

USSR

GANIYEV, R. F., et al., Konf. po kolebaniyam mekh. sistem. Tezisy dokl.,
Kiev, "Nauk. dumka", 1971, p 23

nutational vibrations are the angular vibration of the base relative to the axis coinciding at time zero with the axis of proper rotation of the rotor, and also translation vibration along the axis of rotation of the rotor.

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USSR

UDC: 534

GANIYEV, R. F., KONONENKO, V. O., Kiev

"Concerning the Mutual Relationship Between Reciprocating and Rotary Oscillations of a Solid in a Newtonian Force Field"

Moscow, Izvestiya AN SSSR: Mekhanika Tverdogo Tela, No 4, Jul/Aug 71, pp 3-12

Abstract: The authors study some interrelationships between the reciprocating oscillatory motions of the center of mass of a solid in a Newtonian force field and its angular oscillations about its center of mass in the most typical cases of resonance conditions. The study is based on analysis of the equations of disturbed motion of an artificial satellite moving in a circular orbit. The approach used is the simplest method for obtaining perceptible results which illustrate the basic mechanisms of reciprocity between the different types of oscillations, whereas the actual solutions require complex analysis which cannot always be carried out to completion without resorting to numerical calculations.

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Acc. Nr: **AP0045068**

Abstracting Service: **5/70**
INTERNAT. AEROSPACE ABST.

Ref. Code:
URO441

GANIYEV R.F.

(A70-23386 # Certain new cases of integration of the equations of motion of a solid body situated in a potential elastic-force field (Pro deaki novi integrovni vipadki rivnian' rukhu tverdogo tila, shcho znakhodit'sia v potentsial'nomu poli pruzhnikh sil). R. F. Ganiev (Akademiia Nauk Ukrains'koi RSR, Institut Mekhaniki, Kiev, Ukrainian SSR). *Akademiia Nauk Ukrains'koi RSR, Dopovidi, Seriia A-Fiziko-Tekhnichni i Matematichni Nauki*, vol. 32, Jan. 1970, p. 41-44. In Ukrainian.

Analysis of the motion of heavy solid body about a fixed point. The body is situated in a field of potential forces induced by elastic supports (in particular, springs) which keep the body in the initial position of static equilibrium. Several cases of integration of the equations of motion of the body are examined for various arrangements of the elastic supports. The first time-independent integrals are obtained.

V.P.

ALS

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21

REEL/FRAME
19771981

USSR

UDC 534

GANIYEV, R. F., Kiev

"Resonance Phenomena in the Nonlinear Vibrations of Solids"

Kiev, Prikladnaya Mekhanika, Vol 8, No 12, Dec 72, pp 45-70

Abstract: This work investigated the specific resonance phenomena in nonlinear three-dimensional vibrations of solids with the main attention devoted to study of the stability of motion of a damped solid under conditions of short subharmonic and combined resonances and to the investigation of almost cyclic modes of three-dimensional vibrations of solid bodies. The article consists of five sections entitled:

1. Equations of motion and statement of the problem.
2. Methods of investigating nonlinear resonant vibrations and the integral criterion of stability.
3. Three-dimensional motion stability of solid bodies.
4. Some resonance phenomena in the vibrating and rotating motions of satellites.
5. Periodic and near-periodic three-dimensional vibrations of a solid body.

4 figures, 68 bibliographic references

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USSR

UDC: 534.014

GANIYEV, R. F. and KUZ'MA, V.M., Kiev

"On Resonant Oscillations of Solid Body With Random Excitation"

Moscow, Mashinovedeniye, No 1, Jan-Feb 73, pp 3-6

Abstract: Conditions for unstable oscillations of a solid body due to random excitation are determined. Solution of this problem is required for the vibration analysis in many practical cases, such as transportation machinery, damping devices and so forth. It is assumed that the random excitation acts along one of the axis of coordinates. The analysis is using the asymptotic method described in "Asymptotic Methods in Nonlinear Vibration Theory" by Bogolyubov, N. N. and Mitropol'skiy YU. A, 1963. The unstable conditions are represented by shaded areas on the graph.

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ENGINEERING

Aeronautical and Space

USSR

UDC: 531.3; 629.735.45

GANIYEV, R. F. and SHCHERBINA, A. A., Kiev

"Helicopter Stability and Nonlinear Vibrations"

Kiev, Prikladnaya Mekhanika, Vol 9, Vyp 2, Feb 73, pp 42-52

Abstract: The helicopter on the ground is represented by a mathematical model consisting of a solid body on elastic supports. The hydropneumatic suspension is represented by a system of nonlinear springs. The solid body has six degrees of freedom. Two systems of coordinates are used for the analysis, one set of axis is fixed in space, the other is fixed relative to the solid body. It is assumed that the helicopter has two planes of symmetry. The analysis shows that the loss of stability may occur, it is necessary to tune the system out of resonance with the propeller speed. A diagram shows five singular points corresponding to cyclic motions. The case of nonsymmetric suspension is also considered.

USSR

UDC 548.736.6

GANIYEV, R. M., ILYUKHIN, V. V., and BELOV, N. V."Crystal Structure of Ca Hydrosilicate -- Phase Y = $C_6S_3H \equiv Ca_6[Si_2O_7][SiO_4](OH)_2$ "

Moscow, Kristallografiya, Vol 16, No 5, Sep-Oct 71, pp 893-898

Abstract: In the triclinic cell $a = 6.85$, $b = 6.95$, $c = 12.90 \text{ \AA}$, $\alpha = 90^\circ 45'$, $\beta = 97^\circ 20'$, $\gamma = 98^\circ 15'$, $Z = 2(C_6S_3H = 6CaO \cdot 3SiO_2 \cdot H_2O)$. The structure was deciphered by the multiple peak method. The main building block is a portlandite-like trellis wall of Ca polyhedrons separating the cell in a 2:1 ratio. There are paired Ca ribbons in the wider separating walls, individual columns in the narrow walls running in the direction of the a axis. Identical ribbons are bound by diortho groups $[Si_2O_7]$, columns by single ortho-tetrahedrons $[SiO_4]$. Thus, the formula of phase Y of the composition $C_6S_3H \cdot 6CaO \cdot 3SiO_2 \cdot H_2O = Ca_6Si_3O_{12} \cdot H_2O$ evolves into $Ca_6[Si_2O_7][SiO_4](OH)_2$.

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UDC: 546.33'42'284

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GANIYEV, R. M., KUZNETSOV, V. A., LIDER, V. V., ILYUKHIN, V. V., and BELOV, N. V., Institute of Crystallography, Academy of Sciences, USSR

"Synthesis and Certain Properties of Calcium-Sodium Silicate Single Crystals"

Moscow, Neorganicheskiye Materialy, Vol 6, No 2, Feb 70, pp 398-399

Abstract: The formation of calcium-sodium silicate phases is discussed, and a table illustrating their formation in the $\text{CaO--SiO}_2\text{--NaOH}$ system is given. Analysis of the first phase, using the LKhA-3-type diffraction microanalyzer, gave the following results: CaO , 34.8%; SiO_2 , 46%; Na_2O , 22%. Spectral analysis confirmed the given composition. The formula of the first phase may be written as $4\text{CaO}\cdot 5\text{SiO}_2\cdot 2\text{Na}_2\text{O}$. The second phase of the composition $\text{Na}_2\text{CaSi}_3\text{O}_8$ was mentioned in earlier research and the given lattice parameters as well as the set of the interplanar spacings agree with the data of this study. Phase $4\text{CaO}\cdot 5\text{SiO}_2\cdot 2\text{Na}_2\text{O}$ precipitates in the form of large, well formed single crystals of prismatic habit. The specimen features one sufficiently clearly pronounced and readily reproducible endothermic effect in the 980°C region; this effect is not attended by evolution of gaseous products and weight loss. It is suggested that the phase $4\text{CaO}\cdot 5\text{SiO}_2\cdot 2\text{Na}_2\text{O}$ has no structural water and has a polymorphous transition in the 980°C region.

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1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SYNTHESIS AND SOME PROPERTIES OF CA NA SILICATE SINGLE CRYSTALS -U-

AUTHOR--(05)-GANIYEV, R.M., KUZNETSOV, V.A., LIDER, V.V., ILYUKHIN, V.V.,
BELOV, N.V.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 398-9

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SILICATE, CALCIUM COMPOUND, SODIUM COMPOUND, CHEMICAL
SYNTHESIS, SINGLE CRYSTAL, PHASE ANALYSIS, CRYSTAL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0606

STEP NO--UR/0363/70/006/002/0398/0399

CIRC ACCESSION NO--AP0105589

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS FOR THE FORMATION OF CA NA SILICATE PHASES IN THE CaO MINUS SiO_2 SUB2 MINUS $NaOH$ SYSTEM WERE STUDIED. THE PHASES $4CaO \cdot 5SiO_2 \cdot 2Na_2O$ AND $Na_2Si_2O_7$ SUB3 O SUB8 WERE PRESENT IN THIS SYSTEM, AS DETD. BY ELECTRON MICROPROBE ANAL. THE LATTICE PARAMETERS AND INTERPLANAR SPACINGS OBTAINED FOR THESE PHASES AGREE WELL WITH PREVIOUSLY REPORTED DATA. THE PHASE $4CaO \cdot 5SiO_2 \cdot 2Na_2O$ PPTS. OUT IN THE FORM OF COARSE (1-3 MM) AND WELL FORMED SINGLE CRYSTALS OF PRISMATIC HABIT; IT HAS A D. OF 2.872 G-CM PRIME3. ITS OPTICAL CONSTS. WERE ALSO DETD. DTA DATA SHOW THE PRESENCE OF AN ENDOTHERMIC EFFECT AT 980DEGREES, WHICH IS NOT ACCOMPANIED BY THE PPTN. OF GASEOUS PRODUCTS OR WT. LOSSES. THIS INDICATES THAT THE $4CaO \cdot 5SiO_2 \cdot 2Na_2O$ PHASE DOES NOT CONTAIN STRUCTURAL WATER AND THAT IT EXHIBITS A POLYMORPHIC TRANSITION AT SIMILAR TO 980DEGREES.

UNCLASSIFIED

USSR

UDC 62-50

ZHUK, K. D. and GANIYEV, S. K.

"Computer Devices in Automatic Multicoupled Systems"

Tashkent, Izdatel'stvo FAN, Uzbek SSR, 1971, p 2

Translation of Annotation: The book presents some new results in the theory of multicoupled systems; demonstrates the basic characteristics of the mathematical procedures used by the authors; explains the engineering developments in automatic multicoupled systems, including computer controlling devices; and considers problems in the structure of information and control systems.

The monograph is aimed toward a broad group of scientific personnel, engineers, graduates, and students interested in the automatic control of complex objects.

Chief editor, Academician of the Uzbek SSR V. K. Kabulov.

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ZHUK, K. D. and GANIYEV, S. K., Izdatel'stvo FAN, Uzbek SSR, 1971, p 2

Chapter 1. Problems of the Control of Multicoupled Objects and Systems

1. Mathematical description of multicoupled objects and systems
2. Graphs of signal currents (reactions) of multicoupled objects and systems
3. Some principles in the construction of automatic multicoupled systems

Chapter 2. Synthesizing Optimal Systems of Controlling Linear Multicoupled Systems

4. Solving a problem in the synthesis of linear optimal multicoupled systems in statistical dynamics
5. A synchronous-autonomous optimal control system

Chapter 3. Nonlinear Automatic Multicoupled Systems

6. Nonlinear automatic multicoupled systems
7. An automatic multicoupled system for controlling a horizontal tube extrusion process
8. Constructing a system for controlling the electrical mode of an electric arc furnace

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ZHUK, K. D. and GANIYEV, S. K., Izdatel'stvo FAN, Uzbek SSR, 1971, p 2

Chapter 4. Some Structural Characteristics of Information-Control Systems

9. The concept of information regarding control of an object in the form of a multiquantitative model
10. Multiquantitative production model as a multicoupled information system.
11. The problem of controlling complex mutually coupled operations.

Bibliography

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USSR

UDC 62-50

ZHUK, K. D., and GANIYEV, S. K.

Vychislitel'nyye Ustroystva v Avtomaticheskikh Mnogosvyaznykh Sistemakh
(Computer Devices in Automatic Multiply-Connected Systems), Tashkent, "Fan,"
1971, 170 pp

Translation: Annotation: This book discusses several new results in the theory of multiply-connected systems and gives the basic characteristics of the mathematical apparatus used by the authors; the engineering developments are given for automatic multiply-connected systems, including computer control devices, and questions of structural designs are examined for information control systems. The monograph is intended for a wide group of scientific workers, engineers, graduate students, and students who are interested in the automatic control of complex units.

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Introduction

- Chapter 1. Problems of Controlling Multiply-Connected Units and Systems
1. Mathematical Description of Multiply-Connected Units and Systems
 2. Graphs of Signal Flows (Effects) of Multiply-Connected Units and Systems

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USSR

ZHUK, K. D., and GANIYEV, S. K., Vychislitel'nyye Ustroystva v Avtomaticheskikh Mnogosvyaznykh Sistemakh (Computer Devices in Automatic Multiply-Connected Systems), Tashkent, "Fan," 1971, 170 pp

3. Several Principles in the Design of Automatic Multiply-Connected Systems

Chapter II. Synthesis of Optimal Systems of Control of Linear Multiply-Connected Units

4. Solution to the Problem of Synthesis of Linear, Optimal, Multiply-Connected Systems in Statistical Dynamics
5. Synchronous-Autonomous Optimal Control System

Chapter III. Nonlinear Automatic Multiply-Connected Systems

6. Nonlinear Automatic Multiply-Connected Systems With Control Models
7. Automatic Multiply-Connected System of Control of the Process of Horizontal Drawing of Tubes
8. Construction of a Control System for an Electric Mode of an Arc Electrofurnace

Chapter IV. Several Structural Designs of Information-Control Systems

9. Reception of Information About a Control Unit in the Form of a Multiperformance Model

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USSR

ZHUK, K. D., and GANIYEV, S. K., Vychislitel'nyye Ustroystva v Avtomaticheskikh Mnogosvyaznykh Sistemakh (Computer Devices in Automatic Multiply-Connected Systems), Tashkent, "Fan," 1971, 170 pp

10. A Multiperformance Model of Production as a Multiply-Connected Information System
11. Problem of Controlling Groups of Interconnected Operations

Bibliography

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USSR

UDC 615.361.419.03:617-001.28-092.9

GANKEVICH, G. A., SHOSTKA, G. D., KANAYEV, S. V., and CHAPLYGINA, Z. A., Leningrad Institute of Hematology and Blood Transfusion, and Clinic of Internal Medicine First Leningrad Medical Institute imeni I. P. Pavlov

"The Effect of Bone Marrow Hydrolysate on the Survival of Lethally Irradiated Rabbits and on Some Hemopoietic Indices"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 15, No 6, Jun 70, pp 36-39

Abstract: Four groups of rabbits were irradiated with 1,000 r. The first group was the control; the second group was given bone marrow hydrolysate; the third group was given hydrolysate and neocompensan (polyvinylpyrrolidone); and the fourth group - neocompensan alone. Death rate was as follows: group one-57%; group two-48%; group three-22%; group four - the same as group one. In all animals reduction of levels of blood elements and depression of hemopoiesis were observed. Changes were most pronounced in group one and least in group two. In group four leukopenia was even more marked than in group one; neocompensan apparently ameliorates the symptoms but does not prevent the development of irradiation-induced anemia. Restoration of reticulocytes, in all animals, began on the 14th day after irradiation. It continued regularly in groups two and three; in group one the restoration dropped on the 21st day and in group four it was delayed. In all experiments with
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USSR

GANKEVICH, G. A., et al., Problemy Gematologii i Perelivaniya Krovi, Vol 15, No 6, Jun 70, pp 36-39

bone-marrow hydrolysate no toxic symptoms were observed. Bone marrow apparently promotes the growth of DNA-synthesizing cells.

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USSR

UDC: 533.95

GANNITSKIY, A. I., DROBYSHEVSKIY, E. M., ROZOV, S. I.

"Concerning the Effect of Hydrodynamics on the Distribution of Charge Carrier Concentration in a Homopolar Generator"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasma--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 327-330 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B96)

Translation: The paper deals with the problem of the effect of hydrodynamic flow on ionization-diffusion equilibrium of the discharge in the transverse magnetic field of a homopolar generator. The case where the velocity of hydrodynamic flow is comparable in magnitude with the rate of diffusion of the charged particles is considered. Hydrodynamic equations of motion of an incompressible gas are solved simultaneously with the equations of diffusion-ionization equilibrium. The results of computer calculations are given for a discharge in argon when the temperatures of the ions and neutral particles are equal to 500°K, the pressure is 0.1 mm Hg, the magnetic field is 1000 G, and the current is 10 A. V. P. Shimchuk.

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1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--FEATURES SPECIFIC TO THE COURSE OF EXPERIMENTAL CEREBROCRANIAL
INJURY IN DEMYELINIZING OF THE NERVOUS SYSTEM -U-
AUTHOR--(02)-GANNUSHKINA, I.V., TSAREGOROOTSEVA, T.M.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,
NR 6, PP 93-102
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ENCEPHALOMYELITIS, BRAIN, EDEMA, LEUKOCYTE, NECROSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0571

STEP NO--UR/0219/70/049/006/0098/0102

CIRC ACCESSION NO--AP0131194

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CEREBROCRANIAL INJURY IN EXPERIMENTAL ALLERGIC ENCEPHALOMYELITIS IS CHARACTERIZED BY MARKED EDEMA, ALTERATION OF NERVE AND GLIAL CELLS, LEUKOCYtic REACTION OF THE NECROTIC STAGE. CEREBROCRANIAL INJURY AT THE STAGE OF ELIMINATION OF BREAK UP PRODUCTS AND INITIAL ORGANIZATION OF DEFECT OF THE CEREBRAL SUBSTANCE IS CHARACTERIZED BY AN INTENSIVE CELLULAR PROLIFERATION AND DEMYELINIZATION OF PERIVASCULAR LOCALIZATION IN THE REGION OF THE TRAUMATIC FOCUS AND AT A SIGNIFICANT DISTANCE THEREFROM.
FACILITY: INSTITUTE OF NEUROLOGY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

Acc. Nr: AP0051936

Ref. Code: UR0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol 69, Nr 2, pp 115-117

DEPENDENCE OF THE NATURE AND DEGREE OF LESION OF THE NERVE CELLS IN THE NUCLEUS CUNEATUS OF THE MESENCEPHALON RETICULAR FORMATION ON THE CHARACTER OF THEIR BLOOD SUPPLY

I. V. Gannushkina and L. M. Bakhitova

Institute of Neurology, Academy of Medical Sciences of the USSR, Moscow

560 nerve cells of the mesencephalon reticular formation (200 visual fields) in 10 cats were studied in the periphocal region of the cerebral softening caused by ligating the lamina quadrigemina artery.

It was demonstrated that the types of lesion of large nerve cells are, under these conditions, more pronounced than those of the medium and small cells. The authors connect these differences with the character of the cells vascularization.

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Acc. Nr: *MP0047164*

G

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,
Vol 70, Nr 2, pp *172-177*

SIGNIFICANCE OF AUTOGENICTY OF THE ELEMENTS
OF THE NERVOUS TISSUE IN VASCULAR AND TRAUMATIC
LESIONS OF THE BRAIN

L. V. Gausinskina

The presentation is related to the results of a study on the influence of autoantigenity on the nervous system elements in the development of pathological processes in the brain, where there was a damage of the hemato-encephalic barrier. It was demonstrated that a preliminary sensitization of animals to the antigens of the nervous tissue makes more serious the clinical development of brain damage and cerebral dyscirculation. As a result in these conditions in the brain area an antigen-antibody reactions are accomplished. In the serum of specifically sensitized animals and patients with disseminated sclerosis there are antibodies, which are fixed to some elements of the nerve body and glial cells in a immunofluorescent test (Kuns) while as in the serum of patients with disorders of vascular circulation, hepato-cerebral dystrophy and lateral amyotrophical sclerosis — to the basal membranes of small vessels and capillaries.

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Thin Films

USSR

UDC 543.70

GANOPOL'SKIY, V. I., SHARAPOVA, V. S., KHARKOVER, M. Z., and SHELEG, M. U.,
Institute of Solid State Physics and Semiconductors, Academy of Sciences
Belorussian SSR, and Ural State University imeni A. M. Gor'ky, Sverdlovsk,
Ministry of Higher and Secondary Specialized Education RSFSR

"Extraction Photometric Analysis of Thin Magnetic Films Fe-Co-Ni by Means of
 δ -Mercaptoquinoline"

Moscow, Zhurnal Analiticheskoy Khimii, Vol 25, No 5, May 70, pp 982-986

Abstract: A method of analysis of thin ferromagnetic films Fe-Co-Ni is described. The method is based on the following: 1) the thiooxinate stability increases in the series Fe-Ni-Co, the difference in this stability being especially marked between iron and nickel on one hand, and cobalt on the other; 2) the absorption spectra of the above thiooxinates have wide, intensive bands in the visual region suitable for analytical purposes. The absorption bands of iron thiooxinate ($\lambda_{\max} = 450 \text{ m}\mu$) and cobalt thiooxinate ($\lambda_{\max} = 470 \text{ m}\mu$) are practically superimposable, while each of them individually, when paired with the absorption band of nickel thiooxinate ($\lambda_{\max} = 540 \text{ m}\mu$) can be resolved spectrophotometrically. These

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GANOPOL'SKIY, V. I., et al, Zhurnal Analiticheskoy Khimii, Vol 25, No 5, May 70,
pp 982-986

properties permit the analysis of two-component mixtures of thiooxinates (Fe-Ni and Co-Ni) to be carried out without separating the components. It also simplifies analysis of the Fe-Co-Ni system; the prolonged method of sequential reextracting of iron and nickel is avoided by separating Fe-Ni mixture from Co, which is left behind.

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1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ANALYSIS OF FERROMAGNETIC MATERIALS. USE OF B MERCAPTOQUINOLINE
FOR THE EXTRACTION AND PHOTOMETRIC ANALYSIS OF AN IRON, COBALT, NICKEL
AUTHOR--(05)-GANOPOLSKIY, V.I., KHARKOVER, M.Z., BARKOVSKIY, V.F.,
SHARAPOVA, V.S., KOSTYUKKULGAVCHUK, L.P.
COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1), 58-63
DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--MERCAPTAN, QUINOLINE, PHOTOMETRIC ANALYSIS, IRON, COBALT,
NICKEL, FERROMAGNETIC FILM, SOLVENT EXTRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/F--2000/2105

STEP NO--UR/0419/70/000/001/0058/0063

CIRC ACCESSION NO--AP0125689

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--20NOV7C

CIRC ACCESSION NO--AP0125689

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF 8 MERCAPTOQUINOLINE (I) IN THE EXTN. AND PHOTOMETRIC ANAL. OF 2, AND 3, COMPONENT FERROMAGNETIC FILMS (FE,CO,NI, FE,NI, FE,CO, AND CO,NI) WAS STUDIED BY USING SYNTHETIC SAMPLES. I CAN BE USED SUCCESSFULLY IN THE ANAL. OF FERROMAGNETIC MATERIALS. THE SAMPLE OF THE FERROMAGNETIC MATERIAL IS DISSOLVED IN H SUB2 SO SUB4 OR HCL, TREATED WITH AQ. SOLN. OF I, NH SUB4 OH, AND CHCL SUB3. THE CHCL SUB3 EXT. IS TREATED WITH AQ. 6-8N H SUB2 SO SUB4 TO REMOVE FE, THEN WITH AQ. HCL TO REMOVE NI. THE AQ. SOLNS. ARE REEXTD. WITH CHCL SUB3. THE ABSORBANCES OF THE CHCL SUB3 EXTS. OF FE, CO, AND NI 8 MERCAPTOQUINOLINATES ARE MEASURED AT 450, 470, AND 540 NM, RESP. FACILITY: INST. FIZ. TVERD. TELA POLUPROV., MINSK, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
 TITLE--PHASE DIAGRAM OF A CERIUM NITRILOTRIACETIC ACID HYDROGEN PEROXIDE
 SYSTEM BASED ON SPECTROGRAPHIC ABSORPTION PROPERTIES -U-
 AUTHOR-(03)-KRIVONOZHNIKOVA, L.G., GANOPOLSKIY, V.I., YERMOLENKO, I.N.
 COUNTRY OF INFO--USSR
 SOURCE--DOKL. AKAU. NAUK BELORUSS. SSR 1970, 14(3), 230-2
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--ABSORPTION SPECTRUM, CERIUM COMPOUND, ACETATE, COMPLEX
 COMPOUND, PHASE DIAGRAM, HYDROGEN PEROXIDE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3006/1162 STEP NO--UR/0250/70/014/003/0230/0232
 CIRC ACCESSION NO--AT0134844
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 022

CIRC ACCESSION NO--AT0134844
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION SPECTRUM OF THE
 PEROXYNITRILOTRIACETATE COMPLEX OF CE(III) WAS STUDIED AS A FUNCTION OF
 COMPN. OF THE TITLE SYSTEM. A TERNARY EQUIL. DIAGRAM WITH CONTOUR LINES
 OF EQUAL ABSORPTIVITIES INDICATES THE SOLN. COMPN. NEEDED FOR FORMATION
 OF A MAX. AMT. OF COMPLEX. THE MAX. ABSORPTION PROPERTIES OF THIS
 SYSTEM WERE NEAR THE COMPONENT RATIO OF 1:5:4 OF CE:NITRILOTRIACETIC
 ACID (H SUB3 H):H SUB2 O SUB2. THIS IS NOT THE COMPN. OF THE COMPLEX,
 BUT ONLY THE CONDITIONS FOR MAX. ABSORPTION. ALONG WITH CEX.NH SUB2 O
 SUB2 COMPLEXES, CEX SUB2 MH SUB2 O SUB2 COMPLEXES WERE PRESENT.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPOSITION OF A CERIUM NITRILOTRIACETATE PEROXIDE COMPLEX -U-
AUTHOR-(03)-GANOPOLSKIY, V.I., KRIVONOZHNIKOVA, L.G., YERMOLENKO, I.N.
COUNTRY OF INFO--USSR
SOURCE--VESTI AKAD. NAVUK BELARUS. SSR. SER. KHIM. NAVUK 1970, (1), 38-42
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CERIUM COMPOUND, ACETATE, PEROXIDE, COMPLEX COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1875 STEP NO--UR/0419/70/000/001/0038/0042
CIRC ACCESSION NO--AP0123663
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 011

CIRC ACCESSION NO--AP0123663

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

ABSTRACT. THE COMPN. OF CE NITRILOTRIACETATE
 PEROXIDE COMPLEXES IS CONSIDERED BY USING THE RESULTS OF ISOMOLAR SERIES
 AND MOLAR RATIO STUDIES OF THE SYSTEM CE(III) NITRILOTRIACETATE H SUB2 O
 SUB2. THE FOLLOWING EQUATIONS ARE PROPOSED: 2CEX SUBM PLUS H SUB2 O
 SUB2 YIELDS X SUBM CEOJCEX SUBM PLUS H SUB2 WHERE X IS NITRILOTRIACETIC
 ACID. THE CE NITRILOTRIACETATE PEROXIDE REACTS WITH H SUB2 O SUB2:
 SUB2 CE SUB2 X SUB2 SUBM PLUS H SUB2 O SUB2 PLUS OH PRIME NEGATIVE
 YIELDS O SUB2 CE SUB2 X SUB2M.NHO SUB2 PRIME NEGATIVE PLUS H SUB2 O.
 WITH M EQUALS 1, N EQUALS 1 AND 2; WITH M EQUALS 5, N EQUALS 2 AND 4.
 CONSEQUENTLY, WITH AN INCREASE IN THE CONTENT OF NITRILOTRIACETATE IN
 THE COMPLEX, THE CAPACITY OF THE COMPLEX INCREASES. THE INTENSITY OF
 THE ABSORPTION BANDS OF THE COMPLEX ALSO INCREASES. FACILITY:
 INST. FIZ. TVERD. TELA POLUPROV., MINSK, USSR,

UNCLASSIFIED

USSR

UDC: 543.42.062

GANOVICH, M. V., KABANOVA, M. A., KRICHIEVER, M. Ya., MAKOVOZ, B. B., SOKOLOV, B. A.

"One-Channel, One-Beam Atomic Absorption Spectrophotometer Model AAS-1K"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 81-86 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1097 by V. S. Krasnova)

Translation: A report is presented on the development of various types of atomic absorption spectrophotometers at the All Union Scientific Research Institute for Scientific Instruments (Leningrad). A description is presented of the basic circuits and designs used in creation of the model AAS-1K general laboratory device. The AAS-1K is a single structure, built into a common case, consisting of functionally independent blocks (B): the pulse power supply B for the hollow-cathode tube, the type BV-2 high-voltage power supply B, the specimen feed B, the gas feed and distribution B, the tube holder, heater, monochromator, measurement B and type KSP-4 recording potentiometer. 2 figures; 2 biblio refs.

1/1

USSR

UDC 621.793.5:669.718.65

AKSENOVA, E. V., SEREBRYAKOVA, I. B., ANAN'INA, L. A., and GANSH, T. N.

"Hot Aluminizing of Sheet Steel"

Moscow, Stal', No 9, Sep 70, pp 830-833

Abstract: A good aluminum plating with a thin brittle layer of inter-metallic compounds (Fe_2Al_5) may be produced by plunging low-carbon sheet steel into an aluminum melt containing 6-8% Si at temperatures of 700-710°C. Various methods of preparing the steel surface for aluminizing are discussed. A first processing in the regenerating atmosphere and elimination of the oxides by annealing in a hydronitric medium, provides a high-quality plating. Aluminizing improves the heat resistance of steel and greatly increases its corrosion resistance. Data of the corrosion resistance of low-carbon steel in various media are shown in comparison with the corrosion resistance of galvanized steel. The aluminum plating maintains a constant appearance with heating up to 500°C.

1/1

AA0043552

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

242987 CALORIMETRIC COAXIAL LOAD ELEMENT in which central electrode (5) is housed in a dielectric cylinder (4) containing absorption liquid circulating between cylindrical walls. The construction reduces coefficient of reflexion in UHF band.

20.7.67 as 1174358/26-9. S. N. GANSHIN & V. M. KONDRATIEV.
(25.9.69) Bul 16/5.5.69. Class 21a⁴. Int.Cl. H 01 p.

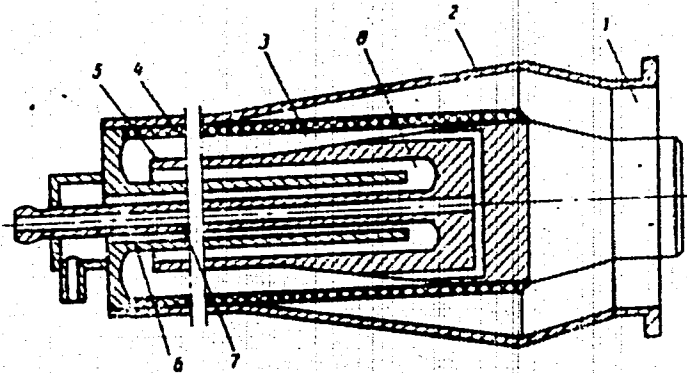
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AA0043492

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

470

242983 STABILIZED D.C. CONVERTER. Improved stabilization of the output voltage is achieved by introduction of the feedback winding (10) into the voltage step up transformer (5). Terminals (11) and (12) are connected through the diodes to the bases of the transistors (3) and (4) while the centre of the winding (13) is connected through the zenor diode to the emitter circuits of the transistors. Commutating transformer is (6), while (7), (8) and (9) are rectifying circuit, smoothing and load.

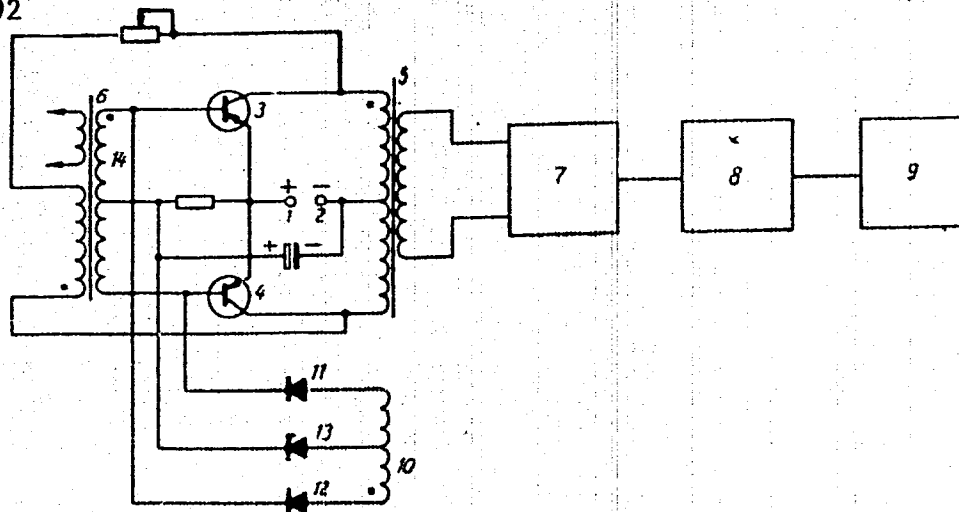
11.2.66 as 1055944/26-9. N. K. GANSKAY & V. A. OSIPENKO
(23.9.69) Bul 16/5.5.69. Class 21a Int. Cl. H 02n.

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19761880

AA0043492



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Acc. Nr.: AN0104560

6

Ref. Code: UR 9015

AUTHOR-- YENEVICH, BORIS, CORRESPONDENT

TITLE-- MYSTERIES OF THE "WEATHER KITCHEN"

NEWSPAPER-- RABOCHAYA GAZETA, JUNE 11, 1970, P 4, COLS 2-6

ABSTRACT-- THE "AKADEMIK VERNADSKIY", A RESEARCH SHIP OF THE SOVIET ACADEMY OF SCIENCES, HAS LEFT THE SEVASTOPOL FOR THE TROPICAL AREA OF THE ATLANTIC WHERE SHE WILL JOIN THE "DMITRIY MENDELEYEV" AND THE "AKADEMIK KURCHATOV", RESEARCH VESSELS OF THE OCEANOLOGICAL INSTITUTE. THE EXPEDITION IS HEADED BY CANDIDATE OF GEOGRAPHICAL SCIENCES PAVEL PAVLOVICH GANSON AND HIS DEPUTY, CANDIDATE OF GEOGRAPHIC SCIENCES YUVENALIY GEORGIYEVICH RYZHKOV. THE MISSION OF THE EXPEDITION IS TO EXPLORE THE PRINCIPAL METEOROLOGICAL PROCESSES WHICH ARE RESPONSIBLE FOR CLIMATIC CONDITIONS OF THE WESTERN ASIATIC AND NORTHERN EUROPEAN PARTS OF THE SOVIET UNION.

THE "SERGEY VAVILOV" AND THE "PETR LEBEDEV", SHIPS OF THE ACOUSTICAL INSTITUTE, THE "PROFESSOR VIZE" AND THE "PROFESSOR ZUBOV", WEATHER SHIPS OF THE HYDROMETEOROLOGICAL SERVICE, AND THE "MUSSON" AND THE "PASSAT" WILL PARTICIPATE IN THE EXPEDITIONARY WORK.

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Acc. Nr.

A70045338

Abstracting Service:
CHEMICAL ABST.

5-70

Ref. Code

UR0020

90949e Nature of active centers during anionic polymerization. Polyakov, D. K.; Baranova, N. I.; Gantmakher, A. R.; Medvedev, S. S. (Fiz.-Khim. Inst. im. Karpova, Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(1), 148-50 [Phys Chem] (Russ). The electronic absorption spectra corresponding to the ion pairs and free carbanions of the 1,1-diphenylbutyllithium (I)-tetrahydrofuran (II), 1,1-diphenylpolyisoprenyllithium (III)-II, and 9,10-dihydroalkylanthracenyllithium (IV)-II systems was studied over a broad range of concns. by a combined spectrophotometric and conductometric method (P., 1963, 1965, 1967). At low I and II concns. ($<10^{-3}$ mole/l.), the dependence of the equiv. elec. cond. on concn. followed Ostwald's law. The dissocn. consts. of the "living" ends of the I and II systems in this region were 3.5×10^{-6} and 13.3×10^{-6} mole/l., resp., and were const. $<10^{-3}$ moles/l. The mobility of the carbanions decreased from 88.5 to 15.9 $\text{cm}^2/\text{ohm equiv.}$ on passing from I to II carbanions. At I and II concns. $>10^{-3}$ mole/l., deviations from Ostwald's law were obsd. The electronic spectra in the region of free ion predominance (I and II concns. $\sim 4 \times 10^{-6}$ mole/l.) and ion pair predominance ($\sim 3 \times 10^{-3}$ mole/l.) were identical, so the position of the max. absorption band did not change on passing

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from free carbanions to ion pairs. Similar results were obtained with III. The same max. (445 m μ) was obsd. in the electronic absorption spectra for the free ions and the ion pairs of this system. The identical electronic spectra for the free ions and ion pairs in all the systems studied indicated that changing the energy of electrostatic interaction of the ion pair components has little effect on the absorption spectra. Changing the gegenion or solvent in anionic systems can have a decisive effect on the kinetics of the process, but has little effect on the structure and compn. of the copolymers.

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19780266

142 028

UNCLASSIFIED

PROCESSING DATE--11DEC70

TITLE--EFFECT OF ELECTRON DONOR COMPOUNDS ON BUTADIENE POLYMERIZATION IN THE PRESENCE OF PI ALLYL NICKEL CATALYSTS -U-

AUTHOR--(05)--KRISTALNYY, E.V., ORENKOVA, N.V., ZABOLUTSKAYA, YE.V., GANTMAKHEN, A.R., MEDVEDEV, S.S.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 836-40

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION KINETICS, BUTADIENE, POLYMERIZATION, METAL CATALYST, NICKEL, TITANIUM CHLORIDE, CHEMICAL REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1382

STEP NO--UR/0459/70/012/004/0836/0840

CIRC ACCESSION NO--AP0135056

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 028

CIRC ACCESSIGN NO--AP0135056

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

PRESENCE OF PI ALLYLNICKEL CHLORIDE

DONOR ADDITIVES E.G., ME SUB2 S, ET

THE EFFECTS OF THE ADDITIVES ON THE

THE POLYMN. RATE, BUT PHOME HAD THE

SUGGESTED THAT THE DONOR ADDITIVES

FACILITY: FIZ. KHIM. INST. IM.

ABSTRACT.

(I) PLUS TICL SUB4 AND ELECTRON

POLYMN. RATE. ME SUB2 S INHIBITED

OPPOSITE EFFECT. KINETIC STUDIES

ADDED TO I INSTEAD OF TICL SUB4.

KARPOVA, MSCCW, USSR.

BUTADIENE WAS POLYMD. IN THE
AND PHOME, IN ORDER TO DET.
POLYMN. RATE. ME SUB2 S INHIBITED
OPPOSITE EFFECT. KINETIC STUDIES
ADDED TO I INSTEAD OF TICL SUB4.
KARPOVA, MSCCW, USSR.

UNCLASSIFIED

GANTMAN, Samuil Abramovich

*electrochemical
Control*

UNCLASSIFIED

Name	Reliability Factor	Areas of Interest	Range
Bychkovskiy, S. K.	5	Condensate removal from fuel cells	10,29
Cheban, A. G.	3	Semiconductor physics	15
Cherbasakiy, A. Kh.	2	Thermoelectric applications	8,11,13,23
Chernov, Ya. I.	2	Galv, GAP solar cells	12
Chervertkova, G. A.	5	CdTe film solar converter, chemionic converter	-
Chizhik, S. P.	2	Structure of zirconia	43
Daletskii, G. S.	2	Si solar cells	12
Danashkin, I. I.	2	Solar thermionics	-
Dezhen, Il'khail Fedorovich	3	Semiconductor physics	15
Dil'igul, V. I.	2	Semiconductor physics	15
Dostrenko, Vasilii Ye.	4	H ₂ -O ₂ fuel cells	10,36,43
Dolgov, V. M.	2	Solar cell application	12
Dudkin, L. D.	2	Thermoelements	8,11,13,25
Fedorin, V. A.	2	Electrochemical controls	10,43
Fedosyeva, O. P.	3	Si solar cells, radiation detectors	12
Ganin, Ye. A.	2	Thermoelement design	13
Gantman, Samuil Abramovich	5	Electrochemical controls	10,33,43
Gerstik, Ye. M.	2	Electrochemical controls	9,10,11,12,43
Gilberman, Anatolii Yakovlevich	3	Solar cells	12
Golitsyn, N. M.	5	First Deputy Director (1966)	7

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NR/HAVEST/PHIS37-72-1-71
NOV 1991

ORGANIZATION AND ACTIVITIES OF THE ALL-UNION SCIENTIFIC RESEARCH INSTITUTE OF CURRENT SOURCES

USSR

UDC: 621.875

GANTSEV, V. A., NEMCHINOV, V. M., SIKOLENKO, S. F.

"Input Stages of DC Amplifiers Based on Unipolar Transistors"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), vyp. 7, Moscow, "Svyaz", 1971, pp 178-195 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D103)

Translation: The authors consider amplification stages based on a combination of field-effect and bipolar transistors. It is shown that the temperature drift of the load current or the instability of the amplification factor can be appreciably reduced by proper selection of the parameters of the transistors and their operating conditions. A method is presented for calculating hybrid amplification stages with minimum temperature drift of the load current and high stability of the amplification factor. The results of the calculation are experimentally confirmed. Seven illustrations, three tables, bibliography of three titles.

1/1

- 4 -

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ON THE DIELECTRIC PERMITTIVITY OF THE BOUNDARY LAYERS OF LIQUIDS
AND SURFEACTANT SOLUTIONS -U-
AUTHOR-(02)-GANTSEVICH, I.B., FUKS, G.I.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 195-202

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS, CHEMISTRY

TOPIC TAGS--HYDROCARBON, ELECTRICAL CONDUCTIVITY, DIELECTRIC PERMEABILITY,
SURFACTANT, BOUNDARY LAYER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1721

STEP NO--UR/0069/70/032/002/0195/0202

CIRC ACCESSION NO--AP0112715

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112715

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DEVICE IS DESCRIBED FOR MEASURING SIMULTANEOUSLY AND INDEPENDENTLY THE THICKNESS OF THE BOUNDARY LAYER OF NONPOLAR AND LOW POLAR LIQUIDS, ITS DIELECTRIC PERMITTIVITY (ϵ_p) AND ELECTRIC RESISTANCE. FOR SUCH LIQUIDS AS DIBUTYLPHTHALATE, STEARIC ACID AND CETYL ALCOHOL SOLUTIONS IN LIQUID HYDROCARBONS AS WELL AS FOR LOW POLAR LUBRICANTS ϵ_p IN THE BOUNDARY LAYER IS GREATER THAN IN THE BULK, AND FREQUENCY DISPERSION IS OBSERVED. FOR SOME LIQUIDS THE TEMPERATURES OF THE CHANGE IN THE SIGN OF THE DERIVATIVE $d\epsilon/dT$ HAVE BEEN DETERMINED AS WELL AS THE TEMPERATURES OF FORMATION OF SURFACTANT QUASICRYSTALS OR MICELLES. SOME CONSIDERATIONS ARE PRESENTED ON THE STRUCTURE OF THICK BOUNDARY LAYERS OF ALIPHATIC ACIDS AND ALCOHOLS SOLUTIONS IN LIQUID HYDROCARBONS.

UNCLASSIFIED

USSR

UDC: 539.373:621.645.411

PODSTRIGACH, Ya. S., PELEKH, B. L., GANULICH, V. K., L'vov

"Design of Shear-Compliant Orthotropic Shells with Residual Stresses"

Kiev, Prikladnaya Mekhanika, Vol 18, No 8, Aug 73, pp 22-30.

Abstract: The influence of distortion on the stress-strain state of orthotropic envelopes made of materials with significant anisotropy of elastic and strength properties in combination with low shear rigidity is studied. Based on the shear model, solution equations from the theory of orthotropic envelopes are produced in forces and moments and in generalized displacements. The axisymmetrical problem of determination of residual welding stresses in a cylindrical envelope is solved. The significant dependence of the calculated quantities on compliance of the material in shear and orthotropy parameters is noted.

1/1

- 40 -

UDC 615.31.547.861.37-012.1

USSR

PIS'KO, G. T., NEVSKAYA, T. L., GANUSHCHAK, N. I., BURYAK, V. S., BRUZDEV, A. I., KOSUBA, R. B., KUCHER, V. I., Chernovitskiy Medical Institute

"Synthesis and Pharmacologic Properties of New Derivatives of Piperidine"

Moscow, Khimiko--Farmatsevticheskiy Zhurnal, No 4, 1973, pp 14-17

Abstract: As a result of studying the relation between chemical structure and biological activity in a series of quaternary ammonia compounds, it was concluded [G. T. Pis'ko, "Chromotologic Properties Antimicrobial Effect of Derivatives of Ethylene- and Hexamethylethylenediamine," Doctor's Dissertation, Chernotsy Dnepropetrovsk, 1965; Farmakol o toknikol, No 5, 1970] that the basic role in the antimicrobial effect of these compounds belongs to the high-molecular alcohol radical which is joined by the ester bond to the quaternary nitrogen atom. A study was made of the synthesis and pharmacological properties of some new derivatives of piperidine containing high-molecular alcohol radicals. For synthesis of N-(4-phenyl-3-methylbutene-2-yl-1)-N-carbalkoxymethyl piperidinium chlorides (I-X), the interaction of N-aryl-butenyl derivatives of pure piperidine and esters of monochloroacetic acid were used. On heating in dry diethyl ether, stable, highly water soluble compounds I-X were obtained with good yields.

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USSR

PIS'KO, G. T., et al., *khimiko-Farmatsevticheskiy Zhurnal*, No 4, 1973, pp 14-17

The general effect and toxicity of the compounds were studied on white rats and white mice on intraperitoneal administration. The effects of the compounds on the arterial pressure, respiration and tonus of the third eyelid was studied in acute experiments on cats. Other experiments and the results are described. In studying the antimicrobial properties of the compounds the most sensitive turned out to be staphylococcus aureus and Candida albican fungus. The least sensitive were *Vacilous coli*, *Proteus vulgaris* *Pseudomas Pyocyanea*. When studying the relation between the chemical structure and the antimicrobial effect it was found that the activity appears for $R = 1CH_3$; then gradually increases and the maximum effect is observed for

$R = C_9H_{19}$.

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USSR

UDC 547.341

GANUSHCHAK, N. I., VENGZHZHANOVSKIY, V. A., and FEDOROVA, G. K., Institute of Organic Chemistry, Academy of Sciences of the UkrSSR

"4-Aryl-1,3-butadienylphosphonic Acids and Their Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 291-293

Abstract: Hexachlorophosphorates $[\text{ArCH}=\text{CRCHCPCH}_2 \text{PCl}_3^+ \text{PCl}_6^-]$ are treated with sulfur dioxide at 20°C to produce 4-aryl-1,3-butadienylphosphonic acid dichlorides, which are then hydrolyzed to give the free acids. Reaction of the dichlorides with ethanol and piperidine in the presence of pyridine produces diethers and dipiperidides of the corresponding aryl-butadienylphosphonic acids. The IR-spectra of 4-phenyl-1,3-butadienylphosphonic acid and its derivatives show no band typical of terminal methylene or vinyl radicals. Absorption bands are observed which indicate a double bond conjugated with the benzene ring, and a trans C=C bond.

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- 31 -

1/2 041 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HALOARYLATION OF UNSATURATED COMPOUNDS BY AROMATIC DIAZO COMPOUNDS.
XXXIX. REACTION OF 1,ARYL,1,3,BUTADIENE WITH DIPHENYL,P,P PRIME,BIS
AUTHOR--(03)-GANUSHCHAK, N.I., VERGRZHANOVSKIY, V.A., MELNIK, N.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 785-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--BUTADIENE, DIAZONIUM SALT, BENZENE DERIVATIVE, CHLORIDE,
HALOGENATION, LASER, LUMINOPIHOR, SCINTILLATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1946

STEP NO--UR/0366/70/006/004/0785/0788

CIRC ACCESSION NO--AP0125535

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 041

CIRC ACCESSION NO--AP0125535

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

ABSTRACT. THE REACTIONS OF (SHOWN ON MICROFICHE). THE STRUCTURE OF I WAS VERIFIED BY TREATING I (X EQUALS H, R EQUALS H OR ME) WITH P, CLN SUB2 PRIME NEGATIVE C SUB6 H SUB4 C SUB6 H SUB4 CL, P TO OBTAIN THE CORRESPONDING II. II ARE USED IN LASER FACILITY: TECHNOL., AS LUMINOPHORS, OR AS SCINTILLATORS.

CHERNOVITS. GOS. UNIV., CHERNOVTSY, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SYNTHESIS OF 5,ARYL,2,4,PENTADIENALS AND 5,ARYL,2,4,6,HEPTADIENIC
ACIDS -U-
AUTHOR--(04)-LOMBROVSKIY, A.V., PRIBYTKOVA, L.G., GANUSHCHAK, N.I.,
VENGRZHANOVSKIY, V.A.
COUNTRY OF INFO--USSR

G

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 964-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SAPONIFICATION, PHOSPHATE ESTER, BENZENE DERIVATIVE, AMINE
DERIVATIVE, CARBOXYLIC ACID, CHLORINATED ORGANIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1317

STEP NO--UR/0366/70/006/005/0964/0967

CIRC ACCESSION NO--AP0134991

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0134991
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION IN THE COLD OF SC SUB6
H SUB4 CH:CHCH:CH SUB2 WITH POCL SUB3NEGATIVE HCONME SUB2 MIXT. IN
TETRAHYDROFURAN GAVE 30-67PERCENT XC SUB6 H SUB4 CH:CHCH:CHCHO (I,X
EQUALS H, P, ME, P, MEO, G, GL, OR P, GL). THE REACTION OF I WITH (ETO) SUB2
P(O)CHNACO SUB2 ET GAVE 61-96PERCENT XC SUB6 H SUB4 CH:CHCH:CHCH:CHCO
SUB2 ET WHICH WAS SAPOND. TO THE CORRESPONDING ACID. FACILITY:
CHERNIGOV. GOS. UNIV., CHERNIGOV, USSR.

UNCLASSIFIED

Instrumentation and Equipment

UDC 669.295.048

USSR

GANYUKHIN, V. I., and LOZHKIN, YU. A.

"Experience in Developing and Introducing Electric Furnaces for Reduction and Distillation of Titanium Sponge"

V sb. Opyt sozdaniya i vnedreniya krupn. elektroterm. oborud. (Experience in Creating and Introducing Large Electrothermic Equipment -- Collection of Works), 1970, pp 152-153 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G182 by G. Svodtseva)

Translation: The Department of Resistance Furnaces of SKB [Special Design Office] of NZETO [Neva Electrothermic Equipment Plant] has developed SShZ-15.22,5/10-NO2 and SShV-15.30/9-NO1 electric furnaces intended for production of titanium sponge and its distillation. In the development of the designs of the electric furnaces consideration was given to operating experience with furnaces produced earlier. Zigzag heaters were installed, and distances between heaters and apparatus were increased, making it possible to lengthen heater service life to 1.5 to 2 years. In the SShV-15.30/9-NO1 furnace a rubber gasket is fitted into the groove of the water-cooled flange; it is moved as far away as possible from the hot working zone and operates reliably. For more intensive and even cooling of the retort along the cross-section,

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USSR

GANYUKHIN, V. I., and LOZHKIN, YU. A., V sb. Opyt sozdaniya i vnedreniya
krupn. elektroterm. oborud., 1970, pp 152-153

an air-cooling system was developed and manufactured, consisting of three
air ducts of variable vertical section. Furnace efficiency: 1.5 tons of
sponge per cycle.

2/2

- 5 -

1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECT OF ADDITIVES OF TRACE FERTILIZERS ON THE TEMPERATURE OF
MODIFICATION TRANSITIONS AND ON THE CRYSTAL LATTICE PARAMETERS OF
AUTHOR--(05)-GANZ, S.N., VARIVODA, I.KH., KUZNETSOV, I.YE., DINKEVICH,
I.O., LARINA, L.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 732-5
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE, CHEMISTRY
TOPIC TAGS--AMMONIUM NITRATE, CRYSTAL LATTICE, TRACE ELEMENT, NITROGEN
FERTILIZER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/1627 STEP NO--UR/0080/70/043/004/0732/0735
CIRC ACCESSION NO--AP0127118
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127118

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CU(NO SUB3)SUB2, MG(NO SUB3)SUB2, ZN(NO SUB3)SUB2, MNSO SUB4, AND NA SUB2 B SUB4 Q SUB7 ADMIXTS. (0.3-2PERCENT) ON THE MONOCLINIC ROTHORHOMBIC TRANSITION TEMP. OF NH SUB4 NO SUB3 WAS INVESTIGATED. THE GREATEST EFFECT WAS OBSD. FOR 0.5PERCENT ZN(NO SUB3)SUB2, STABILIZING THE ORTHORHOMBIC MODIFICATION AT A TEMP. HIGHER BY SIMILAR TO 5.1DEGREES. THE CRYSTAL LATTICE PARAMETERS WERE DETD. FOR 15 MIXTS. AND FOR PURE NH SUB4 NO SUB3. FACILITY: DNEPROPETROVSK. KHIM. TEKHNOL. INST., ONEPROPETROVSK, USSR.

UNCLASSIFIED

1/2 055 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--OXIDATION OF ATMOSPHERIC NITROGEN IN A PLASMA -U-
AUTHOR--(03)-GANZ, S.N., PARKHOMENKO, V.D., RUDENKO, A.I.
COUNTRY OF INFO--USSR
SOURCE--KHIM. UKR. 1970, (2), 24-6
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--OXIDATION, NITROGEN OXIDE, ELECTRODE, GAS FLOW, FLOW RATE,
PLASMA PHYSICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0471 STEP NO--UR/0436/70/000/002/0024/0026
CIRC ACCESSION NO--AP0137562
UNCLASSIFIED

2/2 055

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137562

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF THE FOLLOWING ON THE DIRECT OXIDN. OF ATM. N IN A PLASMA: GAS FLOW RATE, DISTANCE BETWEEN THE ELECTRODES WHICH FORM THE D.C. ARC, THE GEOMETRIC FORM AND DIMENSIONS OF THE PLASMATRON REACTION CHAMBER. THE APP. IS DESCRIBED. FROM THE ANALYSIS OF THE EXPTL. DATA, THE CONSUMPTION OF ELEC. ENERGY, PER TON OF NO, IS ABOUT HALF OF THAT OF THE BEST PLANTS. FACILITY: DNEPROPETROVSK. KHIM.-TEKHNOL. INST., DNEPROPETROVSK, USSR.

UNCLASSIFIED

Acc. Nr: **AP0047646** - Abstracting Service:
CHEMICAL ABST. 5-10

Ref. Code:
4R 0080

GANZ S.N.

104350s Interaction of ammonia with nitrogen oxides.
Ganz, S. N.; Vashkevich, A. M. (Dnepropetrovsk. Khim.-
Tekhnol. Inst., Dnepropetrovsk, USSR). Zh. Prikl. Khim.
(Leningrad) 1970, 43(1), 13-18 (Russ). The reaction rates of
NO and NO₂ with NH₃ were studied as a function of temp. At
>120°, the rate of reaction of NH₃ with NO increases with an
increase in temp. and the reaction proceeds with a discharge of
N₂. On the other hand, the rate of reaction of NH₃ with NO₂
decreases and the process stops completely at a temp. >230°.
The math. model of the process is detd. and equations are found
from which the degree of discharge of N₂ as a function of the con-
ditions of the process can be detd. C. J. Steinberg

1/1

REEL/FRA
19791220

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1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--SYNTHESIS OF HYDROGEN CYANIDE AND ACETYLENE IN A NITROGEN PLASMA
-U-
AUTHOR--KRASNOKUTSKIY, YU.I., GANZ, S.N., PARKHOMENKO, V.D.
COUNTRY OF INFO--USSR
SOURCE--KHM. PROM. (MOSCOW) 1970, 46(1) 33-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--HYDROGEN CYANIDE, ACETYLENE, NITROGEN, PLASMA TEMPERATURE,
HIGH TEMPERATURE EFFECT, METHANE, CALCULATION, CHEMICAL PRODUCT
PRODUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1454 STEP NO--UR/0064/70/046/001/0033/0035
CIRC ACCESSION NO--AP0101540
UNCLASSIFIED

272 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REACTION BETWEEN CH SUB4 AND N SUB2 IN A HIGH TEMP. N PLASMA, THE YIELD OF HCN INCREASED CONTINUOUSLY WITH INCREASING TEMP. AND WAS SIMILAR TO 13 TO 14 PERCENT AT 3000 DEGREE SK AND AT N SUB2: CH SUB4 RATIOS OF (0.5 TO 3.0):1. THE YIELD OF C SUB2 H SUB2 FIRST INCREASED AND THEN DECREASED WITH INCREASING TEMP., WITH A MAX. AT SIMILAR TO 2000 DEGREE SK; THE YIELD OF C SUB2 H SUB2 WAS AN IRREGULAR FUNCTION OF N SUB2: CH SUB4 RATIO, E.G., AT N SUB2: CH SUB4 RATIOS OF 0.5:1, 1:1, AND 3:1 THE MAX. YIELDS WERE 14, 4, AND 10 PERCENT, RESP. CALCNS. SHOW THAT AT 4200 DEGREE SK THE YIELD OF HCN SHOULD REACH 25 PERCENT.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF POWDERED ADDITIVES ON THE PROPERTIES OF AMMONIUM NITRATE
-U-
AUTHOR--(04)-GANZ, S.N., VILESOV, G.I., DOBROVOLSKIY, YE.I., KHARICHKOV,
I.N.
COUNTRY OF INFO--USSR
SOURCE--KHM. PROM. UKR. 1970, (1), P 10-11
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE
TOPIC TAGS--AMMONIUM NITRATE, WASTE CHEMICAL CONVERSION, ZINC OXIDE,
MAGNESIUM, CALCIUM CARBONATE, CALCIUM SULFATE, MINERAL FERTILIZER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0385 STEP NO--UR/0436/70/000/001/0010/0011
CIRC ACCESSION NO--AP0113303
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0113303
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WASTE FROM PRODUCTION OF ZNO
PIGMENT AND SLIME FROM MN MINES WERE DRIED AND MIXED IN THE RATIO OF 3
TO 2 AND AN EQUAL AMT. OF CaCO SUB3 PLUS CaSO SUB4 WAS ADDED. THIS
MIXT., CONTG. ALL TRACE ELEMENTS REQUIRED FOR FERTILIZING, WAS ADDED TO
NH SUB4 NO SUB3 (1, 3, 5, OR 6PERCENT) TO PROLONG THE STORAGE LIFE OF
THE FERTILIZER. THE AGRONOMIC EFFECTIVENESS WAS INCREASED BY
8-15PERCENT. FACILITY: DNEPROPETROVSK. KHEM.-TEKHNOL. INST.,
DNEPROPETROVSK, USSR.

UNCLASSIFIED

USSR

UDC 546.386:535.343

REZNIK, B. Ye., GANZBURG, G. M., and MAL'TSEVA, G. V., Dnepropetrovsk State University, Dnepropetrovsk

"Study of the Phosphotungstomolybdate Heterocomplex"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol. 17, No 2, Feb 72, pp 401-405

Abstract: The IR spectra were determined of the phosphotungstomolybdate complexes prepared as described by the authors in Zh. Neorgan. Khimii, 12, 3101, 1967, by the reaction of phosphotungstate with molybdate (complex I) and of phosphate with tungstate and molybdate (complex II) followed by reduction with ascorbic acid. The spectra indicated that both complexes had the same structure of an unsaturated ternary complex P:Mo:W = 1:1:7 with mixed ligands. Both I and II could be assumed to have formed by replacement of tungstate with molybdate in the phosphotungstate complex. The results confirmed the conclusions already made in earlier work on the basis of UV spectra and spectra in the visible range.

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USSR

UDC 669.71.053.4

ARONZON, V. L., GANZBURG, YA. D., LEVIN, M. V., LOKSHIN, R. G., FINKEL'SHTEYN, L. I.

"Algorithmization of Control of the Section for Preparing the Charge of the Alumina Shop at a Nepheline Plant"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrodn. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 28-34 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G136)

Translation: Principles are formulated for a production raw material input control which insures stabilization and synchronization of material flows with observation of the required quality of the charge obtained. Control algorithms for individual sections are developed on this basis: bins, mills, a repulping machine, and a correction unit. There is 1 illustration.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ALKALINE ROCK FORMATIONS AND THEIR RARE METAL MINERALIZATION -U-
AUTHOR--(04)-BORODIN, L.S., NECHAEVA, I.A., GANZEYEV, A.A., OSOKIN, YE.D.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (3), 17-31
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--ROCK, MINERAL DEPOSIT, RARE EARTH METAL, GEOLOGY,
GEOCHEMISTRY, BERYLLIUM, ZIRCONIUM, LITHIUM, STRONTIUM, RUBIDIUM,
PETROGRAPHY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1466 STEP NO--UR/0011/70/000/003/0017/0031
CIRC ACCESSION NO--AP0130399
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0130399

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PETROL. AND GEOCHEMISTRY OF 2 MAIN GROUPS OF ALK. FORMATIONS ARE DISCUSSED: ALK. BASALTIC AND ALK. GRANITIC. SEVERAL FORMATIONS ARE SEPD. FROM THEM: ALK. ULTRABASIC, ALK. GABBROIC, K BASALTIC, ALK. GRANITIC, AND NEPHELINE SYENITE. THEIR DISTRIBUTION IN MAIN PETROGRAPHIC PROVINCES OF THE USSR AND FOREIGN COUNTRIES IS SHOWN TOGETHER WITH A DESCRIPTION OF THEIR DEVELOPMENT AND RELATION TO VARIOUS TYPES OF TECTONIC STRUCTURES. THE DEGREE OF ROCK JUVENILE CHARACTER, REFLECTING THE DEPTH OF ALK. MAGMA FORMATION AND PARTICIPATION OF JUVENILE ALK. EMANATION IN THE FORMATION OF VARIOUS TYPES OF ALK. ROCKS, IS CONSIDERED AS ONE OF THE MAIN FACTORS CONTROLLING PETROGRAPHIC AND GEOCHEM. PARAMETERS OF THE FORMATION. DATA ARE GIVEN ON THE DISTRIBUTION OF TYPOMORPHIC RARE ELEMENTS (BE, ZR, RARE EARTHS, LI, RB, AND SR) IN NEPHELINE SYENITE MASSIFS OF THE USSR BELONGING TO ALK. BASALTIC AND ALK. GRANITIC GROUPS. THE GEOCHEM. SPECIALIZATION OF ALK. ROCK IS CONTROLLED BOTH BY AFFILIATION WITH A DEFINITE FORMATION TYPE AND THE DEGREE OF JUVENILE CHARACTER OF ALK. MAGMAS. THE GENERAL CHARACTERISTICS OF RARE ELEMENT CONC. IN ALK. ROCKS ARE DISCUSSED. THE RELATION OF MOST RARE METAL DEPOSITS WITH MAX. ALKALINIZED JUVENILE OR HYBRID SERIES OF BOTH ALK. BASALTIC AND ALK. GRANITIC FORMATIONS WAS PROVEN. FACILITY: INST. MINERAL., GEOKHIM. KRISTALLOKHIM. REOK. ELEM., MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--FORMATION OF COMPOUNDS OF AROMATIC, THIOPHENE, AND DIENE SERIES
DURING THE PYROLYSIS OF COAL AND VAPOR GAS PYROLYSIS PRODUCTS -U-
AUTHOR-(04)-MARIICH, L.I., GANZHA, L.M., LENKEYICH, ZH.K., SHCHERBAN, I.P.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TVERD. TOPL. 1970, (3), 127-31
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--DIENE, THIOPHENE, PYROLYSIS, COAL, BENZENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0865 STEP NO--UR/0467/70/000/003/0127/0131
CIRC ACCESSION NO--AP0137893
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137893

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PYROLYSIS OF COAL WAS DONE IN A LAB. TUBULAR FURNACE CONSISTING OF 2 SECTIONS, THE FIRST FOR COKING AT 25-800DEGREES, AND THE SECOND FOR PYROLYSIS OF GASEOUS PRODUCTS FROM THE 1ST SECTION. THE MAIN FACTOR DETG. THE QUANT. COMP.N. OF THE PRODUCTS WAS THE TEMP. OF PYROLYSIS OF THE GASES. WITH INCREASED TEMP., THE BENZENE AND THIOPHENE IN THE TOTAL GAS INCREASED. THE CONTENTS OF CYCLOPENTADIENE, AND THE METHYL DERIV. OF BENZENE AND THIOPHENE PASSED THROUGH A MAX. WITH TEMP. FACILITY: UKR. UGLEKHM. INST., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 517.946.9+519.8

GANZHELA, N. F. and RVACHEV, V. L.

"A Method of Reducing Boundary Value Problems in Physics to the Problem of Mathematical Programming"

Minsk, *Differentsial'nyye Uravneniya*, No 12, 1973, pp 2202-2206

Abstract: The authors pose the problem of an r^{th} -order differential equation $Lu(P) = f(P)$ with $P \in Q$, under the boundary conditions $l_j u(P) = \psi_j(P)$ with $P \in \Gamma$ ($j = 1, \dots, l$): where $P = P(x_1, x_2, \dots, x_n)$ is a point in m -dimensional space E , Ω is a limited region with the boundaries $\Gamma = \Gamma_1 \cup \Gamma_2 \cup \dots \cup \Gamma_l$, and $\Omega = \Omega \cup \Gamma$. The functions $f(P)$ and $\psi_j(P)$ ($j = 1, \dots, l$) are given and are continuous, along with their derivatives to the k -th order inclusive, in the closed region $\bar{\Omega}$. An approximate solution is sought in the form of

$$u_n(P) = \sum_{i=0}^n c_i \phi_i(P),$$

where the c_i are coefficients to be determined and $\phi_i(P)$ are known structures $(k+r)$ times continuously differentiable in $\bar{\Omega}$ and satisfying the boundary

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USSR

GANZHELA, N. F. and RVACHEV, V. L., *Differentsial'nyye Uravneniya*, No 12, 1973, pp 2202-2206

conditions stated above. It is shown that this problem is reducible to the problem of the Chebyshev approximation of a finite system of non-simultaneous algebraic equations that can be solved by linear programming.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ELECTRICAL RESISTANCE OF COPPER CONDUCTORS DURING PULSED HEATING
-U-
AUTHOR--(02)-MARTYNYUK, M.M., GANZHELA, N.F. G
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 30-4
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--ELECTRIC PROPERTY, WIRE, COPPER, THERMAL EFFECT, EXPLOSION,
ELECTRICAL RESISTANCE, LIQUID METAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1493 STEP NO--UR/0139/70/013/003/0030/0034
CIRC ACCESSION NO--AT0130422
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0130422

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE RESISTANCE OF CU WIRES ON THE ENERGY DURING PULSED HEATING WAS DETD. BY THE OSCILLOGRAPHIC METHOD. THE RESULTS WERE COMPARED WITH THOSE OBTAINED BY DIRECT MEASUREMENTS. THE CURRENT PULSES WHICH ARISE DURING THE ELEC. EXPLOSION OF WIRES DURING RAPID HEATING AND WHICH EXCLUDE THE RUPTURE OF THE WIRE ARE EXPLAINED BY THE PASSAGE OF THE METAL THROUGH THE UPPER LIMIT FOR THE EXISTENCE OF A LIQ. METAL PHASE, SPINODAL CRIT. CURRENT QUASISPINODAL. IN THIS CASE, PRECRIT., CRIT., OR POSTCRIT. CONVERSION OF THE METAL INTO THE GAS PHASE CAN TAKE PLACE, DEPENDING ON THE EXTERNAL PRESSURE. FACILITY: UNIV. DRUZHBY NAR. IM. LUMUMBY, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 669.3'295:539.26

GANZHULA, N. N., KOKORIN, V. V., CHUISTOV, K. V., Institute of Metal Physics,
Academy of Sciences UkrSSR
"Structure of an Aging Copper-Titanium Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 5, Nov 73, pp
1051-1057.

Abstract: X-ray studies, performed using an improved method, are used to determine slight changes in the structure of an aging Cu-Ti alloy. Along with the satellites, additional defects of diffuse scattering are observed in the form of stripes oriented approximately along $\langle 110 \rangle$. The picture of distribution of diffuse intensity is compared with that calculated for the selected model of the distorted lattice of the heterogeneous solid solution. It is assumed that the nature of the diffuse scattering observed is related to the presence of chaotically distributed equiaxial areas with tetragonal lattice. The stable beta phase with the orthorhombic lattice has orientation relationships with the matrix lattices. The results of calculation of the distribution of intensity of diffuse scattering indicate that the additional diffuse stripes experimentally observed near the (h00) and (hk0) reflexes are caused by distortions of the lattice due to formation of

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USSR

Ganzhula, N. N., Kokorin, V. V., Chuistov, K. V., Sverdlovsk, Fizika Metallov
i Metallovedeniye, Vol 36, No 5, Nov 73, pp 1051-1057.

areas coherently bonded with the matrix lattice.

2/2

Mechanical Properties

USSR

UDC 621.785:621.9-162

POZDNYAKOV, L. G., GANZULYA, A. P., DEMENT'YEVA, ZH. A., ATAMANENKO, V. A.,
PAVLOVTSEVA, N. M., and BUTENKO, V. F.

"Investigation of the Effect of Single- and Double-Sided Cooling in Temper
Hardening of Pipes on Their Mechanical Properties"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-
Oct 70, pp 38-40

Abstract: A study was made to determine the effect on mechanical properties of single- and double-sided cooling in temper hardening of low-carbon steel pipes intended for use in pipe lines in the Extreme North. Tempering of low-carbon 14KhGS steel sheets 11 mm thick was done at 900°C in a water tank (double-sided cooling) and under spraying (single-sided cooling), simulating cooling conditions in service, followed by annealing at 600°C for 1 hour. Tests were also conducted on pipes 1020 mm in diameter with an 11 mm wall thickness. The experiment procedure and equipment are described and the variation of mechanical and physical properties across the sheet thickness is shown. The structure obtained after tempering with single- and double-sided cooling

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USSR

POZDNYAKOV, L. G., et al, Metallurgicheskaya i Gornorudnaya Promyshlennost',
No 5, Sep-Oct 70, pp 38-40

was found to be the same. The authors recommend single-sided cooling, which
appears to be more suitable for tempering large-diameter pipes, with wall
thickness up to 12 mm made of low-carbon 14KhGS and 17GS steels.

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USSR

UDC 621.317.725

TUZ, YU. M., TSIDELKO, V. D., NIKIFOROVA, G. A., SERPILIN, K. L., GAPCHENKO, L.M.,
and SIMITSKIY, O. P.

"A Digital Phase-Sensitive Voltmeter"

V sb. Tsifr. vychisl. mashiny (Digital Computing Machinery--collection of works),
Kiev, 1972, pp 109 - 113 (from RZh Avtomatika Telemekhanika i Vychislitel'naya
Tekhnika, No 11, Nov 73, abstract No 11 A369)

Translation: The article contains a description of a digital phase-sensitive voltmeter in which signals are converted in a single-channel circuit. A block diagram of the instrument and a description of its operation are given. The advantages of a phase rotator based on a single-channel circuit are noted. A logometric voltage-frequency converter is used in the instrument to reduce errors due to the effect of the base voltage. The technical characteristics of a model of the digital phase-sensitive voltmeter made at the Department of Measurement Technology of Kiev Polytechnical Institute are given. One illustration, seven bibliographic citations.

Abstract by O.M.

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USSR

UDC 621.314.61(088.8)

GAPCHENKO, L. M., TUZ, Yu. M., SERPILIN, K. L., and GUBAR', V. I. [Kiyev. ~~Politekh.~~ in-t -- Kiev Polytechnical Institute]

"Device for Conversion of A-C Voltage into D-C"

USSR Author's Certificate No 269295, filed 25 Nov 68, published 16 July 70 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B462P)

Translation: A device is patented for conversion of a-c voltage into d-c. The device contains a wide-band a-c amplifier, a precision attenuator, a commutator, a detector, an error signal amplifier, a synchronous commutator, and a control voltage generator. With the object of increasing the speed of response and decreasing the frequency of error, the device is provided with a supplementary detector, a supplementary wide-band amplifier, and two memory devices, during which the output of the additional detector is connected opposite to the output of the principal detector, the output of the memory devices is connected to the input of the control circuit of the principal and supplementary amplifiers, and the input of the memory 15 devices is connected to the output terminals of the synchronous commutator.
1 ill.
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USSR

UDC 621.643.411.4.001.5

SHOSTAK, I. A. and GAPCHENKO, M. N., Kiev Polytechnical Institute;
SLUCHANKO, N. A. and ABERKOV, A. S., Soyuzmontazhgas [expansion unknown] Trust

"Welding Repeated Butt Joints in Thick-Wall Pipe With a Strip Electrode"

Moscow, Stroitel'stvo Truboprovodov, No 4, Apr 73, pp 21-23

Abstract: Experiments were conducted at the industrial base of the Soyuzmontazhgas Trust on making butt welds of thick-wall pipe using a strip electrode. Annular welds were made on pipe measuring 426 x 30 mm and 1020 x 17 mm. Cold-rolled strip made from killed steel 08kp measuring 0.8 mm thick and 15 mm wide. Fluxes AN-348A and KVS-19 were used. The weld seams were subjected to mechanical testing after welding with the results compared with mechanical tests of seams of steel 15G2S, welded under ceramic fluxes. Weld seams made using flux KVS-19 had better tensile, yield and impact (+20 C) strengths than those welded using flux AN-348A while impact strengths at -40 C were equal. However, the mechanical properties of seams welded from steel 08kp under either flux were better than weld seams of steel 15G2S pipe.

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USSR

UDC: 51

GAPFER, Yu.

"Solution of a Model for Staffing a Production System"

Tr. vychisl. tsentra. Tartus. un-t (Works of the Computing Center. Tartu University), 1971, vyp. 23, pp 3-17 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V471)

[No abstract]

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USSR

UDC 621.375.4:621.375.132

GAPLICHUK, L.S.

"Measurement Of Characteristics of $\mu\beta$ Loop Of Transistor Amplifiers"

Elektrosvyaz', No 2, 1972, pp 74-80

Abstract: On the basis of the general theory of straightway quadrupoles, direct and indirect methods of measuring the characteristics of a $\mu\beta$ loop are systematized. The methods are classified by characteristic indications, reflecting specific measurements and the degree of their complexity. With respect to the direct method, formulas are obtained for calculation of an iterative impedance, which differ from the familiar by their great simplicity. Approximate relations make it possible to synthesize an iterative impedance on the basis of noncomplicated measurements which are convenient for engineering practice. With respect to indirect methods, a formula and its simplified variation are obtained which make it possible to determine the characteristics of a $\mu\beta$ loop by a measurement of auxiliary transfer characteristics; during this auxiliary resistances are not required. The necessary calculations for composition of a machine program are formalized. 7 fig. 1 tab. 9 ref. Received, 12 July 71.

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USSR

UDC 621.385.6

GAPLEVSKIY, V. V., KONTOROVICH, V. M.

"Application of Symmetry Theory to the Study of Degenerate Mode Splitting in Magnetron Resonators"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XIV, No 12, 1971, pp 1906-1917

Abstract: A study was made of the splitting of degenerate natural frequencies and the azimuthal structure of the high frequency field of a magnetron resonator system formed by a chain of N resonators formed into a ring as a function of the properties of symmetry of the disturbance introduced by local inhomogeneities and the electron flux. The analysis is performed on the basis of group theory [L. D. Landau, et al., Kvantovaya mekhanika, Fizmatgiz Press, Moscow, 1963; D. M. Kerns, J. Res. Natn. Bur. Stand., No 46, 267, 1951], which permits it to be performed in a sufficiently general form.

In the general case, the field structure is represented by superposition of the standing and traveling waves, the relative amplitudes of which are determined by the matrix elements of the disturbance operator.

The symmetry properties of the magnetron resonator system, removal of degeneration by disturbances of defined symmetry, the matrix elements of the

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USSR

GAPLEVSKIY, V. V., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XIV, No 12, 1971, pp 1906-1917

disturbance in the presence of symmetry, splitting of the frequencies and the field structure for different disturbances of the system, and the specific form of the disturbance operator are considered. In the presence of a rotating electron flux, when the symmetry with respect to time reversal is disturbed, the natural oscillations are described by wave traveling in opposite directions. Under the simultaneous effect of these disturbances, the structure of the high frequency field is a superposition of the traveling and standing wave, which must be considered when determining the magnitude of the coupling of the resonator system to the magnetron load at each of the two split frequencies.

2/2

- 111 -

USSR

UDC: 621.372.01

GAPLINCHUK, I. S.

"Application of the Method of Subcircuits to Topological Calculations of Amplifiers"

Sb. nauchn. tr. Kiyev. fil. TsNII svyazi (Collected Scientific Works of the Kiev Affiliate of the Central Scientific Research Institute of Communications), 1970, vyp. 6, pp 117-124 (from RZh-Radiotekhnika, May 71, No 5, Abstract No 5A45)

Translation: Formulas are derived and rules are worked out which are used as a basis for supplementing the conventional algorithm of calculating unistor graphs to simplify complex calculations. The simplification is based on using the method of subcircuits. Resumé.

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USSR

UDC 616-022.32-022.16

OGARKOV, V. I., and GAPCHKO, K. G., Military Medical Academy imeni Kirov, Leningrad

"Retention and Primary Distribution of Microbial Aerosols in an Organism"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 43-46

Abstract: Studies have shown that the effectiveness with which microbial aerosols enter human and animal organisms depends on the size, weight, concentration, and charge of the particles, as well as the rate and depth of respiration. In general, particles greater than 25-50 μ enter as far as the nasopharynx, those that are 25-50 μ in size enter the trachea, those between 10 and 25 μ reach the bronchi, those in the 3-10 μ range reach the bronchioles, and those that are 1-3 μ in diameter may find their way into the alveoli. The aerosols come in contact with the body and enter it through the conjunctiva, the respiratory tree, and the gastrointestinal tract. Although about 100% of the particles in the 1-2 μ range enter the bronchioles and the alveoli, only 40-50% are retained; the rest are exhaled. Studies with ^{32}P labeled brucella aerosols have shown that considerable species differences exist in the facility with which aerosols enter the lungs

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USSR

OGARKOV, V. I., and GAPOCHKO, K. G., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 43-46

(about 5% in guinea pigs and more than 20% in rhesus monkeys). Other studies have also shown that dry aerosols are less efficient than liquid monodisperse aerosols in entering the lower reaches of the respiratory tree. In addition, studies in sheep with live and killed Brucella vaccine aerosols have shown that more live than killed organisms reach the lungs, but that inactivation of the live organisms is greater in the upper part of the respiratory tract than in the lungs.

2/2

- 27 -

USSR

UDC 616.981.452-034.47

19

AGAFONOV, V. I., BABKIN, Ye. I., VDOVIN, D. G., VOROBYCHIKOV, V. M.,
VOROB'YEV, A. A., GAMLESHKO, Kh. P., GAPCHIKO, K. G., GEFEN, N. Ye., YEVSTIGNEYEV,
V. I., YENEL'YANOVA, O. V., ZEMSKOV, Ye. M., IMAMALIYEV, O. G., KAMALOV, I. I.,
KVIRIKADZE, V. V., KUTYREV, P. A., MISNIKOV, O. P., PUSHKAREV, V. P., and
ROZDESTVENSKIY, D. A., Military Medical Academy imeni S. M. Kirov, Leningrad

"A Comparative Efficiency Characteristic of Different Immunization Methods
Against Plague Infection"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972,
pp 106-112

Abstract: Analysis of the available literature data led to the conclusion
that oral, aerogenic, and jet immunization methods are the most efficient
compared with subcutaneous and skin methods. The average number of patients
inoculated against plague infection was 517, 817 (419), and 937 per hr for jet
injectors, aerogenic method liquid and dry vaccine, and oral method (tablets),
respectively, compared with only 43 and 28 for the subcutaneous and skin
methods, respectively.

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Epidemiology

USSR

UDC 614.14-523.8:616.921.5

GAPOCHKO, K. G., Doctor of Medical Sciences, Col Med Serv, and CHEPKOV, V. N.,
Candidate of Medical Sciences, Maj Med Serv

"The Use of a Simple Mathematical Model for Analysis and Prediction of Influenza Epidemics"

Moscow, Voenno-Meditsinskiy Zhurnal, No 3, 1970, pp 59-64

Abstract: A method is described for mathematical analysis and prediction of influenza epidemics. The autocatalysis and determinacy character of the chain process of transmission of influenza permits the use of some autocatalysis equations used in chemistry. The process of influenza spread on a city-wide scale may be expressed by the N. N. Semenov equation for chain processes occurring in autocatalytic systems:

$$E = \frac{100}{1 + e^{-k(t-\theta)}}$$

where E -- is the percent of material reacted in time (t); k -- is the constant of the given process, θ -- is the half conversion period, i.e., the time during 1/4

USSR

GAPOCHKO, K. G., and CHEPKOV, V. N., *Voyenno-Meditsinskiy Zhurnal*, No 3, 1970, pp 59-64

which 50 percent of the whole substance reacts; and e -- is the base of natural logarithms. This equation was successfully used for quantitative prediction of the course of the combined epidemic of influenza A₂ and B.

This equation was also used to analyze the development of the actual incidence of influenza in organized collectives of limited size, whose members were in constant personal contact. For mathematical analysis of each outbreak, cumulative statistical data of the daily incidence were used. Since the collective possessed different susceptibilities, an additional parameter was introduced into the equation -- the coefficient of infectiousness of the outbreak -- (i), which was determined from the ratio of the incidence during the entire outbreak (I) to the total number of people in the collective (N), and characterized the mean probability of sickness of each member of the collective under the given conditions. This resulted in the following equation:

$$I_t = \frac{N \cdot i}{1 + e^{-k(t-\theta)}}$$

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GAPOCHKO, K. G., and CHEPKOV, V. N., Voenno-Meditsinskiy Zhurnal, No 3, 1970, pp 59-64

where I_t -- is the number of sick by a definite time (t); N -- is the total number in the collective threatened by infection; i -- is the coefficient of infectiousness of the outbreak; k -- is the rate constant of development of the outbreak; t -- is the time of development of the outbreak in days; θ -- is the period (in days) in the course of which 50 percent of the susceptible people become sick; and e -- is the base of natural logarithms. If the number of persons in the collective (N) is to be expressed in percentages, then the equation can be written:

$$I_t = \left(\frac{100 \cdot i}{1 + e^{-k(t-\theta)}} \right) \%$$

which permits the direct use of extensive statistical indices in calculations.

These equations can completely express the dynamics of influenza spread in organized, isolated, and semi-isolated collectives of 30-2000 people in close personal contact with the source of infection, and can serve as an approximate mathematical model of an influenza outbreak. With the help of the mathematical

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GAPOCHKO, K. G., and CHEPKOV, V. N., Voenno-Meditsinskiy Zhurnal, No 3, 1970, pp 59-64

model, the average dynamics of secondary occurrence of influenza for certain types of epidemic situations can be determined and quantitatively characterized. The nomogram formed on the basis of the obtained mean quantitative parameters of the epidemic process can be used for a rough prediction of the start of influenza outbreaks in collectives of limited size where close personal contact exists.

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1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE USE OF A SIMPLE MATHEMATICAL MODEL FOR THE ANALYSIS AND
FORECASTING OF EPIDEMIC FLARES OF INFLUENZA -U-
AUTHOR--(02)-GAPOCHKO, K.G., CHEPKOV, V.N.
COUNTRY OF INFO--USSR
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PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY NOW FAIRLY EXTENSIVE MATERIAL HAS BEEN ACCUMULATED ON THE INFLUENCE OF VARIOUS FACTORS ON THE DEVELOPMENT OF EPIDEMIC PROCESSES. HOWEVER, THE PROBLEM OF FORECASTING FLARES AND EPIDEMICS STILL IS FAR FROM SOLVED. QUANTITATIVE CRITERIA CHARACTERIZING THE ABILITY OF INFECTIONS FOR EPIDEMIC SPREAD ARE ESPECIALLY WEAKLY REPRESENTED IN THE LITERATURE. IN ADDITION, THE CONTAGIOUSNESS INDEXES ACCEPTED AT THE PRESENT TIME IN EPIDEMIOLOGY FOR VARIOUS INFECTIONS ARE STATED AS STABLE VALUES WITHOUT CONSIDERATION OF CONCRETE CONDITIONS OF INFECTION AND ADEQUATE STATISTICAL SUBSTANTIATION. NEVERTHELESS THOSE INDEXES ARE USED FOR APPROXIMATE FORECASTING CALCULATIONS OF INFECTIOUS MORBIDITY AND, NATURALLY, GIVE UNSATISFACTORY RESULTS. IT WAS PRECISELY THAT FACT WHICH SERVED AS ONE OF THE MAIN REASONS FOR A SKEPTICAL ATTITUDE TOWARD ATTEMPTS TO EXPRESS AN EPIDEMIC PROCESS BY MATHEMATICAL MEANS.

UNCLASSIFIED

USSR

UDC 621.371.332

BORODAVKO, Yu. N., TOLSTOV, V. V., KAYNARA, V. N., and GAPONOV,
A. P.

"Investigating the Structure of Radio Signals Reflected from the
Ionosphere on the Basis of an Analysis of the Statistical Para-
meters for Their Orthogonal Components"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 1--collection of works) "Nauka,"
1972, pp 321-325 (from RZh--Radiotekhnika, No 10, 1972, Abstract
No 10A329)

Translation: On the basis of a detailed analysis of the character-
istics of a mathematical model represented by a vector with nor-
mally correlated orthogonal components, a method is proposed for
investigating the structure of radio signals reflected from the
ionosphere, based on the measurement of the statistical parameters
of their normal coordinates. Bibliography of four. A. I.

1/1

Aluminum and Its Alloys

USSR

UDC 669.71:548.53:534.2

BALALAYEV, Yu. F., GAPONOV, M. A., and SEMICHEV, A. N., Voronezh Polytechnical Institute

"Recrystallization and Change in Texture of Aluminum Under the Influence of Ultrasound"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1091-1093

Abstract: The specifics of the recovery, recrystallization, and texture changes in peened aluminum exposed to high plastic deformation energy density and strong thermal effects by ultrasound were studied roentgenographically. Ultrasound causes a removal of strain hardening, which may occur in several ways with various degrees of completeness, as during recrystallization. The conditions of the processes occurring during ultrasonic treatment and ordinary recrystallization differ. Ultrasound causes simultaneous deformation and annealing, whereas in recrystallization these processes occur at different times. However, this does not change the nature of the effect itself, merely its conditions and kinetics.

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103145a Microplastic deformation of iron and nickel under the influence of ultrasound. ~~Balalaev Yu. F.; Gaponov M. A.; Postnikov V. S. (USSR). Fis. Khim. Obrab. Mater. 1970, (1), 108-13 (Russ).~~ The microplastic deformation in Fe and Ni has been examd. as produced by ultrasound at the initial, quasi-stationary, and self-accelerating (avalanche) stages. Data are presented on the internal grain slip, grain boundary dislocation, boundary migration, and the formation of the sub-structure and new grains in these metals at a frequency of ~23 kHz and heating at 20-1000°.

V. Machacek

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