among some urban populations. For example, in Novosibirsk, a city of approximately half a million people located on the Ob River, four cases were reported in 1955, 108 in 1962, and 141 in 1966. The city is located close to a number of densely wooded, heavily tick-infested areas often visited by hikers, vacationers, etc. However, the number of cases was reduced to 74 in 1969 mainly as a result of systematically dusting the forests most frequented by Novosibirsk residents with DDT (30 to 50 kg of 10% dust per hectare) and by selective vaccination of groups most vulnerable to tickborne encephalitis (geologists, regular hikers, etc.). It was not deemed necessary to provide mass vaccinations.

1/1

- 29 -

MEDICINE
Epidemiology

USSR

UDC 911.3.616.988.25 (571.14)

CHERNUKHA, A. D., ~~CHUDINOV, P. I.~~, and PRIGORODOV, V. I.

"Results of a Study of Tickborne Encephalitis Epidemiology among Novosibirsk Inhabitants"

V sb. Vopr. infekts. patol. (Problems of Infection Pathology -- collection of works), Vyp. 2. Omsk, 1970, pp 29-30 (from RZh-Meditskinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.57)

[No abstract]

1/1

USSR

UDC 616.988.22-022.395.42:616-022.38

DOROMTSOVA, V. A. and CHUDINOV, P. I., Sanitary Epidemiological Station of the West Siberian Railroad, Novosibirsk, and Omsk Scientific Research Institute of Infections with Natural Foci

"The Role of Artificial Protective Forest Belts Along the West Siberian Railroad in Natural Foci of Tick-Borne Encephalitis"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 283-286

Abstract: Cases of tickborne encephalitis were observed among West Siberian Railroad workers: from 1956 to 1969, 48 cases were reported and the protective forests along the railroad were investigated. The presence of *Ixodes persulcatus* was established in the forest belts, which indicated the emergence of secondary foci of the disease. Apparently, the insect density is maintained by the domestic animals of railroad workers, as well as by small wild mammals. The species composition of small wild mammals in the artificial forests is identical to that in natural forests. Also birds serve as carriers of infected ticks. As a result of their activity, railroad workers are in constant contact with the disease vectors.

1/1

Materials

①

USSR

ANDRIANOV, D. G., BRANDT, N. B., IOON, E. R., FISTUL', V. N., and CHUDINOV, S. M.
"A New Commutation Effect in InSb"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17,
No 9, 5 May 73, pp 494 - 498

Abstract: Detailed studies of Shubnikov-de Haas oscillations in M-type InSb
monocrystals alloyed with Te at 10^{18} cm^{-3} indicate a commutation effect for a
narrow range of carrier concentrations. Within this range a reversal of magnetic
field direction with respect to electric current direction at low temperatures
produces a qualitative change in the nature of oscillatory relationships. The
nature and strength of the effect are dependent on the plane orientation of the
crystal with respect to the magnetic field (which is always perpendicular to the
electric current).

The phenomenon can be explained by postulating quasi-localized magnetic
moments related to some virtual (resonant) levels, which cause changes in the
law of dispersion in the conductivity zone of InSb in the neighboring energy
region. The passage of a Fermi level (due to alloying or the effect of external
pressure) through these resonance levels is accompanied by: a) their virtual
saturation and the development of quasi-localized magnetic moments; b) a maximum
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(1)

USSR

ANDRIANOV, D. G., et al., Moscow, Pis ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17, No 9, 5 May 73, pp 494 - 498

of the exchange interaction of the quasi-localized moments through electron conductivity at the Fermi level, leading to the development of long range magnetic order and the formation of an intracrystalline field.

2/2

CHUDINOV, S. M.

JPRS 57631
30 November 1972

ABSTRACTS OF REPORTS PRESENTED AT THE FIRST ALL-UNION
CONFERENCE ON METAL-DIELECTRIC PHASE TRANSITIONS

Excerpts from Russian-language book: Sbornik Nauchnih Soobshchenii
Doklady, Preklady i Voprashivaniya na Vsesoyuznykh Konferentsiyakh po
Tema "Metal-Dielectric" 1972, Akademiya Nauk SSSR, Institut
Fiziki i Khimii Metallov, Moscow, pp. 8-10, 10-12, 15-17, 18-23.

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CHUDINOV, S. M.

JPRS 57631
30 Nov. 1972

METAL-DIELECTRIC PHASE TRANSITIONS OF EASH ALLOYS IN STRONG MAGNETIC FIELDS

[Article by N. B. Brandt, Ye. A. Sviridova, Moscow State University, Physics Department, pp 8-10]

Presented in this paper are the results of a study of the magnetic resistance of specimens with small controlled overlapping of zones and controlled energy slits, i.e., of metallic and semiconductor alloys and bismuth and antimony in pulsed magnetic fields up to 700 ke in the 2-77°K temperature range. The purpose of which was to discover effects related to qualitative changes in the energy spectrum of the specimens in the ultraviolet region of magnetic fields.

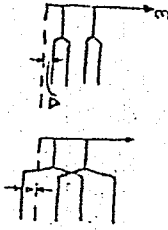


Figure 1.

electron transitions may occur, depending on the ratio of the spin and orbital masses of the carriers.

Quantization of carrier energy and the spin distribution of the energy levels in the magnetic field lead to displacement of the boundaries of the energy zones (Figure 1).

In the ultraviolet region, the displacement of zone boundaries (d) reaches a magnitude comparable to or greater than the Fermi energy in the zones of the metals or the energy slit in semiconductors. Here

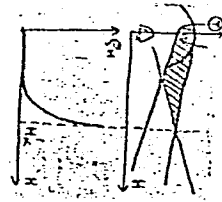


Figure 5.

The exponential increase of magnetic resistance for $H > H_K$, appearance of semiconductor dependence of electrical resistance on temperature when $H > H_K$, dependence of field H_K on the composition of the alloy (amplitude of zone overlapping when $H = 0$) indicates that zone overlapping in the energy spectrum vanishes in field H_K and an energy slit appears when $H > H_K$. Then metallic BiSb alloys go into the semiconductor state.

concentration of current carriers increase. When $H > H_K$ the character of displacement of zone boundaries changes qualitatively: the extremum T continues to descend, but then the extremum L_S begins to rise. Consequently overlapping of zones L_S and T vanishes when $H = H_K$ and an energy slit is formed when $H > H_K$, whereupon the metal becomes a semiconductor.

Also observed in the work is the transition of a semiconductor into the slitless state. This type of transition is a consequence of convergence and subsequent divergence of the L_S and L_0 extrema, located at the same point of the phase space. If the substance is a semiconductor when $H = 0$, then because of convergence of the extrema the semiconductor goes into a unique slitless state, characterized by an anomalously small energy slit between the zones and by increased conductivity.

More complex transitions, related to the notion of several different extrema, were also observed in the work.

I. M. LIFSHITS' METAL-DIELECTRIC PHASE TRANSITIONS IN $Bi_{1-x}Sb_x$ ALLOYS UNDER THE INFLUENCE OF PRESSURE

Article by I. M. Lifshits, M. D. Gerasimov, M. Kostyali, Ya. G. Pongorev, S. N. Chudilov, V. A. Yastubova, Moscow State University, Physics Department, pp 10-17

1. The second and fifth order phase transitions predicted by I. M. Lifshits, which occur in $Bi_{1-x}Sb_x$ alloys under the influence of pressure, are analyzed. The Shubnik oscillations of longitudinal and transverse magnetic resistances in fields $0 < H < 70$ ke and the galvanomagnetic tensor component (for the case $ur \ll 1$) in the $1 \text{ bar} < p < 20$ kbar pressure range at helium temperatures were measured in monocrystalline specimens of $Bi_{1-x}Sb_x$ alloys.

USSR

UDC 621.315.592

ANDRIANOV, D.G., BRANDT, N.B., ICON, E.R., FISTUL', V.I., CHUDINOV, S.M.

"Shubnikov--De Haas Effect In Heavily Doped N-Type GaAs"

Fizika i tekhnika poluprovodnikov, Vol 5, No 12, Dec 1971, pp 2285-2291

Abstract: The oscillations of the magnetoresistance of n-type GaAs doped with Te are studied in the interval of concentrations n_H of electrons from $0.95 \cdot 10^{18}$ to $2.75 \cdot 10^{18} \text{ cm}^{-3}$ in magnetic fields to 70 kilogauss at temperatures of $1.9 \pm 4.2^\circ \text{ K}$. Anisotropy of the isoenergetic surface at a point Γ of the Brillouin zone is revealed, increasing with an increase of the concentration of electrons. With $n_H = 2.75 \cdot 10^{18} \text{ cm}^{-3}$ the relative anisotropy of the extremal cross-sections of the isoenergetic surface amounts to ~ 2 percent. A break is observed in the dependences of the number of Landau levels on the magnitude of the reversed magnetic field, which is interpreted as a consequence of the two-sheeted structure of the isoenergetic surface at a point Γ and of the intraband magnetic breakdown between the two cross-sections of this surface which are similar with respect to area. The Dingle temperature, the cyclotron masses, the Hall mobility, and the Dingle mobility are determined. State Scientific-Research And Planning Institute Of The Rare Metal Industry, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskooy promyshlennosti, Moskva); Moscow State University imeni M.V. Lomonosova. Received by editors 31 March 1971. 6 fig. 2 tab. 11 ref.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SEMICONDUCTOR QUASIMETAL SEMICONDUCTOR TRANSITION IN BI SUBI
NEGATIVEX SB SUBX UNDER THE INFLUENCE OF PRESSURE -U-
AUTHOR--(04)-BRANDT, N.B., DITTMANN, H., PONOMAREV, YA.G., CHUDINOV, S.M.
COUNTRY OF INFO--USSR
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(5), 250-3
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PRESSURE EFFECT, ENERGY SPECTRUM, STRONG MAGNETIC FIELD, WEAK
MAGNETIC FIELD, SEMICONDUCTIVITY, SEMICONDUCTOR ALLOY, HOLE MOBILITY,
CARRIER DENSITY, CARRIER LIFETIME, ELECTRON MOBILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1854 STEP NO--UR/0386/70/011/005/0250/0253
CIRC ACCESSION NO--AP0118818
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0118818

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF PRESSURE ρ SMALLER THAN OR EQUAL TO P SMALLER THAN OR EQUAL TO 20 WAS STUDIED ON THE ENERGY SPECTRA FOR THE ALLOYS WITH ρ SMALLER THAN OR EQUAL TO X SMALLER THAN OR EQUAL TO 0.15 BY DETG. THE GALVANOMAGNETIC CHARACTERISTICS IN VERY WEAK AND VERY STRONG MAGNETIC FIELDS AND AT 1.5-300 DEGREE SK. FOR X LARGER THAN 0.05, A TRANSITION IS OBSERVED FOR H EQUALS 0 DUE TO THE PRESSURE FROM THE SEMICONDUCTING STATE INTO A NEW (CALLED A "QUASIMETALLIC") STATE WHICH IS CHARACTERIZED BY ANOMALOUSLY LOW VALUES OF THE ENERGY GAP AND OF THE EFFECTIVE MASS OF THE CURRENT CARRIERS. THE SEMICONDUCTOR YIELDS "QUASIMETAL" TRANSITION IS ACCOMPANIED BY AN INCREASE IN THE MOBILITY OF THE CURRENT CARRIERS WHICH IS ASSOCD. WITH A DECREASE IN THE EFFECTIVE MASS OF THE ELECTRONS AND HOLES. FACILITY: FIZ. FAK., MOSK, GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 8.74

YAMPOL'SKIY, V. Z., CHUDINOV, I. L.

"Optimizing Arrangement of Data in a Computer Memory"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 31-37 (from RZh-Kibernetika, No 5, May 73, abstract No 5V771 by the authors)

Translation: Formulations and algorithms are proposed for problems of distributing data blocks among storage devices of various speeds and on magnetic tape.

1/1

USSR

UDC: 8.74

CHUDINOV, I. L., SHPOTIN, V. Ye.

"Programs for Solution of the Problem of Optimum Distribution of Data Blocks on Magnetic Tape"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 122-124 (from RZh-Kibernetika, No 5, May 73, abstract No 5V769 by the authors)

Translation: The paper describes a program for realizing an algorithm of optimum arrangement of data blocks on magnetic tape on the "MIR-1" digital computer.

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USSR

UDC 518.517.949.12

OSIPOV, V. M., GONCHAROV, V. I., MOLODYKH, V. A., and CHUDINOV, V. N.

"Approximation of Complex Transfer Functions by Interpolation"

Dokl. Yubileyn. nuach.-tekhn. konferentsii Fak. avtomat. sistem. Tomsk. politekhn. in-t (Reports of the Anniversary Scientific-Technical Conference of the Faculty of System Automation of the Tomsk Polytechnic Institute), Tomsk, 1970, pp 263-268 (from Referativnyy Zhurnal -- Matematika, No 8, Aug 71, Abstract No 8B775 by I. Shelikhova)

Translation: In analog computer investigations of automatic control systems of processes with distributed parameters, complex transfer functions must be approximated by fractionally rational expressions. A method of finding the coefficients of such approximating expressions by interpolation is presented for the case of processes with distributed parameters that have monotonic or near-monotonic transfer characteristics, which are approximated by exponents with a high degree of accuracy. The increase in approximation accuracy is due to the increase in the order of the approximating expression. Results of approximating transfer functions of the lag component are discussed.

1/1

USSR

UDC 616.33-002.44-02:613.1(571.65)

CHUDINOV, V. S., Magadanskaya Oblast' Hospital

"The Effect of Environmental Factors of the Far North on the Prevalence, Course, and Surgical Treatment of Gastric and Duodenal Ulcers in Magadanskaya Oblast"

Moscow, Sovetskaya Meditsina, No 5, 1971, pp 57-60

Abstract: The incidence of gastrointestinal ulcers in Magadanskaya Oblast in 1962-1964 was 2.8-3.2 per 1,000 of the population. This was somewhat lower than the average for the RSFSR, but higher than the incidence in Yakutsk ASSR (2.1-2.2 per 1,000) with its higher percentage of indigenous population accustomed to the local conditions. The disease affected mainly healthy persons who had arrived recently in Magadanskaya Oblast and developed predominantly within one year after arrival, i.e., during the period of acclimatization. The ratio of severe forms requiring surgery was much higher than in the central RSFSR. Gastric acidity was below normal or at zero level in the majority of cases. The primary cause of the development of ulcers was C-hypovitaminosis, which reduces gastric secretion. An examination of both healthy and sick persons indicated that C-hypovitaminosis was present in 80% of inhabitants of Magadanskaya Oblast. Tumors developed mainly in the fall, when the intake of 1/2

USSR

CHUDINOV, V. S., Sovetskaya Meditsina, No 5, 1971, pp 57-60

vitamins was reduced and adaptation to the cold weather made more severe demands on the persons affected. Consumption, because of strenuous physical work at low temperatures, of large amounts of food (mainly frozen or canned meat and fish with a low vitamin content), eating of dry food, and heavy alcohol consumption and smoking were contributing causes to the development of ulcers. The C-avitaminosis was highest during the period of acclimatization in the first year of sojourn in the Far North and more pronounced for older than young persons. It was aggravated by heavy manual work performed in the open at low temperatures.

2/2

- 57 -

1/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CHROMIUM PHOSPHATE HEXAHYDRATE DEHYDRATION PRODUCTS -U-
AUTHOR-(04)-LAVROV, A.V., MEDVEDEV, A.A., CHUDINGVA, N.N., TANANAYEV, i.v.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 503-10
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHASE ANALYSIS, DEHYDRATION, CHROMIUM COMPOUND, PHOSPHATE,
PAPER CHROMATOGRAPHY, IR SPECTRUM, X RAY ANALYSIS, THERMAL EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1887 STEP NO--UR/0363/70/006/003/0503/0510
CIRC ACCESSION NO--AP0115706
UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115706

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL DEHYDRATION OF CRPO
SUB4.6H SUB2 O WAS STUDIED BY PAPER CHROMATOG., IR SPECTROSCOPY, AND X
RAY RAY PHASE ANAL. AT SIMILIAR TO 300DEGREES AN AMORPHOUS PRODUCT
FORMS WHICH CONTAINS PYROPHOSPHATE IONS (TOGETHER WITH THE
ORTHOPHOSPHATE), WHICH AT 1000DEGREES CHANGES TO BETA CRPO SUB4. AT
1500DEGREES THE BETA PHASE CHANGES INTO AN ALPHA PHASE, WHICH CAN
CONSIDERED AS THE CR OXYPYROPHOSPHATE. FACILITY: INST. OBSHCH.
NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

Radiobiology

USSR

UDC 578.087.1

NECHAYEV, I. A., GRAYEVSKAYA, B. M., ZOLOTAREVA, N. N., and CHUDINOVSKAYA, G. A.

"A Statistical Approach to Estimating Individual Radiation Sensitivity in Animals"

Moscow, Matematicheskiye metody v biologii [Mathematical Methods in Biology], Publishing House of Moscow University, 1972, pp 117-126

Abstract: An attempt is made in this paper to give individual, lifetime estimates of the sensitivity of mammals (rats) to radiation on the basis of the experimental material, and thus to indicate approaches to forecasting the result when the animals are subjected to it. The system according to which the authors make their computations is based on the important concept of the slight regression in individual indexes in accordance with selected tests of radiation sensitivity, on the one hand, and the almost complete absence of correlations between the tests, on the other. After an exposition of the history of the subject of animal sensitivity to radiation, the authors proceed to an analysis of correlation functions for the purpose of obtaining indexes permitting estimates of the relative sensitivity to radiation of animals without actually irradiating them. The authors use these criteria

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USSR

NECHAYEV, I. A., et al., *Matematicheskiye metody v biologii*, Publishing House of Moscow University, 1972, pp 117-126

for the condition of the animals: first, the amount of sugar in the blood and the reaction of the blood to the introduction of adrenalin; second, the proteinase action of the blood computed according to the formula $P_u = (P_t - P_0)/P_0$, where P_0 is the activity of the blood proteinase before incubation, and P_t is the activity of the blood proteinase after 24 hours of incubation at a temperature of 37°C; third, the number of leukocytes in the peripheral blood. A table comparing the actual results with the results predicted by this statistical method shows a close correlation.

2/2

020 UNCLASSIFIED PROCESSING DATE—300CY70
TITLE—CHROMOSOME MUTATIONS INDUCED BY SPACE FLIGHT FACTORS IN BARLEY SEEDS DURING THE FLIGHT OF THE AUTOMATIC STATIONS ZOND-5 AND ZOND-6
AUTHOR—(05)—NUZHDIN, N.I., DOZORTSEVA, R.L., PASTUSHENKOSTRELETS, N.A., SAMCKHVALOVA, N.S., CHUDINOVSKAYA, G.A.
COUNTRY OF INFO—USSR
SOURCE—ZH. ABSHCH. BIOL. 1970, 31(1), 72-83
DATE PUBLISHED—70
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—RADIATION INDUCED MUTATION, AGRICULTURE CROP SEED/(U)ZOND 5 CIRCUMLUNAR PROBE, (U)ZOND 6 CIRCUMLUNAR PROBE
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—1999/1962 STEP NO—UR/0321/70/031/001/0072/0083
CIRC ACCESSION NO—AP0123743
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEEDS OF 2 VARIETIES OF BARLEY (RADIORESISTANT, AND RADIOSENSITIVE), IRRADIATED WITH 5 OR 10 KR AND PRIME137 CS GAMMA RAYS, OR NONIRRADIATED, DURING THEIR DORMANT AND RESTING STATE, WERE PLACED IN THE ZOND-5 AND ZOND-6 SPACESHIPS, WHICH FLEW AROUND THE MOON. AFTER THE FLIGHT, THEY WERE THOROUGHLY ANALYZED. THE CYTOL. STUDIES SHOWED SIGNIFICANT DIFFERENCES BETWEEN THE EXPTL. AND CONTROL SERIES IN THE AMTS. OF ABERRANT CELLS DUE TO CHROMOSOMAL MUTATIONS CAUSED BY THE SPACE FLIGHT FACTOR (SFF). SFF CAUSED CHROMOSOMAL MUTATIONS IN THE SEEDS. THE GENETIC EFFECT OF THE COMBINED INFLUENCE OF SFF AND GAMMA IRRADN. DEPENDED ON THE PHYSIOL. STATE OF THE IRRADIATED SEEDS, AND ON THE DOSES OF IRRADN. DORMANT SEEDS WITH A HIGH RADIORESISTANCE, AFTER IRRADN. WITH LOW GAMMA RAYS DOSES, WERE MORE AFFECTED BY THE COMBINED INFLUENCE OF SFF AND GAMMA IRRADN. SEEDS IN THE RESTING STATE WITH HIGH RADIOSENSITIVITY SHOWED A SHARP INCREASE OF THE EFFECT OF SFF. THE ADDITIVE AND SENSITIZING EFFECTS OF GAMMA IRRADN. AND SFF WERE OBSD. IN THE SEEDS FROM THE SPACE SHIPS. FACILITY: INST. BIOL. PHYS., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 613

CHUDNOV, V.

V Poiskakh Tishiny (In Search of Quiet), Moscow, "Moskovskiy Rabochiy," 1971, 128 pp

Translation: Annotation: We live in an age of high speeds, rapid development of production and transport, and an increase in the number of cities and their populations. More and more equipment is appearing in production and daily life and on the streets of inhabited areas. From year to year it is becoming increasingly noisy in cities and rural areas.

The "noise pollution" of man's environment is one of the most acute problems of the day. Noise hinders us in work and rest and undermines our health little by little.

This pamphlet is a popular discussion of a little studied field of the fight for man's health, the control of noise, a very damaging factor accompanying modern civilization.

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Noise -- a Social Problem
The Enemy of Health
1/2

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USSR

CHUDNOV, V., V Poiskakh Tishiny (In Search of Quiet), Moscow, "Moskovskiy Rabochiy," 1971, 128 pp

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We Are All Neighbors	75
Complaints From Rural Areas	100
In Search of Quiet	110
Planning Quiet	117

2/2

CHUDNOVA, L.B.

JPRS 57517
15 Nov 72

- 31 -

INVESTIGATION OF THE SORPTION AND DESORPTION OF GASES BY POLYMERS DURING THE PROCESS OF THEIR GAS STERILIZATION

UDC 629.78.0.0:614.854:091.73

Article by L. B. Chudnova, N. V. Kulikova and V. M. Tselin; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 5, September-October 1972, pp 21-25, submitted for publication 21 February 1969.

Abstract: Experiments were carried out to study the sorption and desorption of ethylene oxide, methyl bromide, and a mixture of the two on different polymeric materials: foam plastic, porcelain, plasticate, microporous rubber, polyamide, nitron and glass nitron. Heats of sorption were computed for ethylene oxide and methyl bromide and the specific surfaces of the materials were measured before and after gas sorption. Isotherms of ethylene oxide and methyl bromide sorption on plasticate and polyamide were constructed.

A gaseous mixture of ethylene oxide and methyl bromide, the mixture molar ratio of components is 1:1.5, has been proposed for reducing the microbial occupation of different polymeric materials fabricated for use in manned pressurized chambers. Polymeric materials absorb a considerable quantity of gases which later are released from the materials (Kuzek, et al.; Sobolev, et al.; Ackermann, et al.; A. A. Tager). Accordingly, the need has arisen for a quantitative determination of their absorption and elimination.

We investigated the sorption of ethylene oxide, methyl bromide and an OB mixture on the polymeric materials most commonly used in engineering: foam plastic PU-101, porcelain, plasticate MSO, microporous rubber, polyamide-69, nitron and glass nitron.

The measurements were made by the volumetric method in a static glass apparatus.

1/2 030 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--PROTECTIVE PROPERTIES AND STABILITY OF AN ENAMEL COATING UNDER
VARIABLY LOADING CONDITIONS -U-
AUTHOR--CHUDNOVSKIY, A.U.
COUNTRY OF INFO--USSR
SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 6(1), 16-19
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--FATIGUE STRENGTH, ENAMEL, METAL CORROSION, PROTECTIVE COATING,
LOW ALLOY STEEL, ALLOY DESIGNATION/(U)16GNM LOW ALLOY STEEL, (U)22K LOW
ALLOY STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0385 STEP NO--UR/0369/70/006/001/0016/0019
CIRC ACCESSION NO--AP0126140
UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0126140
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ENAMEL OF THE COMPN. SiO SUB2
NA SUB2 O CAF SUB2 B SUB2 O SUB3 AL SUB2 O SUB3 BaO,CO SUB2 O SUB3
(THICKNESS 200-250 MU) COATING STEEL 22K AND 16GNM WAS INVESTIGATED TO
FIND ITS STABILITY AND PROTECTIVE PROPERTIES UNDER VARIOUS WORKING
CONDITIONS. THE STABILITY OF THE ENAMEL COATING UNDER MULTIPLE CYCLIC
LOADING AND THE EFFECT OF ENAMELING ON THE FATIGUE STABILITY OF A STEEL
IN A CORROSIVE MEDIUM WERE STUDIED. SAMPLES AFTER 10 PRIME7 LOADING
CYCLES SHOW NO INJURY OF THE ENAMEL COATING. THE CORROSION FATIGUE
STABILITY OF A STEEL COVERED WITH ENAMEL IS INCREASED BY 60PERCENT. THE
FATIGUE STABILITY OF A GLAZED STEEL WAS MEASURED ON THE SPECIAL DEVICE
IN WHICH THE SAMPLE IS SUBJECTED TO THE CYCLIC TRANSVERSE FORCE. ITS
VECTOR ROTATES IN THE PLANE PERPENDICULAR TO THE SAMPLE AXIS. DURING
TESTING THE SAMPLE IS HEATED AT 350DEGREESC IN THE MUFFLE FURNACE. IT
WAS FOUND THAT THE ENAMEL COATING OF SAMPLES UNDER MUTIPLE CYCLIC
LOADING AT INCREASED TEMP. IS UNDAMAGED. FACILITY: TSNII
TEKHNL. MASHINDSTR., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 533.275

LEVCHUK, E. A., CHUDNOVSKIY, A. F., and SAMUYLOVA, S. N.

"Low-Inertial Quartz Crystal High-Humidity Sensor Suitable for Agrometeorological Telemetric Systems"

Sb. tr. po agron. fiz. (Collected Works on Agronomic Physics), No 28, 1970, pp 75-76 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 2, Feb 71, Abstract No 2.32.1426)

Translation: This paper is a survey of the latest works on the inertia of quartz crystal adsorption sensors and their calibration charts. It is demonstrated that the linearity of the calibration characteristics of the sensors, their operating reliability and manufacturing simplicity can be increased by using piezoelectric crystal plates, well-known in optics and used to brighten silica film lenses, as the moisture-sensitive coating. There is 1 illustration and a 2-entry bibliography.

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Metrology, Surveying, Mapping and Graphics

USSR

UDC 533.225.088

LEVCHUK, E. A., CHUDNOVSKIY, A. F.

"Calculating the Temperature Error of Quartz Crystal Adsorption Humidity Sensors in a Wide Range of Negative Temperatures"

Sb. tr. po agron. fiz. (Collected Works on Agronomic Physics), No 28, 1970, pp 77-79 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 2, Feb 71, Abstract No 2.32.1425)

Translation: The expression for the relative error in determining humidity as a function of the magnitude of the temperature variation is derived on the basis of the analytical dependence of the readings of quartz crystal sensors on the relative humidity. The operating temperature ranges of the sensors within the limits of which the temperature error does not exceed the given one are calculated. There is 1 illustration, 1 table and a 2-entry bibliography.

1/1

USSR

UDC 621.317.41

ANAN'YEV, I. P., CHUDNOVSKIY, A. F.

"Procedure for Determining the Magnetic Susceptibility of Materials"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 17, 12 May 70, p 53, Patent No 270875, Filed 1 Jul 68

Translation: This Author's Certificate introduces a procedure for determining the magnetic susceptibility of materials by measuring the radial component of the characteristic magnetic field of the spherical tested sample using Hall sensors fed by a high-frequency current. In order to improve sensitivity and provide for the possibility of testing diamagnetic and paramagnetic materials, the tested sample is placed in a low-frequency variable magnetic field, and the magnetic susceptibility is measured by the output signals of the sensors on a combination frequency.

1/1

USSR

UDC 519.211

CHUDNOVSKIY, D. V.

"Logical Probability and Conditional Probability in Boolean Algebras"

Teoriya Veroyatnostey i Mat. Statist. Mezhd. Nauchn. Sb. [Theory of Probabilities and Mathematical Statistics, Interdepartmental Scientific Collection], No 2, 1970, pp 221-225 [Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V1 by the author].

Translation: Certain properties of logical probability are studied in a first order language with a model and properties of conditional probability in the sense of Ren'i are studied in Boolean algebras.

1/1

CHUDNOVSKIY, F.A.

JPRS 57631
30 November 1972

ABSTRACTS OF REPORTS PRESENTED AT THE FIRST ALL-UNION
CONFERENCE ON METAL-DIELECTRIC PHASE TRANSITIONS

Excerpts from Russian-language book: Shornik Nauchnikh Soderzhanij Dokladov, Predstavlyemykh Na I Vsesoyuznyu Konferentsiyu po Fizicheskoi Prirode Metallo-Dielektrika, 1972, Academy of Sciences USSR, Institute of Higher and Secondary Specialized Education USSR, Faculty of Moscowskogo Universiteta, Moscow, pp 8-10, 10-12, 15-17, 18-23.

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On Instability of Two-Zone Model of Metal Relative to Amorphization (Do chan Kat, Yu V. Kopyev).....	5
Light Absorption in V ₂ O ₅ (G. O. Andrianov, et al.).....	7

CHUDOVSKIIY, F.A

JPRS 57631
30 Nov. 1972

METAL-DIELECTRIC PHASE TRANSITIONS OF B1B ALLOYS IN STRONG MAGNETIC FIELDS
[Article by N. B. Brandt, Ye. A. Svislova, Moscow State University, Physics Department, pp 8-10]

Presented in this paper are the results of a study of the magnetic resistance of specimens with small controlled overlapping of zones and bluish and antimony in which the antimony concentrations vary up to 22%. In pulsed magnetic fields up to 700 kG in the 2-277°K temperature range, the purpose of which was to discover effects related to qualitative changes in the energy spectrum of the specimens in the ultraviolet region of magnetic fields.

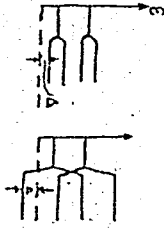


Figure 1.

electron transitions may occur, depending on the ratio of the spin and orbital masses of the carriers.

Quantization of carrier energy and the spin distribution of the energy levels in the magnetic field lead to displacement of the boundaries of the energy zones (Figure 1).

In the ultraviolet region the displacement of zone boundaries (Δ) reaches a magnitude comparable to or greater than the Fermi energy in the zones of the metals or the energy slit in semiconductors. Here

- 2. Frohlich, H., J. Phys. C, Ser. 2, Vol. 1, p. 544, 1968.
- 3. Keldysh, L. V. and Yu. V. Kopyev, Fizika tverdogo tela: Solid State Physics, Vol. 6, p. 2791, 1964.

LIGHT ABSORPTION IN V_2O_3

[Articles by G. O. Andrianov, A. G. Aronov, T. V. Salmova, F. A. Chudnovskiy, pp 18-23]

At $T_c = 150^\circ K$ there occurs in V_2O_3 a metal-insulator phase transition [1]. This is a first order transition with a rearranged lattice.

At this time there is no theory to explain the mechanism of phase transition in V_2O_3 [2-4], since it is difficult to explain the entire set of experimental facts. A model was proposed [5] in which the metal-insulator in approximation of a strong bond can be related to instability in the system of excitation perturbations. This viewpoint was confirmed in [6]. In this connection it seemed worthwhile to analyze the optical properties of V_2O_3 near the fringe of natural absorption, since the literature does not contain much reliable information on this subject [1, 7, 8].

Measurements of the absorption coefficient were done in specimens cut from two monocrystalline V_2O_3 ingots in such a way that the second order axis of symmetry \vec{C} would always be perpendicular to the propagation of light.

The curves of the dependence of the absorption coefficient α on energy $h\nu_{\text{inc}}$ are shown in Figure 1 for two polarizations of incident light (α_{\parallel} for $E \parallel \vec{C}$, α_{\perp} for $E \perp \vec{C}$) at $T = 93^\circ K$. In calculating the reflection coefficient R was assumed to be 0.3. The absorption coefficient is practically independent of temperature in the 83-135 $^\circ K$ range. At $T = 137^\circ K$ a sharp reduction of α was noted, which apparently is related to the coexistence of two phases near T_c . The phenomenon of coexistence of two phases was also observed in [9] as a result of nuclear magnetic resonance measurements. Analysis of the polished surface of our specimens under a metallographic microscope near the phase transition point revealed gradual darkening of part of the specimen, which spread through the entire specimen as the temperature fell. The opposite situation occurred when the temperature rose. This is also indirect confirmation of the coexistence of two phases near T_c .

Figure 1 shows that the absorption coefficient in V_2O_3 is quite anisotropic, but its dependence on photon energy has the same general outline for both polarizations. A maximum lying near different energies for the two polarizations fits a strong monotonic increase of the absorption coefficient. For $E \parallel \vec{C}$ the maximum lies near $h\nu_{\text{max}} = 0.2$ eV and is very

Acc. Nr.:

AP0046772

Ref. Code:

U1R0113

USSR

UDC 621.785.545

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

"High-Frequency Thyristor Converter for Induction Hardening Installations"

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

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

18 87

Reel/Frame

19790075

USSR

AKHIEZER, I. A.; CHUDNOVSKIY, Ye. M. (Khar'kov State University)

"Guided Waves and Particle Scattering in Ferromagnetic Semiconductors and Metals"

Kiev, Ukrainskiy Fizicheskii Zhurnal; November, 1972; pp 1761-8

ABSTRACT: The scattering of electrons and slow neutrons in ferromagnetic semiconductors and metals by guided cyclotron- and plasma-spin waves is studied. Expressions for the correlation functions of fluctuations of the quantities characterizing ferromagnetics are obtained. The scattering cross sections of electrons and neutrons by guided waves far from electromagnetic spin resonance and in its vicinity are found. It is shown that as one approaches the point of electromagnetic spin resonance in the differential scattering cross section of the particles, instead of one maximum caused by the scattering by one of the branches of oscillations, two maxima very close together occur. It is shown that in cases of cyclotron-spin resonance in metals a strong connection between a spin wave and a branch of the electromagnetic oscillations, which are a continuation of the cyclotron wave in the neighborhood of the longer waves, is possible.

1/1

USSR

AKHIYEZER, I. A.; CHUDNOVSKIY, Ye. M. (Khar'kov State University)

"A Theory of Fluctuations and Particle Scattering in Ferromagnetic Semiconductors and Metals"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; November, 1972; pp 1770-6

ABSTRACT: The fluctuations and scattering of electrons and slow neutrons in ferromagnetic semiconductors and metals by guided magneto-hydrodynamic-spin waves are studied. Crystals in strong as well as weak external magnetic fields in the case of the general (not necessarily isotropic) law of dispersion of the charge carriers are examined. It is shown that in the case of a strong magnetic field the maxima in the scattering cross sections of the particles are split. In the case of a not overly strong magnetic field three (or four) new types of sharp maxima occur in the particle scattering spectrum, from the position of which it is possible to determine the law for the dispersion of guided waves.

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- 44 -

USSR

UDC: None

AKHIEZER, I. A. and CHUDNOVSKIY, Ye. M.

"Fluctuation and Dispersion of Slow Neutrons in Collective Excitations of an Electronic Fermi Fluid in Metals"

Leningrad, Fizika Tverdogo Tela, vol 14, No 7, 1972, pp 2041-2047

Abstract: The connection between spin density oscillations of slow neutrons and cyclotron waves and the neutron dispersion processes in spin waves in nonmagnetic metals is investigated in this paper. An analysis is made of the related cyclotron spin waves and cyclotron spin resonance in the short-wave region. It begins with an expression for the energy of the quasi-particle or conductivity electron energy as a function of the particle distribution. This expression embodies the Fermi fluid interaction between particles, which is responsible for the possibility of the existence of spin waves in ordinary metals. General expressions are obtained for the correlation functions and the cross sections of the dispersion, and the fluctuations and scattering of neutrons far from the cyclotron-spin resonance point. Also discussed is cyclotron-spin resonance resulting from the coincidence of the unperturbed cyclotron and spin wave frequencies. Equations for both these frequencies are derived. The authors are associated with the A. M. Gor'kiy State University at Kharkov.

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USSR

AKHIEZER, I. A.; CHUDNOVSKIY, Ye. M. (Khar'kov State University)

"Resonance between Spin and Magnetohydrodynamic Waves in Antiferromagnetic Semiconductors and Metals"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; May, 1972; pp 1933-9

Abstract: Coupled oscillations of charge carriers and magnetic moments of atoms in antiferromagnetic semiconductors and metals are investigated in the case of an isotropic dispersion law for the charge carriers and for an arbitrary Fermi surface. It is shown that in such bodies resonance between the carrier and spin wave oscillations (MHD-spin resonance) occurs for a certain value of the external magnetic field strength. This resonance essentially differs from the ordinary electromagnetic-spin resonance: viz., resonance coupling of oscillations occurs in a broad frequency range (and not only for a single resonance frequency). Fluctuation correlators of quantities characterizing the crystal are determined and also the cross sections for scattering of slow neutrons, electrons, and electromagnetic waves with excitation (or absorption) of MHD-spin waves. It is shown that splitting of the scattering cross section maxima occurs in the MHD-spin resonance point.

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Magnetohydrodynamics

USSR

AKHIEZER, I. A.; ~~CHUDNOVSKIY, Ye. M.~~ (Physicotechnical Institute of the Ukrainian Academy of Sciences, Khar'kov)

"Fluctuations in an Unstable Relativistic Plasma"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; April, 1972; pp 618-22

ABSTRACT: Fluctuations in an unstable relativistic plasma are studied. General expressions for the correlation functions are obtained, and the case of an isotropic distribution of particles by velocity is studied in detail. The fluctuations in a relativistic plasma with directed particle movement are considered. It is shown that if the plasma consists of hot electrons moving relative to cold ions, then as the directed velocity of the electrons approaches the critical value determined, the level of fluctuations rises sharply (the phenomenon of critical fluctuations).

The article includes 18 equations. There are 6 bibliographic references.

1/1

·USSR·

AKHIYEZER, I. A. and CHUDNOVSKIY, Ye. M.

"Dispersion of Electrons and Neutrons in Coupled Spiral-Spin Waves"

Leningrad, Fizika Tverdogo Tela, vol 14, No 2, 1972, pp 467-470

Abstract: The phenomenon studied in this paper is the propagation in condensing bodies of oscillations as the result of the passage of electrons and slow neutrons through those bodies. Since the intensity of the particle dispersion is determined by the level of the oscillations which may take electromagnetic, spin, and sonic forms the particular subject of the paper is the fluctuations characterizing ferromagnetic semiconductors and metals, with the coupling between electromagnetic and spin oscillations taken into account. Expressions are obtained for the dispersion of the coupled waves in a ferromagnetic conductor in a constant magnetic field parallel to the anisotropic axis of the conductor and for

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USSR

AKHIYEZER, I. A. et al, Fizika Tverdogo Tela, Vol 14, No 2, 1972,
pp 467-470

the differential cross section of slow neutron dispersion. It is shown that two closely situated maxima, rather than a single one, appear in spiral wave dispersion near the resonance point, a phenomenon which can occur only for weak attenuation of the coupled waves. The author is connected with the A. M. Gor'kiy State University of Kharkov.

2/2

C HUDOV, L. A.

RAU / R-960 / S. MKR-93
Dec. 1973

(4)

Kestenbunyn, Kh. S., F. D. Turetskaya,
L. A. Chudov, and Yu. D. Shevelov. Euler and
Lagrange methods for calculations of point
explosions in a heterogeneous atmosphere.

IN: Trudy Sektsii po chislennym metodam v gazovoy
dinamike 2-go Mezhunarodnogo konfertsiuma po gazodinamike
vzryva i reaktivnykh sistem, 1969, T. 3, Moscow, 1971,
85-100 (RZhMekh, 5/72, #55238)

A study is made of a strong point explosion in a nonviscous thermally nonconductive gas. It is assumed that the density and pressure of the atmosphere are altitude-dependent according to an exponential law. Motion is considered in the half plane Π ($r \geq 0$), bounded by the axis of symmetry. The equations of unstabilized motion are written out in terms of Euler and Lagrange coordinates. Region G_0 containing the point in which the explosion occurs, is isolated in half plane π . In solving the problem, the boundary $r_0(t)$ of the region is selected in such a manner that within the entire G_0 region, the pressure could be considered constant. The region of difference calculation, G_1 , is bounded by the curve $r_0(t)$, the shock wave front $r_1(t)$, and two segments of the axis of symmetry. The solution of a number of undimensional problems, including the problem of a point explosion in a homogeneous atmosphere with account taken of counter-pressure, was checked by an applicable method for its verification, good coincidence being obtained with results of the work by D. Ye. Okhotsimskiy, I. L. Kondrashev, Z. P. Vlasov, and R. K. Kazakov (Trudy Matematicheskogo Instituta AN SSSR, 1957, 50, 66, RZhMekh, 3/58, #2659). Fairly good correspondence is shown in comparison of the results of calculation of the title problem in terms of Euler and Lagrange variables.

USSR

UDC: 532.526

CHUDOV, L. A.

"Higher Approximations in a Boundary Layer"

V sb. Nekotor. primeneniya metoda setok v gaz. dinamike (Some Uses of the Net-Point Method in Gas Dynamics), vyp. 2, Moscow, Moscow University, 1971, pp 9-24 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B695)

Translation: Two methods of theoretical study of viscous fluid flows are considered -- the method of coalescing asymptotic decompositions, and the method of boundary-layer corrections. Equations and boundary-layer conditions are considered for the zeroth and first approximations; these expressions are derived on the basis of the above-mentioned methods. A relationship is established between the terms of the inner and outer asymptotic decompositions and the corresponding smooth and localized parts of the approximations in the method of boundary-layer corrections. The author points out the necessity for combining both methods, the feasibility of using the concept of boundary-layer corrections for establishing a method of matching inner and outer solutions. A method of constructing a first approximation is proposed which allows restriction to the solution of equations of nonviscous flow and the classical equations of Prandtl.

A. V. Kolesnikov.

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USSR

NAUMOV, YU. A., BAZHANOVA, L. G., KNYAZEVA, A. P., PYATNOVA, YU. B., and CHUDOV, L. N.

"Synthetic Methods for α -Naphthyl N-Methylcarbamate"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protective Agents -- collection of works), No 2, Moscow, 1972, pp 36-40 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N482)

Translation: A review is given of the synthetic methods for α -naphthyl-N-methylcarbamate. The method for the synthesis of naphthylcarbamate based on methylisocyanate was considered to be the best one and chosen for detailed technological development and expansion to the production level.

1/1

USSR

UDC 619.616.988.43-022.39:636.29

KINDYAKOV, V. I., NAGUMANOV, F. M., BALGANBAYEV, Ye. Kh., ZINOV'YEV, B. S.,
PANKRATOV, L. D., and CHUFARIN, A. M., Kazakh Scientific Research Veterinary
Institute

"The Epizootiological Role of Wild Even-Toed Ungulates in Foot-and-Mouth
Disease"

Moscow, Veterinariya, No 9, Sep 70, pp 52-53

Abstract: Experiments conducted with roe deer, saiga antelopes, and Caspian deer (marals) showed that these animals are highly susceptible to infection with foot-and-mouth disease. An outbreak of foot-and-mouth disease caused by the A₂₂ virus variant occurred in 1967 among cattle that were isolated from contact with other cattle. The virus was introduced by a hunter who had brought the carcass of an infected saiga antelope into the locality. Mass infections of saiga antelope with foot-and-mouth disease occur. The animals showed typical symptoms of the disease and the A₂₂ virus was isolated from them. Under the conditions prevalent in Kazakhstan, saiga antelope form one of the principal sources of transmission of foot-and-mouth disease to farm animals; the antelope become infected with this disease from cattle and transmit it to

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USSR

KINDYAKOV, V. I., et al., Veterinariya, No 9, Sep 70, pp 52-5.

other cattle. Measures taken by the veterinary service to prevent transmission of foot-and-mouth disease by saiga antelopes involve constant observation of the antelope herds to check for the presence of infection, tracing of the routes of migration of these herds, and prevention of infection of the antelope themselves. Similar measures should be taken with respect to other wild even-toed ungulates in Kazakhstan.

2/2

1/2 013 UNCLASSIFIED PROCESSING DATE--2010V70
TITLE--GROUP THEORETICAL METHOD FOR DETERMINING PERMITTED TERMS OF THE
ELECTRONIC STATES OF POLYATOMIC MOLECULES TAKING ACCOUNT OF SPIN ORBIT
AUTHOR--(CS)--MEN, A.K., CHEREPANOV, V.I., FARBEROV, D.S., MITROPANOV,
V.YA., CHUFAROV, G.I.
COUNTRY OF INFO--USSR

SOURCE--INT. J. QUANTUM CHEM. 1970, 4(1), 109-19

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, SPIN ORBIT COUPLING, EXCITED ELECTRON
STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0649

STEP NO--US/0000/70/004/001/0109/0119

CIRC ACCESSION NO--AP0055352

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC-ACCESSION NO--AP0055352

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. A GROUP THEORETICAL METHOD FOR
DETG. THE PERMITTED STATES OF POLYAT. MOLS., PROCEEDING FROM GIVEN AT.
STATES IN WHICH THE SPIN ORBIT INTERACTION HAS BEEN TAKEN INTO ACCOUNT.
IS PROPOSED.

Acc. No: 0049439 Abstracting Service: CHEMICAL ABST. 5/70

Ref. Code: UR0370

104520e Thermodynamic analysis of the reduction of solid solutions of iron orthotitanate with magnetite. Shepetkin, A. A.; Antonov, V. K.; Dvinin, V. I.; Men, A. N.; Chubarov, G. I. (USSR). *Izv. Akad. Nauk SSSR, Metal.* 1970, (1), 51-5 (Russ). The coeffs. of the equation for the equil. O₂ pressure (P_o, given in atm.) vs. c were calcd. for spinel solid solns. (Fe₂O)_c(Fe₂TiO₄)_{1-c} in equil. with FeO_{1+s} at 1000°: ln P_o = 5.11c - 34.11 (for 0.10 ≤ c ≤ 0.55), ln P_o = 9c - 36.25 (for 0.55 ≤ c ≤ 0.70), and ln P_o = 0.43c - 30.25 (for 0.70 ≤ c ≤ 1.0). The expressions for activities (a) of the components of the system were derived for 2 cases: (1) for the equil. of FeO_{1+s} with spinel solid soln. of compn. close to that of magnetite: d(ln a₁) - 2.21 d(ln a₂) - 1.17 d(ln a₃) = 0.305 d(ln P_o); (2) for the equil. of FeO_{1+s} with a spinel solid soln. of compn. close to that of Fe₂TiO₄: d(ln a₁) - 2.678 d(ln a₂) - 0.484 d(ln a₃) = 0.419 d(ln P_o), where a₁ = a_{FeO}, a₂ = a_{Fe₂O}, a₃ = a_{Fe₂TiO₄}, and a₄ = a_{Fe₂O}. The defect state of FeO_{1+s} was expressed in terms of its extreme states FeO and Fe_{2/3}O. The activities of the components were then calcd. with the use of the expressions (1) or (2) and the Gibbs-Duhem equations for the spinel solid solns. and FeO_{1+s}. Activities exhibit pos. deviations with respect to ideal soln. The activities were calcd. also by a statistical thermodynamic method. The compn. of the solid soln. was expressed as Fe²⁺_λFe³⁺_{1-λ}[Fe²⁺_{2-c-λ}Fe³⁺_{2c-1+λ}Ti⁴⁺_{1-c}]O₄, the ions given in brackets being assumed in octahedral positions. L. Kucn

REEL/FRAME
19801277

1/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--PHASE DIAGRAM OF AN IRON, VANADIUM AND OXYGEN SYSTEM -U-
AUTHOR-(02)-VOROBYEV, YU.P., CHUFAROV, G.I. C
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR. NEORG. MATER. 1970, 6(2), 319-22
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--PHASE, IRON, VANADIUM, OXYGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0565 STEP NO--UR/0363/70/005/002/0319/0322
CIRC ACCESSION NO--AP0105550
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105550

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE DIAGRAM OF THE FE MINUS V MINUS O SYSTEM WAS CONSTRUCTED IN THE COORDINATES LOG PO SUB2 MINUS V (FE PLUS V) AT 1000DEGREES. SIGNIFICANT CORRECTIONS WERE MADE IN THE ISOTHERMAL SECTION OF THIS SYSTEM. THE SOLY. OF WUSTITE IN FEV SUB2 O SUB4 UNDER EQUIL. CONDITIONS AND AT SMALLER THAN OR EQUAL TO 1100DEGREES IS NOT VERY LARGE.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EQUILIBRIUM COMPOSITION OF PHASES FORMED DURING THE REDUCTION OF
COPPER(I) FERRITE CU SUB0.5 FE SUB 2.5 O SUB4 -U-
AUTHOR--(04)-ZALAZINSKIY, A.G., BALAKIREV, V.F., CHEBOTAYEV, N.M.,
CHUFAROV, G.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 162-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--COPPER COMPOUND, FERRITE, IRON OXIDE, HYDROGEN, X RAY
ANALYSIS, PHASE ANALYSIS, SPINEL, METAL REDUCTION, VACUUM TECHNIQUE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/0165 STEP NO--UR/0363/70/006/001/0162/0163
CIRC ACCESSION NO--AP0054961
UNCLASSIFIED

2/2 028

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PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054961

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CU SUB0.5 FE SUB2.5 O SUB4 WAS PREPD. BY THE CERAMIC SINTERING OF AN EQUIMOLAR RATIO OF CU SUB2 O AND FE SUB2 O SUB3 IN AIR AT 1040DEGREES FOR SEVERAL DAYS WITH SUBSEQUENT QUENCHING IN WATER. THE H REDN. WAS CARRIED OUT IN A VACUUM INDUCTION SETUP AT 1000DEGREES. IN THE 1ST REDN. STAGE (0-6.5PERCENT), A DECREASE IN THE EQUIL. O PRESSURE IS OBSD. THE PARAMETER OF THE SPINEL PHASE DECREASES (8.414-8.403 ANGSTROM). X RAY PHASE ANAL. SHOWS THAT THE RHOMBOHEDRAL PHASE, CU₂FE₂O₄ SUB2, PPTS. OUT WITH INCREASED REDN., WHICH IN TURN CAUSES ENRICHMENT OF THE SPINEL PHASE BY MAGNETITE, AS WELL AS A DECREASE IN THE LATTICE PARAMETER. IN THE 2ND REDN. STAGE (6.5-12.3PERCENT), THE CU₂FE₂O₄ SUB2 REDUCES TO CU AND THE (CU SUB0.5 FE SUB2.5 O SUB4) SUB0.30(Fe SUB3 O SUB4) SUB0.70 SOLID SOLN. SPINEL, THE LATTICE PARAMETER OF WHICH IS 8.403 ANGSTROM. THE CONC. DEPENDENCE OF THE LATTICE PARAMETER IN THE BINARY (CU SUB0.5 FE SUB2.5 O SUB4) SUBL NEGATIVEX TIMES (FE SUB3 O SUB4) SUBX SOLID SOLN. FORMING DURING THE REDN. PROCESS WAS OBTAINED. THE SLIGHT DEVIATION FROM VEGARD'S LAW IS PROBABLY CAUSED BY THE DIFFERENT TYPES OF SPINEL STRUCTURE.

UNCLASSIFIED

1/3 017 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS AND EQUILIBRIUM DURING THE DISSOCIATION OF SOLID
SOLUTIONS OF IRON AND MANGANESE ORTHOTITANATES -U-
AUTHOR-(04)-SHCHEPETKIN, A.A., ANTONOV, V.K., ZAKHAROV, R.G., CHUFAROV,
Ge.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (2), 144-6
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CHEMICAL SYNTHESIS, SOLID SOLUTION, CHEMICAL REDUCTION,
SPINEL, CRYSTAL LATTICE STRUCTURE, TITANATE, MANGANESE COMPOUND

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1122 STEP NO--UR/0370/70/000/002/0144/0146
CIRC ACCESSION NO--AP0121682
UNCLASSIFIED

2/3 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121682

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMATION OF SOLID SOLNS. OF FE SUB2 TIO SUB4 AND MN SUB2 TIO SUB4 AND THE PHASE EQUIL. PROCESSES OCCURRING DURING THE REDN. OF SOLID SOLNS. WERE STUDIED. SYNTHETIC FE SUB2 TIO SUB4 AND MN SUB2 TIO SUB4 WERE PRESSED INTO TABLETS AND HEATED FOR 10 HR AT 1100DEGREES UNDER AN ATM. OF 88 VOL. PERCENT CO AND 12 VOL. PERCENT CO SUB2. THE SAMPLES THEN WERE TEMPERED IN WATER AND ANALYZED BY USING AN X RAY METHOD. FE SUB2 TIO SUB4 AND MN SUB2 TIO SUB4 ARE PERFECTLY MISCIBLE, FORMING A CONTINUOUS SERIES OF SOLID SOLNS. HAVING A CRYSTAL LATTICE OF SPINEL STRUCTURE. THE PERIOD OF THE LATTICE INCREASES WITH INCREASING CONC. OF MN SUB2 TIO SUB4 IN THE SOLID SOLN. AND RANGES WITHIN THOSE OF PURE FE SUB2 TIO SUB4 AND MN SUB2 TIO SUB4 (8.535-8.679 ANGSTROM). THE STUDY OF THE EQUIL. COMP. OF THE SAMPLES AS A FUNCTION OF THE AMT. OF O PRESENT WAS PERFORMED BY HEATING THE SAMPLES AT 1000DEGREES UNDER AN ATM. OF H AND H SUB2 O. THE AMT. OF O PRESENT IN THE SAMPLE (EXPRESSED IN PERCENT OF THE TOTAL AMT. OF O PRESENT) WAS CONTROLLED BY CHANGING THE PARTIAL PRESSURE OF H IN THE REDUCING ATM. ON REMOVAL OF 0-25PERCENT O, SPINEL, RHOMBOHEDRAL, AND METALLIC FE PHASES ARE IN EQUIL. THE SPINEL PHASE CONSISTS OF A SOLID SOLN. OF MN SUB2 TIO SUB4 AND FE SUB2 TIO SUB4. THE RHOMBOHEDRAL PHASE CONSISTS OF SOLID SOLN. OF ILMENITE AND PYROPHANITE. ON INCREASING OF THE AMT. OF O REMOVED, THE CONC. OF FE SUB2 TIO SUB4 IN THE SPINEL PHASE DECREASES AND THE CONC. OF PYROPHANITE IN THE RHOMBOHEDRAL PHASE INCREASES. AT 25-35PERCENT O REMOVAL, A RHOMBOHEDRAL PHASE EXISTS IN EQUIL. WITH A TIO SUB2 PHASE AND A METALLIC FE PHASE.

UNCLASSIFIED

3/3 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121682

ABSTRACT/EXTRACT--AS THE AMT. OF O REMOVED IS INCREASED, THE AMT. OF
ILMENITE PRESENT IN THE RHOMBOHEDRAL PHASE INCREASES.

UNCLASSIFIED

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670

128273v Nature of crystal chemical transformations during the reduction of complex oxides studied on the basis of the theory of cluster components. Dobrovinskii, R. Yu.; Men, A. N.; Chufarov, G. I. (Inst. Met., Sverdlovsk, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(2), 339-40 [Chem] (Russ). The relation, arising from the theory of cluster components, between the compn. and properties of cluster components (CC), and the mechanism of the redn. and of the crystallochem. transformations taking place in the spinel solid solus. was investigated. The isomorphous mixt. $FeCr_{2c}Fe_{2(1-c)}O_4$ was chosen as an example possessing a nonmonotonic dependence of the conversion degree $\lambda = \lambda(c)$. In the interval $0 \leq c \leq 0.2$, $\lambda \leq 0$, at $0.2 \leq c \leq 0.62$, is $0 \leq \lambda \leq 1$, at $0.62 \leq c \leq 1$, $\lambda = 1$. Then the theoretical anal. showed that until $c = 0.2$ there must coexist two solid phases of variable compn. in equil.: the spinel and the oxide one. At $c = 0.2$, $FeCr_{0.4}Fe_{1.6}O_4 = 0.8Fe_2O_3 + 0.4FeCrFeO_4$. At $0.2 < c < 0.5$, three (CC) can be sepd. however, at $c = 0.5$, $\lambda = 0.5$ there remain only two (CC), namely: $FeCr_{1-c}Fe_{1+c}O_4 = 0.5Fe_2O_3 + 0.5FeCr_2O_4$. At $0.5 < c \leq 0.62$ in the spinel phase there can be sepd. three (CC), while at $c = 0.62$ ($\lambda = 1$) two (CC) are separable, here the converted magnetite constituting the (CC) of the spinel soln. disappeared and further; until $c = 1$, the process proceeded on account of the redn. of the hypothetical normal magnetite that, in contrast to the converted magnetite, was obviously reduced above 572° with formation of metallic iron.

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L. Berak -1

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19891571

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--COMPLEX STRUCTURE AND SURFACE ENERGY OF BINARY METALLIC MELTS -U-
AUTHOR--(04)-VOROBYEV, YU.P., BOGDANOVICH, M.P., MEN, A.N., CHUFAROV, G.I.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL METALLOVED. 1970, 29(2), 445-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--LIQUID BINARY ALLOY, SURFACE TENSION, FLUID STRUCTURE, SURFACE ENERGY, ALLOY COMPOSITION, MODEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0355 STEP NO--UR/0126/70/029/002/0445/0448
CIRC ACCESSION NO--AP0129587
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INTERPRETATION WAS PERFORMED OF CONCN. DEPENDENCE OF SURFACE TENSION OF BINARY METALLIC MELTS IN A COMPLEX MODEL. THE NONPARTICIPATION OF INTRACOMPLEX BINDING ENERGIES IN THE TOTAL SURFACE TENSION OF THE MELT AND THE DEVELOPMENT IN THE SURFACE TENSION OF ONLY WEAKER INTERACTIONS BETWEEN THE COMPLEXES AND THE ATOMS OF THE RESIDUAL COMPONENT WERE ASSUMED IN THIS INTERPRETATION. THE PARAMETERS FOUND FOR SEVERAL SYSTEMS ARE TABULATED. IN THE OPINION OF THE AUTHORS, THE PROPOSED MODEL FOR THE STRUCTURE OF BINARY METALLIC MELTS IS RATHER GENERAL, AT LEAST AT 1ST GLANCE. THE FOLLOWING SYSTEMS WERE CONSIDERED: PD,NI, PD,CO, PD,CU, SN,CI, AND SN,PB. FOR THE SN,BI SYSTEM, THE COEFF. OF THE WEAKENING OF THE BI,BI BOND WAS EQUAL TO ZERO. FACILITY: INST. MET., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--REDUCTION OF A MGFE SUB2 O SUB4, MGV SUB2 O SUB4 SOLID SOLUTION -U-
AUTHOR-(04)-PISMENSKAYA, G.M., BALAKIREV, V.F., POPOV, G.P., CHUFAROV,
G.L.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 9-12
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--IRON OXIDE, MAGNESIUM COMPOUND, VANADATE, VANADIUM COMPOUND,
METAL REDUCTION, SOLID SOLUTION, X RAY DIFFRACTION, HYDROGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0722 STEP NO--UR/0148/70/013/003/0009/0013
CIRC ACCESSION NO--AT0121381
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0121381

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REDN. BY H OF THE MG_V SUB_{0.25} FE
SUB_{1.75} O SUB₄ SOLID SOLN. OBTAINED FROM THE OXIDES WAS STUDIED BY X RAY
DIFFRACTION AT 1000DEGREES. THE PLOT OF THE PARTIAL EQUIL. O SUB₂
PRESSURE VS. THE PERCENT REDN. SHOWED 2 BRANCHES CORRESPONDING TO SPINEL
AND OXIDE PHASES AT SMALLER THAN OR EQUAL TO 33.4PERCENT OF REDN., AND
TO MG_V SUB₂ O SUB₄, FE, AND MG SUB_X FE SUB_{1-X} O PHASES AT HIGHER STAGES
OF REDN. THE AMT. OF FE SUB₃ O SUB₄, FORMED AS AN INTERMEDIATE PHASE IN
THE 1ST REGION, WAS MAX AT 14PERCENT REDN. FACILITY: VOLGOGRAD.
POLITEKH. INST., VOLGOGRAD, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THEORY OF PHASES OF VARIABLE COMPOSITION AND DEFECT CONTENT -U-
AUTHOR-(04)-MEN, A.N., BOGDANOVICH, M.P., VOROBYEV, YU.P., CHUFAROV, G.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (2), 135-43
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PHASE COMPOSITION, CRYSTAL DEFECT, METAL PROPERTY, MATHEMATIC MODEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1233 STEP NO--UR/0370/70/000/002/0135/0143
CIRC ACCESSION NO--AP0124837
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124887

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MATHEMATICAL TREATMENT OF PHENOMENOL. THEORY OF PHASES OF VARIABLE COMPN. AND VARIABLE DEFECT CONTENT WAS CARRIED OUT IN ORDER TO INTERPRET THE PROPERTIES OF THE PHASES. THE TREATMENT IS BASED ON THE REPRESENTATION OF A REAL SYSTEM CONSISTING OF NONINTERACTING SUBSYSTEMS (CLUSTER COMPONENTS), EACH OF WHICH FORMS A DEFINITE PART OF THE PROPERTY OF THE SYSTEM IN QUESTION.

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