

USSR

UDC 533.99

BAYKOV, A. P., BELAGO, V. A., ISKOL'DSKIY, A. M., GERASIMOV, L. S.,
and NESTERIKHIN, Yu. Ye.

"Investigation of the Electrical Explosion of Foils"

Novosibirsk, Fizika gorenija i vzryva, No 2, 1973, pp 286-291

Abstract: For certain applications of the electrical explosion of metal foils, it is advisable to investigate the conditions for uniformity of such explosions -- a topic which, in the authors' opinion, has not been given sufficient attention. The purpose of this paper, therefore, is to make that investigation and to look into the possibility of using the foil as a distributed detonator. An earlier paper by the first-named of the authors above (ZhTF, 1973, vol 43, 1) showed that for wires with $d \geq 10^{-3}$ cm, the explosion is uniform for initial current densities $j \geq 10^6$ A/cm. Thus, in the experiments of the present paper, the parameters of the IC circuit setting off the explosion were chosen for a current density of 10^7 - 10^8 A/cm². The subject was aluminum foil, 10^{-2} cm thick, 15 cm long, and 2-4 cm wide, exploded in air. The circuit for the experiment is shown, involving oscillographical, optical, and x-ray observation methods. The authors thank A. A. Deribas and A. N. Drem'in for their useful comments.

1/1

USSR

UDC: 621.373+621.397.331.222+621.386.2/7

BAYKOV, A. P., BELAGO, V. A., BUDARNYKH, V. I., DOTSENKO, V. I.,
KURASHOV, E. M., LYUBIN, V. M., NALIVAYKO, V. I., FEDOROVA, Ye. I.,
TSUKERMAN, V. G., and SHESTAK, A. F.

"Methods of Recording X-Ray Images in a Science Research Automation
System"

Novosibirsk, Avtometriya, No 6, 1971, pp 67-80

Abstract: A description is given of a complex of pulsed x-ray sources with memory elements for recording fast processes, along with highly sensitive systems for visualizing two-dimensional x-ray images of threshold intensity. The radiation required has a duration of 10^{-8} to 10^{-7} sec with a hardness of several hundred kev. For the recording equipment, photographic film and television systems were used, in which the memory cells were the semi-conducting targets of sensor tubes. In such a system, the image is impressed directly on the target of the x-ray vidicon with a controllable memory, or is fixed by re-recording the video signal on a vidicon with optical memory, thus allowing connection of the recording equipment to the input of an electronic computer. The purpose of a complex of this type is to gather scientific data as part of a system for automation of the research procedure. Descriptions of the equipment are given, together with photographs
1/2

- 175 -

USSR

UDC: 621.373+621.397.331.222+621.386.2/7

BAYKOV, A. P., et al, Avtometriya, No 6, 1971, pp 67-80

of the x-ray and recording equipment as well as sample oscillograms of various equipment items. The authors express their gratitude to Yu. Ye. Nesterikhin and A. M. Iskol'dskiy for their delincation of the problem and their supervision of the work. For his assistance with the experiments made using this equipment, the authors thank E. V. Yanshin.

2/2

USSR

UDC 614.72:547.264

BAYKOV, B. K., GUSEV, M. I., NOVIKOV, Yu. V., and YUDINA, T. V., Moscow
Scientific Research Institute of Hygiene imeni F. F. Erisman, Moscow

"The Biological Action of Butyl Alcohol as an Atmospheric Pollutant"

Moscow, Gigiyena i Sanitariya, No 2, Feb 73, pp 13-17

Abstract: In a study carried out on female rats, the effects of BuOH present in concentrations of 0.1, 1.0, and 20 mg/m³ in the air were investigated. The air containing BuOH was passed for 92 days at a rate of 30 l./min through chambers into which the animals had been placed. The general condition and weight of the animals, their fertility, the latent period of the defense reflex reaction, the level of nucleic acids in the blood, the porphyrin metabolism, the activity of enzymes (oxidase, catalase, and diastase) in the blood, the utilization of O₂, and the permeability of the histoemetic barriers of organs were subjected to study in the course of the experiment. The results showed that BuOH in the concentration of 20 mg/m³ produced pathological changes in the values of the indexes measured and therefore was toxic, whereas exposure of the animals to this substance in the two lower concentrations did not produce conditions or reactions that differed significantly from those shown by controls. Among the effects produced
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USSR

BAYKOV, B. K., et al., *Gigiyena i Sanitariya*, No 2, Feb 73, pp 13-17

by BuOH in the toxic concentration were a lowering of fertility, wave-like changes in the latent time of the defense reflex reaction, a reduction of the content of catalase in the blood, an increase in the diastase activity, and a reduction in the utilization of O₂. There was no decrease in the weight of the animals vs. controls as a result of exposure to BuOH.

2/2

- 67 -

USSR

UDC: [621.436:656].001.8

BAYKOV, B. P., SOKOLOV, V. S., SAMSONOV, Ye. P., KOSYAK, A. F.,
and BORDUKOV, V. T.

"Promising Developments in Trunk Diesels for Railroad, Marine,
and Heavy Truck Transportation"

Moscow, Izvestiya Akademii Nauk SSSR--Energetika i Transport, No.
4, 1971, pp 93-98

Abstract: In this qualitative analysis of improvements that could be made in diesels for transport, the authors point out that technical progress in this area requires improvement in aggregate power, economy, and reliability, with limited indices of weight and dimensions. The cylindrical power of diesels for a specified rpm is determined by the average effective pressure, the velocity of the piston, and the diameter of the cylinder. The need for improving the aggregate power has recently resulted in the appearance of V-shaped multicylinder models. For increased rpm, above 1500, a large number of V-shaped diesels of 6, 8, and 12 cylinders have been developed. The TsNIDI (Central Scientific Research Diesel

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UDC: [621.436:656].001.8

BAYKOV, B. P., et al, Izvestiya Akademii Nauk SSSR--Energetika i Transport, No. 4, 1971, pp 93-98

Institute) as well as several other organizations have conducted research in improving the pickup and adaptability of diesels, and work on the experimental 6ChN 15/18 engine with controllable turbo-compression has yielded a torque reserve of more than 1.8. At the present time, an urgent need has arisen for the manufacture of new trunk diesels with an aggregate power of up to 2500 effective horse power at 2000-2200 rpm for truck transportation, with an aggregate power of up to 8000 ehp at 1500 rpm for locomotive engines, and with an aggregate power of up to 25,000 to 30,000 ehp at 420-450 rpm for shipbuilding. This should be achieved in the next five-year plan, 1971-1975, for diesels. The diagram of projected diesel parameter values for the period of 1975-1980 is plotted.

2/2

- 165 -

Acc. Nr:

AP0046156

Abstracting Service:

INTERNAT. AEROSPACE ABST 5-70

Ref. Code:

UR0057

A70-25125 # Hydrodynamic theory of the stability of a laminar flow of a dense plasma (Gidrodinamicheskaja teorija ustoi-chivosti sloistogo potoka plotnoi plazmy). I. S. Balkov, *Zhurnal Tekhnicheskoi Fiziki*, vol. 40, Feb. 1970, p. 431-440. 9 reprints. In Russian.

Application of the model of two-fluid hydrodynamics to a stability analysis of the flow of a dense inhomogeneous plasma, at a flow rate varying across the plasma, along a strong magnetic field. A dispersion relation for the spectrum of small potential oscillations of the plasma flow is derived in geometrical optics approximation. It is shown that in the presence of phase resonance between the flow rate and the acoustic (or drift) waves in a dense high-collision plasma, low-frequency plasma instabilities can be induced in the plasma by the velocity gradient of the flow. The increments of these instabilities can be appreciably higher than the plasma drift frequencies. The influence of finite heat conductivity and viscosity of the plasma on the development of these oscillations is examined. V.P.

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UDC: 533.951.8

BAYKOV, I. S. and SILIN, V. P., P. N. Lebedev Physics Institute,
Moscow

"Parametric Instability in a Nonuniform Plasma With Hot Ions"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 1, 1973, pp 3-13

Abstract: The present paper is the follow-up of an earlier paper by the second of the authors named above, in which it was found that the anomalous absorption of monochromatic electromagnetic waves in a plasma is connected with the plasma's development of parametric instabilities when the amplitude of the variable electric field of the pumping wave exceeds the threshold value (ZhETF, 48, 1965, p 1679). The authors of the present paper consider a nonuniform plasma in which the ion temperature is much higher than the electron temperature, a situation likely to occur in the interaction of a neutral bunching of the plasma with an external high-frequency field. The cases of aperiodic and periodic plasma instabilities are theoretically investigated. It is found that with plasmas in which the ion temperature exceeds the electron temperature the threshold for the parametric excitation of ion-acoustical waves exceeds the $1/2$

USSR

UDC: 533.951.8

BAYKOV, I. S., et al, Zhurnal Tekhnicheskoy Fiziki, No 1, 1975,
pp 3-13

threshold for the excitation of purely aperiodic instabilities,
under a condition specified in the article.

2/2

- 51 -

USSR

UDC: 621.327.4

Andreyev, S. I., Candidate of Technical Sciences, Baykov, O. G., Dashyk, P. N.,
Candidate of Technical Sciences, Zobov, Ye. A., and Sinitsyn, N. V.

"A Gigawatt Xenon Flash Lamp"

Optiko-Mekhanicheskaya Promyshlennost', No 5, 1972, pp 19-21.

Abstract: This work presents the results of testing of a flash lamp with an internal quartz tube diameter of 60 mm, wall thickness 3 mm, distance between electrodes 900 mm, filled with xenon to the pressure of 20 mm/Hg. The energy of the lamp is 10^5 j, current transmission time is 10^{-4} sec. A temperature of 2000°K is reached; the radiation spectrum is continuous. Data are presented on the distribution of radiation energy through the spectrum. The discharge is performed under conditions such that the magnetic pressure on the plasma column at the current maximum is near the gas kinetic pressure.

1/1

- 69 -

USSR

ANDREYEV, S. I.; BAYKOV, O. G.; DASHUK, P. N. (Leningrad)

"Energy Loss from an Optically Thin Layer of a Xenon Plasma"

Moscow, Teplofizika Vysokikh Temperatur; September-October, 1970; pp 929-33

ABSTRACT: In an experiment the authors determined the power of the losses from a thin annular layer of a xenon plasma heated by a pulse induction discharge in the 12,000-42,000°K temperature range under pressures of 3-20 atmospheres. The power of the losses for one heavy particle is a single-valued function of the temperature and under the conditions of this experiment is related to the radiation. A method was suggested for determining the temperature of the plasma according to data on the electrical power measured at the instant of the maximum temperature of the plasma.

The article includes 6 equations, 3 figures, and 1 table. There are 21 bibliographic references.

1/1

BA YKOV, V. D.

Microelectronics

Excerpt from Russian-language book edited by F. V. Lukin; Mikroelektronika, No. 5, 1972, Sovetskoye Radio Publishing House, Moscow, UDC 621.382:621.396:6-181.5.

MICROELECTRONICS

JPRS 57333
25 October 1972

CONTENTS

	Page
Annotation.....	1
Obituary of Fedor Viktorovich Lukin.....	2
Foreword.....	3
Abstracts.....	5

- a -

[2 - USSR - F]

UDC 62-523.8.535.8:601.2

Computable Functional Devices of "Scanistor" Type in Systems for the Optoelectronic Processing of Information. Iur'kovskaya, K.F. and Podlankin, N.G. In the Collection Mikroelektronika, edited by F.V. Iudin, No. 5, p. 46, Sovetskoye Radio Publishing House, 1972.

At the present time the most promising class of optoelectronic devices apparently is the class of multichannel matrix optons, in which optical and electrical contacts are used not only inside the unit cells "irradiator-photoreceiver" but also inside the irradiating and photoreceiver matrices. The replacement of "pictures", synthesized on the irradiating matrix in the form of irradiating configurations and on the photoreceiver matrix in the form of configurations of photosensitive elements permits the processing of information simultaneously along numerous channels and to a theoretical increase in speed of response of the computers.

As the semiconductor structure, convenient for synthesis of the above "pictures" both on the irradiating and on the photoreceiver matrices or panels with distributed parameters, the article suggests a scanistor.

Assuming the final optical converter in the form of a sequence of shaped electrical impulses permits elimination of one of the most substantial disadvantages in analog computers, i.e., their low accuracy. The accuracy of conversion on the scanistor is determined by the number of unit optons in the computable matrices.

Examples are given for carrying out the operations of addition, division, expansion into a series, raising to a power, and filtration on models of discrete scanistors.

The theoretical possibilities of such devices are evaluated.

The article contains 7 figures and 29 bibliographic references.

UDC 621.382.32

Influence of Radiation Emission on the Components of HDI Integrated Circuits. Kerzhakovskiy, A.N., Garsan, A.S., and Baykov, V.D. In the Collection Mikroelektronika, edited by F.V. Iudin, No. 5, p. 66, Sovetskoye Radio Publishing House, 1972.

This article examines the basic physical effects rendered in HDP transistors during irradiation. The influence of these effects are described on the degradation of the parameters of the HDP transistors. Formulas are given for computation of the voltage characteristics during irradiation. The radiational resistance of the integrated circuits on bipolar and HDP transistors is discussed.

The article contains 5 figures, 1 table, and 15 bibliographic references.

UDC 621.396.6-101.5
691.178.12-518.5

A Method of Computing Major Integrated Circuits on HDP Transistors with Supplimentary Types of Conductivity. Belik, V.V. and Gindely, E.L. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 79, Sovetskoye Radio Publishing House, 1972.

The article concerns the computation and optimization of major integrated circuits on supplementing HDP transistors. Optimization criteria for major integrated circuits are suggested.

It is shown that the problem of computing major integrated circuits can be reduced to determining the minimum of the linear function of regulable (determined) parameters of the major integrated circuit in the region of the detour, whose boundaries are nonlinear and have a statistical scatter. The algorithms developed for solving this problem by computation on a computer are cited.

The article contains 11 figures and 11 bibliographic references.

UDC 621.387.8

The Influence of Geometric Dimensions of Active Components on Speed of Response of Micropower Transistor-Transistor Logic of Integrated Circuits. Rajiykov, Yuliy Gennadiyevich and Lubashevskiy, A.V. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 98, Sovetskoye Radio Publishing House, 1972.

On the basis of experimental data and from the geometric dimensions of transistor structures a computation is given of the capacitances per unit of area of the end and side surfaces of these transistor contacts. It is shown that the speed of response of the micropower TTL of the integrated circuits to a significant degree is determined by

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--USE OF AN EMANATION METHOD FOR EVALUATING THE REACTIVITY OF FERRIC
OXIDE WITH VARIOUS CHEMICAL AND THERMAL HISTORIES -U-
AUTHOR-(03)-BALEK, V., BAYKOV, S.D., ZABORENKO, K.B.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 156-63

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IRON OXIDE, THERMAL EFFECT, THORIUM, RADIOACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0118

STEP NO--UR/0186/70/012/001/0156/0163

CIRC ACCESSION NO--AP0132411

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2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132411

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTIVITY OF ALPHA FE SUB2 O SUB3 (PREPD. BY VARIOUS METHODS) IN MIXTS. WITH ZNO WAS STUDIED BY INCORPORATING RADIOACTIVE TH IN THE ZNO AND MEASURING THE EMANATION OF RN DURING THE HEATING OF THE ZNO FE SUB2 O SUB3 MIXTS. IN ALL CASES THE REACTIVITY (AT 700-850DEGREES) DEPENDEND ON THE NATURE OF THE SALT FROM WHICH THE OXIDE WAS PREPD. BY THERMAL DECOMP. IN THE CASE OF SALTS DECOMP. AT 700DEGREES THE REACTIVITY WAS THE HIGHEST WEHN THE OXIDE WAS PREPD. FROM FERRIC SULFATE (I) AND DECREASED IN THE TRANSITION FROM I TO MOHR'S SALT (II) TO BASIC CARBONATE (III) TO OXALATE (IV); PROLONGED HEATING AT 700DEGREES REDUCED THE REACTIVITY OF THE FE SUB2 O SUB3. IN THE CASE OF SALTS DECOMP. AT 900DEGREES THE REACTIVITY WAS THE HIGHEST IN THE CASE OF FE SUB2 O SUB3 PREPD. FROM II AND THE LOWEST FOR FE SUB2 O SUB3 PREPD. FROM III, WHILE IN THE CASE OF SALTS DECOMP. AT 1100DEGREES THE REACTIVITY DECREASED IN THE TRANSITION FROM II THROUGH IV AND I TO III. THE METHOD MAY BE USED SUCCESSFULLY FOR DETG. THE REACTIVITY OF COM. GRADES OF FE SUB2 O SUB3.

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ACC. NO.

AP0055594

Abstracting Service:
CHEMICAL ABST.

Ref. Code

570

4R 0411

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107140j Effect of lipids on the content of sulfhydryl groups and disulfide bonds in gluten. Balkov, V. G.; Nechaev, A. P.; Puchkova, L. I.; Terent'eva, G. N. (Moscow Technol. Inst. Food Ind., Moscow, USSR). *Prikl. Biokhim. Mikrobiol.* 1970, 6(1), 32-6 (Russ). The addn. to gluten of capronic, caprinic, myristic, stearic, oleic, linoleic, and linolenic acids and of their esters resulted in a decrease of the amt. of SH groups and SS bonds, as detd. by amperometric titrn. in the presence or absence of 7M urea. Possible mechanisms of changes in the rheological properties of gluten treated with fatty acids are discussed.

Lola Brodfeld

EO

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USSR

UDC 532.526

SHUL'MAN, Z. P., BAYKOV, V. I., Institute of Heat- and Mass Exchange, Academy of Sciences, Belorussian SSR

"Derivation of the Boundary Layer Equations of a Nonlinearly Viscoplastic Medium"

Minsk, Inzvestiya Akademii Nauk BSSR, Seriya Fiziko-Energeticheskikh Nauk, No 1, 1971, pp 86-95

Abstract: For a nonlinearly viscoplastic medium, described by the rheologic model

$$\tau \frac{1}{n} = \tau_0 \frac{1}{n} + (\mu_p \dot{\gamma})^{\frac{1}{m}}$$

which is a further generalization of the Schwedoff-Bingham formula, the equations of motion are written down in a generalized orthogonal system of coordinates, and the boundary-layer equations are derived for a system of coordinates which is linked to the surface under investigation. The derivation proceeds as follows. If the Lamé coefficients are known, the equations of motion in any orthogonal system of coordinates can be obtained. The equation of the boundary layer of fluid, subject to the relationship of the viscous - stress tensor, is found under the assumption of the absence of mass forces, viscous dissipation, and with assumed constancy of all the material characteristics of the medium. One figure, 7 bibliographic entries. 1/1

USSR

UDC 532.526

BAYKOV, V. I., Institute of Heat and Mass Exchange, Academy of Sciences,
~~Belorussian SSR~~

"Some Solutions of the Boundary-Layer Equations in a Nonlinearly Viscoplastic Fluid"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Energeticheskikh Nauk, No 1,
1971, pp 96-103

Abstract: Problems of the pulse reduction to a state of uniform motion, of a semi-infinite plate and the steady flow about a semi-infinite cylinder by a nonlinearly viscoplastic fluid, moving parallel to the axis of the cylinder, are solved by the integral method in an approximation of the boundary layer. Three bibliographic entries.

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Acc. Nr:

AP0054379

Abstracting Service:

CHEMICAL ABST. 6-70

Ref. Code:

UR0365

114579n Glass-nichrome coatings on low-carbon and low-alloy steels. Kayalova, S. S.; Appen, A. A.; Balkova, G. V. (Inst. Khim. Silikat. im. Grebenshchikova, Leningrad, USSR). *Zashch. Metal.* 1970, 6(1), 31-6 (Russ). As the starting materials powders of silicate glasses of various compns., were used which were passed through a sieve of 1600 holes/cm², as well as fine-dispersed metal powders with a grain size of not more than 40 μ. The coatings were applied to steel samples of steels 3, 10, 20, and 12Kh1MF by the enameling method, whereupon they were fired in an inert atm. The formation of coatings contg. various glass binders and fillers (such as, Ni, Cr, nichrome, Fe, Al, and Si) was studied. Glass-metallic coatings A-1 and A-2 were obtained which are characterized by a very much greater impact strength than conventional silicate enamels, which have a high wear resistance, which are thermally stable, as well as stable in boiling water and in a 4% NaCl soln. The coating A-2 is to be considered as being more effective; it has a wide firing range (1150-1270°) and increased chem. stability. Adding Mn and Fe oxides into the compn. of the silicate melts improves their wettability as compared to steel and nichrome, and makes it possible to prep. relatively stable suspensions of

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nichrome powders in the melt. The appearance of new max. on the ionization x-ray diffraction pattern, as taken from coating A-2, indicates the presence of chem. interaction between melt No. 2 and nichrome. Coating A-2 can be recommended for tubes and parts of the app. used in petroleum, shipbuilding, and the heat and power engineering industry. S. A. Mersol

510

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ELECTRICAL ENGINEERING
Cryogenics & Superconductivity

USSR

UDC 621.313.2:537.312.62.003

BAYLOVA, L. I., BORZOV, G. G.

"Efficiency of DC Electric Motors Using Superconductors"

V sb. Vopr. primeneniya sverkh nizh. temperatur v elektrotekhn. (Problems of Using Superlow Temperatures in Electrical Engineering -- collection of works), Leningrad, Nauka, 1971, pp 25-32 (from RZh-Elektrotekhnika i energetika, No 4, Apr 72, Abstract No 4116)

Translation: The power range in which DC electric motors with cryogenic cooling are more efficient than motors of ordinary execution is defined. Unipolar and collector electric motors with cryogenic cooling are compared. It is demonstrated that beginning with a power of 60 kilowatts, the efficiency of the collector electric motor with cryogenic cooling is higher than that of the motor of ordinary execution. For motors of limiting power, this difference reaches 3%. The specific weight can be five times lower in this case. Unipolar electric motors with cryogenic cooling are more efficient than collector motors: their efficiency is 2% higher, and their specific volume is half as much throughout the entire investigated power range. There are 5 illustrations and a 9-entry bibliography.

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USSR

UDC 669.295.472

GOPIYENKO, V. G., PAVLOVA, L. A., ~~BYMAKOV, Yu. V.~~, ZHAYLO, V. A.

"Influence of Current Density and Temperature on Anode Dissolution of Metallic Titanium in Melts"

Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works of All-Union Scientific Research and Planning Institute for the Aluminum, Magnesium and Electrode Industry], No 79, 1971, pp 127-136, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G262 by G. Svodtseva).

Translation: Studies performed over a broad range of temperatures (150-750°) and electrolyte compositions (NaCl-KCl, NaCl-MgCl₂, NaCl-AlCl₃) have shown that in all cases, the anode yield per current decreases with increasing current density and decreasing temperature. The main factor determining the quantitative aspect of anodic dissolution of Ti is the change in the type of electrode reaction. Certain reasons for the deviation of anode yields per current from the theoretical quantities are suggested. 6 Figures; 7 Biblio. Refs.

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- 44 -

1/2 046 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CRYSTALLIZATION OF REFRACTORY METALS AT THE CATHODE IN THE
ELECTROLYSIS OF FUSED SALTS -U-
AUTHOR--BAYMAKOV, YU.V. **B**
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (2), 119-28
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--ELECTROLYSIS, FUSED SALT, REFRACTORY METAL, ELECTRODEPOSITION,
HYDRODYNAMICS, METAL CRYSTALLIZATION, NIOBIUM, NICKEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0926 STEP NO--UR/0370/70/000/002/0119/0128
CIRC ACCESSION NO--AP0121528
UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121528

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTIONS OF METAL WITH FUSED SALTS OF THE RESP. METAL, CRYSTN. AT THE CATHODE, THE BEHAVIOR OF TRANSITION GROUP METALS (NI, NB), AND PROBLEMS RELATING TO ELECTRODEPOSITION (EFFECTS OF IMPURITIES, CATION VALENCE, HYDRODYNAMICS) ARE REVIEWED.

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1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CRYSTALLIZATION OF REFRACTORY METALS AT THE CATHODE IN THE
ELECTROLYSIS OF MOLTEN SALTS -U-
AUTHOR--BAYMAKOV, YU.V. *B*
COUNTRY OF INFO--USSR
SOURCE--IZVEST. AKAD. NAUK SSSR, METALLY, MAR.-APR. 1970, (2), 119-129
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--ELECTROLYSIS, CRYSTALLIZATION, SODIUM CHLORIDE, POTASSIUM
CHLORIDE, REFRACTORY METAL

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1444 STEP NO--UR/0370/70/000/002/0119/0128
CIRC ACCESSION NO--AP0130377
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0130377

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRYSTALLIZATION OF REFRACTORY METALS (TI, NB, ETC.) AT THE CATHODE DURING THE ELECTROLYSIS OF THEIR MOLTEN SALTS WAS STUDIED. THE BEST CONDITIONS WERE OBTAINED BY USING A CHLORIDE MIXTURE INCORPORATING NA₂CL, KCL, AND THE CHLORIDE OF THE REFRACTORY METAL, IN SUCH A WAY AS TO PRESENT THE IONS OF THE LATTER IN THEIR LOWEST VALENCY. IN ORDER TO ENSURE REASONABLE DUCTILITY OF THE RESULTANT METAL, A HIGH DEGREE OF ELECTROLYTE PURITY WAS ESSENTIAL. THE ANODE MATERIAL ALSO HAD TO BE CHOSEN SO AS TO AVOID THE FORMATION OF UNWANTED INTERMETALLIC COMPOUNDS.

UNCLASSIFIED

USSR

UDC 533.6.011

BAYMISHEVA, K. SH.

"Concerning a Case of the Flow of Gas Between two Movable Pistons"

Alma-Ata, Matematika i Mekhanika. Tezisy Dokl. 4-oy Kazakhstan. Meshvuz. Nauch. Konf. po Mat. i Mekh. Ch 2 (Mathematics and Mechanics. These of Lectures of the Fourth Kazakhstan Conference of Schools of Higher Learning on Mathematics and Mechanics. Part 2), 1971, pp 176-178 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B268 by A. S. Tikhotskiy)

Translation: The article deals with the two-dimensional movement of an ideally thermally nonductive gas between two pistons, which move in one direction from a state of rest. A wave diagram of flow in the plane (x, tau), where x is a Lagrange coordinate, is presented. It is assumed that the left-hand piston instantaneously acquires the velocity $v = 1$, while the right-hand piston moves to the left with an acceleration differing from zero. The differential equations of the boundary characteristics are found. The explicit solution in the region of the interaction of simple counterwaves of compression (on the right) and rarification (on the left) is found by the Riemann method. An explicit equation of the limiting line, originating in a solitary simple compression wave, is found.

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USSR

B

UDC 597.554:(575.172)

BAYMOV, U. A., Interdisciplinary Institute of Natural Sciences of the Karakalpak Branch of the Academy of Sciences Uzbek SSR

"The Biology of the Carp (*Cuprinus carpio* L.) in the Southern Aral Sea"

Tashkent, *Uzbekskiy Biologicheskii Zhurnal*, No 3, 1970, pp 40-43

Abstract: In recent years, due to reduced discharge of Aral basin rivers and the lower sea level, conditions for carp reproduction have deteriorated. Fertility, growth rate, and age composition have changed somewhat. Material was collected in the spring-summer periods of 1964-1967 in the Muynak and Sarbas bays of the southern Aral Sea. A total of 216 carp were analyzed and 3262 were measured. Sexual maturity of carp begins in the third and fourth years of life. Carp propagate in May and June at water temperature of 18-25°C. Spawning occurs throughout the shallow zone of the sea, in bays, kultuki (deeply indented shallow bays), and lakes. The length and weight of carp trapped in the spring of 1967 in Muynak Bay varied from 21 to 39 cm (averaging 30 cm) and from 215 to 1300 g (averaging 637 g). Mean carp length in the southern Aral Sea was 34.3 cm, and mean weight was 964 g. The age composition of trapped carp was not constant. In 1967, three-year-olds (25%), four-year-olds (28.5%), five-year-olds and 1/2

USSR

BAYMOV, U. A., *Uzbekskiy Biologicheskii Zhurnal*, No 3, 1970, pp 40-43

six-year-olds (35.5%) predominated. Indexes of age composition of carp in fisheries of the southern Aral Sea were stable only in 1952 and 1958, when there were somewhat more older specimens caught. From 1948 through 1966, the southern Aral spawning waters were reduced 8.8-fold, that is, from 169,000 to 20,400 hectares. During this period, the Urginskoye, Barzha-Kultuk, Kosatau, and Kazakhdar'inskiy spawning grounds went out of use. In recent years catches have fallen almost fourfold -- from 59.500 quintals in 1961 to 15,800 quintals in 1968.

2/2

USSR

KHAI TOV, R. KH., BAYMURADOV, T. B., and ABIRKJLOV, A.

"Change of Biochemical Blood Indicators in Rabbits during Chronic Butiphos Poisoning"

Dokl. AN UzSSR (Reports of the Academy of Sciences Uzbek SSR), 1970, No 7, pp 57-58 (Uzbek summary) (from RZh-Biologicheskaya Khimiya, No 2, 25 Jan 71, Abstract No 2F2121 by I. IGMAT'YEV)

Translation: The administration of butiphos internally to rabbits in a dose of 12 mg/kg per day (1/20 LD; 5-60 days) induced a decline in total protein and gamma globulin content of the blood serum, an increase in sugar concentration and a decline in the activity of true cholinesterase in the blood.

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USSR

UDC 619.615.778.5:636.3

RAYMURADOV, T. B., Candidate of Veterinary Sciences, Uzbek Scientific Research
Veterinary Institute

"Permissible Residues of Butyphos in Feed"

Moscow, Veterinariya, No 8, Aug 70, pp 74-75

Abstract: Fodder and water are often contaminated with butyphos, an organo phosphorus compound widely used to defoliate cotton prior to harvesting. The present study was undertaken to establish the maximum permissible concentration of butyphos residues in fodder. Groups of four sheep were fed 0.5 kg per day of enriched feed containing 2, 3, or 4 mg of butyphos per kilogram of feed. Three sheep served as controls. Clinical, hematological, and biochemical tests were performed on each sheep twice before the experiment and once every 20-30 days throughout the experiment. No deviations from the norm were observed in the groups receiving 2 or 3 mg/kg. Sheep which were given fodder containing 4 mg of butyphos per kilogram of feed likewise displayed no signs of intoxication, but on the 6th month of the experiment their blood cholinesterase activity was reduced by 20-30%. Subsequent autopsy revealed small necrotic areas in the livers of these sheep and hemorrhagic inflammation in gastrointestinal mucosa. On the basis of these findings, it is

1/2

- 104 -

USSR

BAYMURADOV, T. B., Veterinariya, No 8, Aug 70, pp 74-75

recommended that a butyphos concentration in feed of 3 mg/kg be regarded as the maximum permissible for sheep when the amount of feed consumed per day is 0.5 kg per sheep.

2/2

Organophosphorus Compounds

USSR

UDC: 632.95

POPOV, G. L., ~~BAINA~~, N. F., and SMOBOROVSKIY, L. A.

"A Method for Preparing Mixed O-Alkyl-S-(β -Carboxy, β -Alkyl)ethylalkyl-thiophosphonates"

USSR Author's Certificate No 253062, filed 13 June 68, published 24 Feb 70 (from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N640 P by T. A. Belyayeva"

Translation: Compounds with the general formula $RP(O)(OR')SCH_2CH(R'')COOH$ (I) (R and R' = alkyl; R'' = H, alkyl, aralkyl) are obtained from the reaction of O-alkyl-alkylthiophosphonates with α -subst. acrylic acids in the presence of bases. For example, 3.6 of acrylic acid is added to a mixture of 7 g of O-ethyl-methylthiophosphonate and 0.5 g of EtO-Na in 10 ml of C_6H_6 at 65° , heated for 12 hours at 65% , and washed with water, yielding 5.6 g of I (R' = Et, R = Me, R'' = H), $C_{15}H_{21}O_4PS$ are obtained in the presence of Et_3N as a catalyst, boiling point $103-4^\circ/0.025$, n_D^{20} 1.4785. I possess insecticidal properties.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--POLYUREA -U-
AUTHOR--(02)-KRETOV, A.YE., BAYRAK, V.I.
COUNTRY OF INFO--USSR *B*
SOURCE--U.S.S.R. 208,935
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--13JAN70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYUREA, CHEMICAL PATENT, DIAMINE, POLYCONDENSATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1163 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0116628
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AA0116628
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, POLYUREA IS PREPD. BY
POLYCONDENSATION OF DIAMINES AND BIURET.

UNCLASSIFIED

USSR

UDC: 549.623.61+551.322.2(477)

BAYRAKOV, V. V., Institute of Mineral Resources"New Find of Lithium-Beryllium Margarite in the USSR"

Kiev, Dopovidi Akademiya Nauk Ukrayins'koyi RSR. Seriya B: Heolohiya, Heofizyka, Khimiya ta Biolohiya, No 6, Jun 73, pp 483-486

Abstract: Margarite was established in the phlogopite zone of desilicized pegmatite. It is represented by pearl-white and yellowish-white transparent laminae and by rarely granular aggregates. The basic margarite mass is formed as the result of phlogopite replacement, and a significantly smaller mass in the form of neogenic formations. The laminae are up to 1 mm thick, with a maximal size in the base section of 2X5 mm. The following are: density = 3.06 g/cm³, Ng = 1.656, Nm = 1.654, and Np = 1.644. 2V = -58°. The angle of extinction in the I 010 sections is 8°. The following is the chemical analysis of lithium-beryllium margarite by percent: SiO₂ - 30.42, TiO₂ - trace, Al₂O₃ - 43.30, Fe₂O₃ - 0.38, FeO - not observed, BeO - 4.54, MgO - 1.06, CaO - 13.79, K₂O - 0.22, Na₂O - 0.19, Li₂O - 1.82, Rb₂O - 0.02, Cs₂O - 0.04, H₂O⁻ - 0.21, H₂O⁺ - 4.50, F - not observed, and sigma - 100.41. The studied material is close with respect to its general chemical composition to the margarite from the phlogopite reaction zones of the Ural emerald mines. Aluminum concentration most likely played the major role in margarite formation. The margarite was found on the territory of the Ukrainian Crystalline Shield.

1/1

BAYRAMASHVILI, I.A.

STRUCTURE AND PROPERTIES OF VERY PURE BORON CARBIDE

Paper by I. A. Bayramashvili, G. N. Babayev, Sh. A. Iqbalov, and Z. M. Mikazov (Uzbekistan), Politehnicheskoye Materialy i Struktural'nyye Svoystva Dvuykh Faznykh Spetsialnykh Materialov i Gruppy dlya Reaktorov (Russian, International Workshop for Fast Reactors Specialists Meeting, Dimitrograd, 4-8 June, 1973)

In this paper the results of an investigation of the properties of boron carbide obtained by magnesium-thermal reduction are presented. In this work it is demonstrated that the material is very pure with respect to chemical composition, the powder is characterized by a rounded shape of the particles; the compacted products have satisfactory thermophysical properties. The results of an investigation of the physico-chemical properties of the material (dispersivity, density, specific surface, microhardness, mechanical properties for compression and wettability) are presented.

In distinction from other methods of the preparation of boron carbide powder, the magnesium-thermal method makes it possible to obtain very pure material of more accurate stoichiometric composition [1].

In this work, the basic characteristics of boron carbide powder obtained by means of magnesium-thermal reduction are considered, and the results of an investigation of certain properties of monolithic highly pure boron carbide are considered.

The boron carbide powder is distinguished for its high degree of purity. The chemical composition is given in Table 1.

Handwritten notes: "This article is for [unclear] 73" with a circled '1' and a checkmark.

Water Treatment

USSR

UDC 669.715:620.193.27

BAYRAMOV, M. M., Candidate of Technical Sciences; ABASOV, T. A.,
Engineer, Baku

"Study of the Corrosion of Pipes Made of Aluminum Alloys for Use
in Salt Water Distillation Units"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 5, 1970, pp
15-18

Abstract: The possibility of replacing the expensive copper pipes
in the heating elements of salt water distillation units with
aluminum alloy pipes was studied. All of the brands of aluminum
alloy pipes examined, with the exception of AMTsM, showed poor
resistance to corrosion by sea water, which must be acidified
to avoid excessive sedimentation in heaters of adiabatic salt water
distilling units. After a 1000 hrs test run, AMTsM aluminum pipes
proved to have the highest resistance to corrosion. It was deter-
mined that the AMTsM pipes may be used as construction material for

1/2

USSR

BAYRAMOV, M. M., et al, Vodosnabzheniye i Sanitarnaya Tekhnika,
No 5, 1970, pp 15-18

various heating units, provided they are not in direct contact with other metals and that O₂ as well as O₃ are removed from water. Experimental data reported in this paper should be rechecked under actual working conditions.

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Acc. Nr:

AP 0049127

Abstracting Service:

CHEMICAL ABST.

5-700

Ref. Code:

UR 0079

99758z Mechanism of the reaction of triphenylarsine oxide with butyl iodide. Chernokal'skii, B. D.; Baizamov, R. B.; Kamai, G. (Kazan. Khim.-Tekhnol. Inst. im. Kirova, Kazan, USSR). *Zh. Obshch. Khim.* 1970, 40(1), 143-8 (Russ). The formation of $\text{Ph}_3\text{As}(\text{OH})\text{OAsPh}_3\text{I}$ (I) from reaction of Ph_3AsO and BuI in Me_2CO (cf Ch. *et al.* 1969) proceeded through a reversible formation of Ph_3AsOBuI , followed by irreversible reaction of this with Ph_3AsO . The irreversibility was shown by passing 1-butene 6 hr into I in Me_2CO at 50° , during which the cond. of the system remained const. and the concn. of I was unaltered. Thus, the reaction follows the steps: $\text{R}_3\text{AsO} + \text{RI} \rightleftharpoons \text{R}_3\text{As}^+\text{OR}^- + \text{I}^-$; $\text{R}_3\text{As}^+\text{OBu} + \text{R}_3\text{AsO}^- \rightleftharpoons [\text{R}_3\text{As}^+\text{OCH}_2\text{CH}_2\text{Et} \cdots \text{H} \cdots \text{OAsR}_3] + \text{I}^- \rightarrow \text{EtCH}=\text{CH}_2 + \text{R}_3\text{As}(\text{OH})\text{OAsR}_3\text{I}$. The rate const. of formation of Ph_3AsOBuI were tabulated from 40° - 55° . The data on rates of reaction at various concns. of the reactants gave at 20° , 25° , 30° and 35° , data for calcul. of apparent formation rate const. using apparent 2nd order kinetics, from which the activation energy was calcd. to be 15.3 kcal/mole and activation entropy -24.3 entropy units. The rate const. was max. in PhNO_2 , followed in order by Me_2CO , tetrahydrofuran, MeOH, and PrOH. G. M. Kosolapoff

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19800933

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USSR

UDC: 547.242

B
TSENTOVSKIY, V.M., BARABANOV, V.P., CHERNOKAL'SKIY, B.D., BAYRAMOV, R.B., and KAMAY, Gil'm, Kazan' Chemical Technological institute imeni S.M. Kirov, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Study of Ionic Association of Onium Salts in Solution. I. Conductivity of Tetraphenylarsonium Iodide in Acetone and Propyl Alcohol"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 831-833

Abstract: The authors studied the conductivity of tetraphenylarsonium iodide in acetone at temperatures ranging from 20 to 40°, as well as in propyl alcohol at 25°. The form of the concentration dependence of the equivalent conductivity in acetone is complex. There is an increase in conductivity with an increase in concentration from $0.39 \cdot 10^{-4}$ to $3.12 \cdot 10^{-4}$ m., then a decrease in conductivity with a further increase in concentration. In propyl alcohol the dependence of λ on \sqrt{c} is expressed by a straight line. The conductivity of the salt in

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USSR

TSENTOVSKIY, V. M., et al., Zhurnal Obshchey Khimii, Vol 40, No 4,
Apr 70, pp 831-833

acetone increases with a rise in temperature, despite the fact that
permittivity declines. It is suggested that with dilution in acetone
there is a change in the structure of the particles participating in
the transfer of electricity.

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37

Ion Exchange

USSR

UDC 621.039.325

BAYRAMOV, V. T., SUFANOV, M. S., and GORSHKOV, V. I., Moscow State University
Imeni M. V. Lomonosov

"Separation of Isotopes During Exchange Between Molecules of the Gas Phase and Ions of a Solid-Exchanger. III. Determination of H.E.T.C. During Exchange Between Ammonium and the Ammonium Form of an Ionite in a Counterflow Column"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLV, No 11, Nov 71, pp 2909-2911

Abstract: Counter flow of ammonium and a cationite was induced in a 2-meter-high column 25 mm in diameter (KU-2 X 9 cationite). The H.E.T.C. (height equivalent of a theoretical column) was calculated both on the basis of the time dependence of the enrichment factor and on the basis of the distribution of isotopes along the column once the stationary state had been reached. Variation in the enrichment factor, data for the calculation of the H.E.T.C., and design of the column, are illustrated graphically and with a table.

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1/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CONCERNING THE MATHEMATICAL LINGUISTICAL ANALYSIS OF THE
SYNTACTICAL LAYER OF SPEECH IN SCHIZOPHRENIC PATIENTS -U-
AUTHOR--(03)-AMENEV, G.A., BAYRAMOVA, L.K., NIKITINA, YE.V.

B

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRIL IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 3, PP 408-413
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MATHEMATIC ANALYSIS, SPEECH, SCHIZOPHRENIA, LINGUISTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1982/0793

STEP NO--UR/0246/70/070/003/0408/0413

CIRC ACCESSION NO--AP0052230

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0052230

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY CONSTRUCTING "TREES OF RELATIONSHIP OF SYNTACTICAL SUBORDINATIONS" THE AUTHORS STUDIED WRITTEN SPEECH OF NORMALS AND IN PARANOID SCHIZOPHRENICS. IT WAS ESTABLISHED THAT THE LAW OF LANGUAGE PROJECTIVELY, EXPRESSED IN A PREVALENCE OF PROJECTIVE STRUCTURES OVER NON PROJECTIVE ARE NOT IMPAIRED IN PATIENTS. THE CORRELATION IN THE QUALITY OF DEXTRA AND SINISTRAL SYNTAXIS SHOWS THAT THE PROCESSES OF SUCCESSIVE SYNTHESIS IN SPEECH ACTIVITY IN NORMALS AS WELL AS IN SCHIZOPHRENIC PATIENTS PREVAILS OVER PROCESSES OF FORSTALLING SYNTHESIS. HOWEVER, IN PATIENTS THIS PREVALENCE IS EXPRESSED LESS SIGNIFICANTLY. IN OTHER WORDS, THE SPEECH ACTIVITY PROCEEDS IN SUCH CASES WITH A HEAVIER LOADING OF CANALS OF FORESTALLING SYNTHESIS. THE DISTRIBUTION OF THE LENGTH OF SYNTACTICAL CONNECTIONS IN THE NORMALS COMPARED TO THE SPEECH OF SCHIZOPHRENICS IS NEARER TO THE EXPONENT. THE LENGTH OF SYNTACTICAL CONNECTIONS IN PATIENTS IS SIGNIFICANTLY HIGHER THAN IN NORMALS. THIS IS AN OBJECTIVE INDEX OF A CUMBROUS SYNTACTICAL STRUCTURE AND MAY BE EXPLAINED BY AN INERTIA OF OPERATIVE MEMORY.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MONOSACCHARIDES. 22. HYDROGENOLYSIS, ACETOLYSIS, AND HYDROLYSIS OF
TRANS AZIRIDINECARBOXYLIC ACIDS IN A SERIES OF SUGARS -U-
AUTHOR--(03)-DMITRIYEV, B.A., BAYRAMOVA, N.E., KOCHETKOV, N.K.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 2970, (3), 650-3
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HYDROGENATION, HYDROLYSIS, CARBOXYLIC ACID, SACCHARIDE, AMIDE,
GALACTOSE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1975 STEP NO--UR/0062/70/000/003/0650/0653
CIRC ACCESSION NO--AP0123756
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGENATION OF

TRANS,2,3,EPIIMINO,2,3,DIDEOXY,4,5:6,7,DI,O,
 ISOPROPYLIDENE,L,GLYCER,L,GALACTO,HEPTONAMIDE (I) OVER RANEY NI IN MEOH
 AT ATM. PRESSURE 5 HR GAVE A SYRUP THAT WITH AC SUB2 OMEOH OVERNIGHT
 GAVE 2,ACETAMIDO,2,3,DIDEOXY,L,GLUCO,HEPTON,AMIDE,M. 195-7DEGREES,
 (ALPHA)PRIME20 SUBD MINUS 3.78DEGREES, WHICH IN 4 HR AT 100DEGREES WITH
 4NHCL GAVE 2,DEOXY,L,ARABINO,HEXOSE. I HEATED WITH AQ. HCLD SUB4 5 HR
 AT 80DEGREES AND PURIFIED ON IRA400 RESIN IN ACETATE FORM, THEN TREATED
 WITH AC SUB2 O IN MEGH OVERNIGHT GAVE
 2,ACETAMIDO,3,6,ANHYDRO,2,DEOXY,L,GLYCERO,L,GULO,HEPTONAMIDE, M.
 200-2DEGREES, (ALPHA) PRIME20 SUBD MINUS 48.4DEGREES, WHICH WITH AQ.
 NAOCL AT ODEGREES, THEN 1 DAY AT ROOM TEMP., GAVE A SYRUP THAT WITH AC
 SUB2 O,PYRIDINE GAVE L,ARABINOSE PENTAACETATE, M. 75DEGREES. I HEATED
 IN ACOH 3 HR GAVE 77PERCENT 2,ACETAMIDE,2,DEOXY,4,5:6,7,DI,O,
 ISOPROPYLIDENE,L,GLYCERO,L, GALACTO,HEPTONAMIDE, M. 225-7DEGREES, WHICH
 IN 50PERCENT ACOH 1 DAY GAVE
 2,ACETAMIDO,2,DEOXY,4,5,U,ISOPROPYLIDENE,L,GLYCERO,L,GALACTO,HEPTONAMIDE
 , M.2 22.5-5DEGREES, (ALPHA) PRIME20 SUBD 2.7DEGREES. FACILITY:
 INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 616.986-036.22 (479.24)

ABDULLAYEV, Kh. I., and BAYRAMOVA, R. A.

"On the Results of Examination of the Construction Site of the Druzhba Hydroengineering Complex for Ornithodoros Ticks -- the Carriers of Tickborne Spirochetosis"

Baku, Azerbaydzhanskiy Meditsinskiy Zhurnal, No 10, 1971, pp 72-74

Abstract: A survey of the appearance of natural foci of tickborne spirochetosis was carried out from 1967 to 1969 on the construction site of the Druzhba Hydroengineering Complex, a major complex being erected jointly by the Soviet Union and Iran on the Araks River. The purpose of the survey was to develop suitable prophylactic measures.

During the period indicated, 143 burrows of various wild animals were detected; in 34 of them the Acarina ticks which are the carriers of tickborne spirochetosis were discovered -- *O. verrucosus* and *O. alactagalis*.

The results of experimental research shows that a significant number of the ticks were natural carriers of spirochaetes, which are the agents of the disease.

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USSR

UDC: 621.396.967.004

AVER'YANOV, V. Ya., BAYRASHEVSKIY, A. M., GEORGIYANOV, K. V., TUPYSEV, A. N.,
YUKHOV, I. V.

"Marine Radar Stations and Their Use (Handbook). Vol. 3"

Sudovyye radiolokatsionnyye stantsii i ikh primeneniye. (Spravochnoye
rukovodstvo). T. 3 (cf. English above), Leningrad, "Sudostroyeniye", 1970,
265 pp, ill. 1 r. 1 k. (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No
1G 73 K)

[No abstract]

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USSR

MARTYNENKO, O. G., BAYRASHEVSKIY, B. A., GARMIZE, L. KH.,
SENCHUK, L. A.

"Damping the Rotary Motion of Flow Along a Round Tube under
Conditions of Constant Twist of It at the Input"

Minsk, Issled. termogidrodinamich. svetovodov (Thermodynamic
Light Guide Research), 1970, pp 123-132 (from RZh-Mekhanika, No
11, Nov 70, Abstract No 11B800)

Translation: Procedures for creating rotary motion of a flow in
a cylindrical connecting pipe as a result of twisting of the flow
at the inlet were investigated as applied to the problem of im-
proving the operation of the gas lens of a light guide. The
dependence of the intensity of the twist on the parameters of
the cylindrical coil is revealed for location of it at the walls
of the input section of the channel or in the previously included
convergence channel section with a degree of constriction $n = 5$.
The flow twisting scheme for tangential approach of the air with
a flow rate G_T is estimated for variation of the relative flow

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USSR

MARTYNYENKO, O. G., et al, Issled. termogidrodinamich. svetovodov,
1970, pp 123-132

rate in the range of $G_T/G_{total} = 0.33-1$. It is demonstrated that it is possible to obtain a small twist of the flow which corresponds to the optimal operating conditions both by means of coils and by tangential approach of the air.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--INJURIES OF THE LIVER IN CHILDREN -U-
AUTHOR-(02)-BAIROV, G.A., SHAPKINA, A.P.
COUNTRY OF INFO--USSR B
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 4, PP
102-108
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PEDIATRICS, LIVER, INJURY, SURGERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0048 STEP NO--UK/0589/70/104/004/0102/0108
CIRC ACCESSION NO--AP0105147

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105147

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON OBSERVATIONS OF 51 YOUNG PATIENTS WITH HEPATIC INJURIES THEIR CLASSIFICATION ACCORDING TO THE CLINICAL PICTURE IS GIVEN, AND SURGICAL POLICY OF TREATMENT IS DISCUSSED.

UNCLASSIFIED

USSR

UDC 576.851.49.077.5+576.851.49.097.29].01(571.5)

BUSHUYEVA, S. I., and PAYRYCHENKO, T. A., Irkutsk Institute of Epidemiology and Microbiology

"Comparative Phage- and Colicin-Type Characteristics of Typhoid and Paratyphoid B Strains Circulating in Eastern Siberia"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 5, May 71, pp 38-41

Abstract: A study was conducted of the phage- and colicin-type characteristics of 200 typhoid and 72 paratyphoid B strains isolated from patients and carriers in Eastern Siberia. According to their sensitivity spectra, typhoid bacilli were subdivided into 16 colicin types and paratyphoid bacilli into 14 colicin types. A comparison of the colicin types detected in the Eastern Siberia with those observed and described by other authors in the Ukraine and the Khabarovsk region revealed considerable differences in their geographic distribution. A second set of samples (23 typhoid and 21 paratyphoid cultures) obtained from the same individuals in various periods of the disease (1-21 days later) was colicin typed by the same method, and so were cultures which had been kept in the laboratory for 3-4 months. The results were consider-

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USSR

BUSHUYEVA, S. I., et al, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii,
No 5, May 71, pp 38-41

ably different from those obtained in the first test. The conclusion is drawn
that sensitivity to colicins is an unstable property and that it therefore
must be determined immediately after collection of samples.

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- 39 -

USSR

UDC 519.2:621.391

BAYSAKALOV, I. B.

"On Beta- and Gamma-Probability Distributions in Optimal Control"

V sb. Materialy 2-y Nauchn. konferentsii molodykh uchenykh AN KazSSR (Papers of the 2d Scientific Conference of Young Scientists of the Academy of Sciences Kazakh SSR -- Collection of Works), Alma-Ata, 1970, 3 (from RZh-Matematika, No 10, Oct 70, Abstract No 10V159)

Translation: The problem of tracking the target of the optical axis of a tracking system with a beta- and gamma-distribution of noise is studied. The differential equation describing the motion of the optical axis of the tracking system is discussed:

$$\dot{x}(t) = \xi(t)y(t),$$

where $\xi(t)$ is a random quantity which takes on only the two values 0 and 1, and $y(t)$ is the control function. It is proposed that the stochastic quantities $\xi(1), \dots, \xi(n)$ be related by a simple Markov chain. The mathematical expectation of the square of the angular velocity at the time of homing on the optical axis of the tracking system is selected as the criterion of optimality. The

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USSR

BAYSAKALOV, I. B., Materialy 2-y Nauchn. konferentsii molodykh uchenykh AN KazSSR, Alma-Ata, 1970, 3

problem is solved by dynamic programming methods, and certain problems in the theory of simple discrete Markov chains are used. The method can be used to obtain the condition for following a tracking system in the least time and for other laws of the probability distribution. Authors abstract.

2/2

USSR

BAYSAKHATOV, R.

"The Action of Penetrating Radiation on Bioenergetic Processes in the Tumors"

Zdravookhr. Turkmenistana (Turkmenistan Public Health), 1973, No 4, pp 7-10
(from RZh - Biologicheskaya Khimiya, No 22, Nov 73, Abstract No 1402)

Translation: A review. On the basis of the analysis of literature data the author proposes that the tumor radiosensitivity differs sharply by the criteria of bioenergetic processes. Some types of malignant tumors respond to the radiation by interruption of mitochondrial and nuclear oxidative phosphorylation and by disorganization of the enzyme systems of the glycolytic route early after radiation exposure; other types of tumors exhibit their reaction weakly, at later times, not immediately.

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- 60 -

USSR

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UDC 542.48

BAYSBLAT, M. B., GOLUB, S. I., and CHERNYKH, N. YE., Sverdlovsk

"Calculation of Specific Heat-Exchange Surface in Multi-Stage
Evaporating-Distilling Installations"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 1, 1970, pp 2-3

Abstract: Specific heat-exchange surface in apparatus and heaters (surface per 1 kg/hr of evaporated water) is one of the principal technical-economic indices of evaporating installations, but calculation of the theoretically correct value of this index is extremely cumbersome.

The authors derive simplified formulas which do not take into account the less important factors affecting specific heat-exchange surface. Test calculations made with these formulas yield results within 4 percent of the theoretical values.

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1/2 C08

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--EFFECT OF DOUBLE LAYER STRUCTURE ON ELECTRODE PROCESSES LIMITED BY THE RATE OF THE PRECEDING PROTONATION IN AMMONIA BUFFER SOLUTIONS -U-

AUTHOR--(02)-MAYRANOVSKIY, S.G., BAYSHEVA, R.G.

B

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKIMIYA 1970, 6(2) 226-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PROTON, ELECTRODE REACTION, AMMONIUM COMPOUND, CATION, PYRIDINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0460

STEP NO--UR/0364/70/006/002/0226/0228

CIRC ACCESSION NO--AP0107066

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107066

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMMONIUM CATIONS MAY BEHAVE AS PROTON DONORS. THE EFFECT OF THE CONC. OF THE INDIFFERENT ELECTROLYTE, SUCH AS KCL AND CaCl_2 , ON THE H CATALYTIC WAVES, CAUSED BY PYRIDINE IN THE AMMONIA BUFFER SOLN., WAS STUDIED. THE HEIGHT OF THESE WAVES WAS DETD. MAINLY BY THE RATE OF TRANSFER OF THE PROTONS FROM AMMONIUM TO THE PYRIDINE MOL. THE PRESENCE OF THE ABOVE SALTS CAUSED AT CONST. PH A SHARP INCREASE IN THE HEIGHT OF THESE WAVES, WHICH AT SUFFICIENTLY HIGH CONCNS. OF THE ADDED SALTS TRENDED TO THE SAME LIMIT. THE POSSIBILITY OF DETG. THE TRUE RATE CONST. OF THE AMMONIUM PROTONATION OF PYRIDINE, UNAFFECTED BY THE DOUBLE LAYER STRUCTURE, WAS STUDIED ON THE BASIS OF THE H CATALYTIC POLAROGRAPHIC CURRENTS. THIS RATE CONST., AT PH EQUALS 9.2, CONSIDERABLY DECREASED WITH THE INCREASE OF KCL CONC.

UNCLASSIFIED

III. Mathematical Cybernetics
A. Theory of Controlling Systems

USSR

BAYSBORD, E. M.

"Games of Automata with Linear Tactics with Various Depths of Memory"

Izbr. Tr. Vses. Mezhvu. Simpoz. po Prikl. Mat. i Kibernet., Gor'kiy, 1967
[Selected Works of All-Union Interuniversity Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967], Moscow, Nauka Press, 1973, pp 150-152 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V421, by the author).

Translation: A game of two automata with linear tactics of type Bk_i, m_i, k_i (after M. L. Tsetlin) is studied. Each of the automata can perform any one of several different actions. If the depth of memory of the two automata is identical, it is demonstrated that the greater portion of the time the automata perform the action for which the probability of a penalty is least.

Acc. Nr. **11P0049803** - Abstracting Service:
CHEMICAL ABST. 5-76

Ref. Code:
4R 0138

B

101618z Increasing the wear resistance of tread rubbers by using new types of carbon black. Bajshikhina, M. P.; Mistrvukova, G. V.; Vorob'eva, V. V. (Kirov. Shm. Zavod, Kirov, USSR). Kauch. Rezina 1970, 29(1), 29-30 (Russ). Tire treads made of 40:60 SKD-BSK rubber mixt. and filled with carbon black, type PM-100, had somewhat lower abrasion resistance than tires filled with Vulcan 6. However, these tires lasted (81.6-90.9) x 1000 km in service, while the tires filled with the std. carbon black, type PM-70, lasted (59.4-81.5) x 1000 km. CPJR

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AA0044622

B

Bayshulakov, A. A.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243984 ULTRASONIC HYDRAULIC RADIATOR consisting of a case (1), ejector (2), tunnel (3), tangential insert (4) with a flat thread, a circular electromagnet (5) with a central core (6), a cover (7) with a nozzle (8).

2/70

The central core and the cover are made of magnetically soft steel, and the tangential insert of a diamagnetic material. The magnetic action on the dispersed reagent takes place inside a vortex chamber (9) produced by the magnetic system, circular electromagnet, central core and the cover.

This makes it possible to treat magnetically the flotation agent directly during the process of ultrasonic emulsification, to act on newly formed interphase surfaces of the reagent droplets and thus to improve useful components extraction during flotation enrichment of ores and coal.

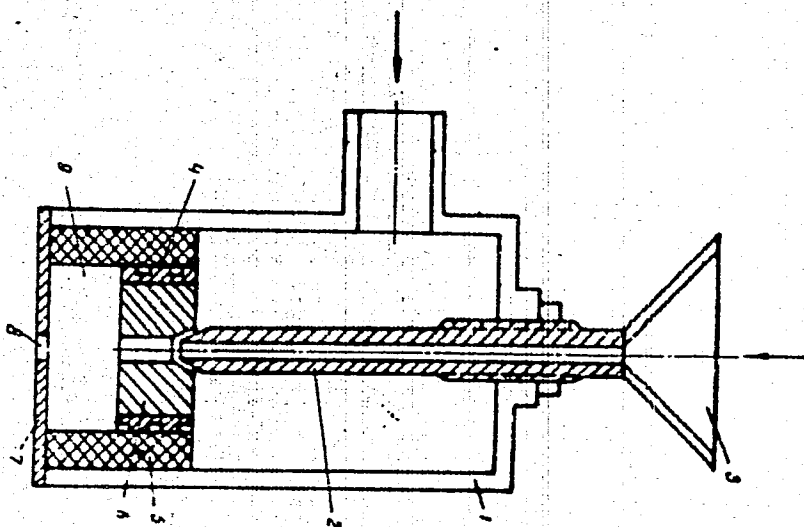
16.8.67 as 1180594/18-10. FEOFANOV, V. A. et alia.
METALLURGY & ENRICHMENT INST. ACAD. SCIENCES KAZAKH SSR.
(8.10.69.) Bul 17/14.5.69. Class 42s. Int. Cl. B 06b.

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19771301

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AA0044622

AUTHORS: Feofanov, V. A.; Sokolov, M. A.; Malakhov, Yu. V.;
Bayshulakov, A. A.

Institut Metallurgii i Obogashcheniya AN Kazakhskoy SSR

3/3

19771302

USSR

UDC 616.155.394-02:615.849.17-089:616.419-089.843

BAYSOGOLOV, G. D., and PAVLOV, V. V., Institute of Medical Radiology,
Academy of Medical Sciences USSR

"Automyelotransplantation After Local Fractional Irradiation"

Moscow, Meditsinskaya Radiologiya, No 3, 1972, pp 14-19

Abstract: Eleven patients with Hodgkins disease received autologous bone marrow grafts 1 to 180 days after local fractional irradiation of the mediastinum at doses ranging from 3,700 to 5,100 rad. Study of sternal punctates obtained at various times after transplantation revealed signs of restoration of hematopoiesis in only 5 patients. After 2 months the number of myelokaryocytes increased to 47,000 to 63,000 in 3 and remained at the 11,000 to 20,000 level in 2 with a slight increase in the relative content of immature red and white marrow elements. However, this improvement was temporary and subsequent examination showed all five to be suffering from aplastic bone marrow. Thus, automyelotransplantation after local fractional irradiation at doses above the threshold level (3000-500 rad) does not result in stable restoration of hematopoiesis in exposed areas of bone marrow.

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BAYSOLOV, G. D.

SOME METHODOLOGICAL PROBLEMS IN RADIOBIOLOGY IN THE LIGHT OF LENIN'S REFLECTION THEORY

[Article by G.D. Baysov, A.K. Gus'kov, Moscow, Vestnik Akademii Meditsin-skh Nauk SSSR, Russian, No 3, 1972, pp 44-50]

JPRS 56019
17 MAY 72
EHC: 577, 3:59, 16:1

The evolution of concepts concerning the pathogenesis of radiation lesions and the process of creating theories about the mechanism of action of radiations on the living organism illustrate the enormous epistemological advantages of the philosophy of dialectical materialism. Of particular interest in this respect is the teaching developed by V.I. Lenin about matter and movement and his theses concerning the relativity of knowledge to gain understanding of the biological effect and create a general theory of the mechanism of action of radiation.

Concrete analysis of formation of radiobiology theory is convenient since we can trace the complex and consistent evolution of conceptions from purely external characteristics of primary phenomena, then secondary ones, etc over a relatively short period of time (less than 75 years from the time x-rays were discovered in 1895).

Let us consider in order the basic tenets of dialectical epistemology and their reflection in radiobiology theory.

The inexhaustibility and infinity of matter, as we know, are proclaimed in philosophy of dialectical materialism as among its chief properties. Such a statement by no means restricts man's ability to learn the essence of a phenomenon. However, at each given moment knowledge only relatively reflects the essence of a phenomenon. This conception is the basis of scientific progress of knowledge in any area and it warns against potential vulgar simplification. Obviously, the objective value of different stages of development of scientific conceptions is not the same, as can be seen too on the example of the history of formation of concepts on the mechanism of action of radiation.

Analysis of evolution of radiobiology theory in the light of the most important theses of epistemology could help in utmost disclosure of the essence of the phenomenon that is most accessible at this stage of development of science.

radiobiology

USSR

UDC 617-001.28-092.8-036.8-07:616.155.1-007.1-07

BAYSOGOLOV, G. S. and PAVLOV, V. V., Department of Radiation Therapy of Hematological Diseases, Scientific Research Institute of Medical Radiology, Academy of Sciences USSR

"State of Hematopoiesis After Local Fractional Irradiation. 3. Hematopoiesis in Remote Periods After Irradiation"

Moscow, Meditsinskaya Radiologiya, No 11, 1971, pp 40-44

Abstract: Study of hematopoiesis in locally irradiated and nonirradiated areas of bone marrow in 45 Hodgkin's disease patients 1 to 36 months after conclusion of irradiation of the mediastinum showed the degree of restoration to be directly related to the total absorbed dose. Restoration was complete in all 7 patients who received 2400 rads or less but was absent in 28 of 29 patients who received 3600 to 6300 rads. It was complete in 6 of 9 patients who received 2500 to 3500 rads while aplasia persisted in the other three. This suggests that the intermediate dose range of 3000+500 rads is the threshold or critical level for the repair processes to be stimulated in irradiated bone marrow areas. However, the functional state of nonirradiated bone marrow was normal 6 to 24 months after the end of radiotherapy.

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USSR

UDC 621.357:621.79.027

~~BAYSUPOV, I. A., SITNIKOV, V. G.~~

"Electrochemical Milling of Heat-Resistant Alloys"

V sb. Novoye v elektrofiz. i elektrokhim. obrabotke materialov (What's New in Electrophysical and Electrochemical Treatment of Materials -- collection of works), Leningrad, Mashinostroyeniye Press, 1972, pp 31-35 (from RZh-Khimiya, No 12, Jun 72; Abstract No 12L303)

Translation: In studying the electrochemical form milling of EP-164, EP-291, EI-893, EI-765, EI-428, ZhS-6K and 15Kh11MFL heat-resistant alloys, metallic, metal-abrasive and metal-diamond discs are used as the rotating cathodes. It was demonstrated that the highest precision of obtaining the given dimensions is provided by electro-diamond milling.

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BAYTASOV, B.

DOSAAF

USSR/K11/RU

BAYTASOV, B., Maj Gen; Chmn, CC, DOSAAF KzSSR, comments in an article on the Kazakh SSR civil defense.

Kazakhstanskaya Pravda, 24 Jan 73, p 2, col 2

(1)

Titanium

USSR

UDC 669.71'295.053.4.094(088.8)

MAZALETSKIY, G. D., KATS, M. SH., ZHURAVLEV, V. M., RYABIN, V. A., BAYTAKOVA,
R. S., GOLODOV, S. M.

"Procedure for Processing Slag from Aluminothermal Production of Ferrotitanium"

USSR Author's Certificate No 276122, Filed 27 Mar 65, Published 15 Oct 70
(from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G147P)

Translation: A procedure is proposed for obtaining Ti concentrate and Al_2O_3 from slag obtained during aluminothermal production of Fe-Ti. The procedure includes sintering of the crushed slag with soda at 1,130-1,150°. The cake is processed in a sodium solution which converts the oxides to solution from which $Al(OH)_3$ is precipitated, and the Ti oxides remain in the slag.

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1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--KINETICS OF THE VACUUM ANNEALING OF PRODUCTS OF CARBONIFEROUS
FERROCHROME OXIDATION -U-
AUTHOR-(03)-MAZALETSKIY, G.D., PECHENKIN, V.S., BAYTAKOVA, R.S.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 670-2 *B*
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--OXIDATION, FERROCHROMIUM, METAL REDUCTION, VACUUM ANNEALING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1065 STEP NO--UR/0080/70/043/003/0670/0672
CIRC ACCESSION NO--AP0123058
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123058

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MATERIAL SUBJECTED TO THE VACUUM ANNEALING CONTAINED CR SUB2 0 SUB3 57.2, FEO 4.55, CR 17, FE 14.1, AND C 1.01PERCENT. THE ANNEALING PROCESS CAN BE DESCRIBED BY THE TOPOCHEM. VOLINGGOROV-EROFEEV EQUATIONS. THE CURVILINEAR ARRHENIUS PLOT INDICATES 2 PARALLEL PROCESSES. THE REDN. OF FEO IS DIFFUSION CONTROLLED. FACILITY: AKTYUBINSK. ZAVOD FERROSPLAVOV, AKTYUBINSK, USSR.

UNCLASSIFIED

USSR

UDC 539.3:534.1

BAYTELIYEV, T., and MARDONOV, B.

"The Propagation of Transient Waves in a Composite Half-Space"

Alma-Ata, Izvestiya Akademii Nauk, KazSSR, Seriya Fiziko-Matematicheskaya,
No 3, May-Jun 72, pp 4-9

Abstract: A study was made of the problem of the elastic impact of two connected quadrant-planes of different elastic materials on a rigid and smooth barrier. The laid down conditions included continua of the normal component of the vector of dislocations and stress and also the absence of friction on the boundary of the interface. Motion equations of the media and the boundary conditions were applied for the function of volume expansion and rotations determined in the appropriate quadrant-planes. The problem was solved by the Sobolev-Smirnov method and expressions in quadrature form were derived for the functions of volume expansions and rotations. The solution can be used for the investigation of the behavior of composite elastic bodies under the action of dynamic loads. One illustr., thirteen formulas, two biblio. refs.

1/1

- 02 -

USSR

BANIS, I. I., KALINAYUSKAYTE, N. B., BAYTKUS, P. S.

"The Rate of Convergence and Stable Distribution in a Local Theorem"

Lit. mat. sb. [Lithuanian Mathematics Collection], Vol 11, No 3, 1971, pp 511-516, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V24 by the author's).

Translation: Let $\{\xi_i\}$, $i = 1, 2, \dots$, be a sequence of independent, identically distributed random quantities, belonging to the area of normal attraction of stable law G_α , and such that the normalized sum with all $n > n_0$ has limited density. Under conditions such that random quantities $\{\xi_i\}$ have zero pseudo moments $\mu(k)$ of order $k = 0, 1, \dots, r - 1$, where $r = [\alpha] + 1$, and absolute pseudo moment $v(r)$ is finite, a residual term is produced in the local theorem of order $O\left(n^{-\frac{r-\alpha}{\alpha}}\right)$ where $n \rightarrow \infty$. If we assume $\mu(k) = 0$, $k = 0, 1, \dots, r$, and $v(1 + \alpha) < \infty$, the residual term will be of the order $O\left(n^{-\frac{1}{\alpha}}\right)$ where $n \rightarrow \infty$.

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USSR

BOLAROVICH, M. P., PARKHOMENKO, E. I., BAYUK, Ye. I.

"The Dependence Between Electrical and Elastic Parameters of Rock"

Fiz. Svoystva Gorn. Porod Pri Vysok. Termodinam. Parametrakh [Physical Properties of Rock at High Thermodynamic Parameters -- Collection of Works], Kiev, Nauk Dumka Press, 1971, pp 66-69, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V853 by I. F. Zharikov).

Translation: The relationship of conductivity of rock with propagation velocity of elastic waves is studied. It is demonstrated that for granite-diorite rocks, the change in rock composition from granite to diorite causes an increase both in longitudinal wave velocity and in conductivity. Studies of the influence of the structural factor are performed on a group of gabbro-basalts, for which the areas of curves showing dependence of longitudinal wave velocities on pressure and the range of values of conductivity at 200° are presented.

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USSR

UDC 535.231.4.07:535.89

BAYUNOV, V. I., DEMIDOV, M. I., OGURTSOVA, N. N., Candidate of Technical Sciences, PODMOSHENSKIY, I. V., Candidate of Technical Sciences, SMIRNOV, V. L., SHELEMINA, V. M.

"An Installation for the Measurement of High Brightness Temperatures"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 12, Dec 70, pp 24-27

Abstract: An installation for the measurement of brightness temperatures in the range of 6,000-100,000 ° K, with a time resolution of up to 3×10^{-8} seconds, is described. This is the IF-88 installation, designed and constructed by I. V. Bolotnikov and I. V. Peysakhson. Determination of the temperature is based upon successive comparison of the brightness of the source under investigation and that of Standard EV-45, the measurement being conducted simultaneously in two wavelength intervals, isolated by interference filters from a spectral range of 220-400 nanometers. 3 figures, 3 bibliographic entries.

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- 97 -

USSR

UDC 532.517.4

LAGUNOV, A. S., BAYVEL, L. P., GUSEV, B. A., and LITVINOV, V. K.,
V. I. Lenin Khar'kov Polytechnical Institute

"Dimensional Distribution of Drops as a Function of Their Residence
Time in Turbulent Flow and the Flow Velocity"

Moscow, Doklady Akademii nauk SSSR, vol 207, No 4, 1972, pp 808-810

Abstract: Some results are given in this experimental paper investigating the fractioning process of a liquid by a gas stream. The gas flows in a Venturi and is incident on the liquid through an aerodynamic sprayer. The process occurs in two stages. In the first, the fractioning is done at high relative velocities of liquid and gas; in the second, it is caused by turbulent flow pulsations. The dimensional spectrum of the drops was determined at a comparatively large distance from the intersection point of the liquid and the gas. The experimental equipment was developed by the authors on the basis of the work of K. S. Shifrin, and the experiments described were suggested by A. N. Kolmogorov to clarify the dependence of the dimensional distribution on the residence time in turbulent flow. A diagram of the equipment is given, and 1/2

USSR

LAGUNOV, A. S., et al, Doklady Akademii nauk SSSR, vol 207, No 4, 1972, pp 808-810

curves of the drop dimension spectra plotted for various values of the gas show that the dimensions depend strongly on the residence time.

2/2

USSR

BAYYER, V. N., and FADIN, V. S., Institute of Nuclear Physics, Siberian Department, Academy of Sciences USSR

"Inelastic Contributions to Electromagnetic Pion Form Factor"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 219-224

Abstract: Recent experiments on $\pi^+\pi^-$ -pair production on counter electron-positron beams in Novosibirsk and Frascati, measuring the electromagnetic pion form factor $F_\pi(s)$, at energies $\sqrt{s} = 2\epsilon > 1$ Gev disclosed that $|F_\pi(s)|$ considerably exceeds the Breit-Wigner curve, which approximates $|F_\pi(s)|$ in the ρ -resonance region. Experiments in this same energy region also established that there is a great likelihood of a photon passing into many-hadron states. In this connection the indicated increase in the form factor $|F_\pi(s)|$ can be explained as follows: the photon passes into many-hadron states (this is very likely to occur), which are then transformed into a pair of pions. Intermediate states with a large number of particles thus are

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USSR

BAYYER, V. N., and FADIN, V. S., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 219-224

important. In other words, we are dealing with inelastic contributions to the unitarity relation for the form factor. This relation takes the following form:

$$\operatorname{Im} F_{\pi}(s) = \beta f_{11} F_{\pi}^{-}(s) \theta(s - 4\mu^2) + \frac{(2\pi)^4}{2} \sum_{\substack{n \neq \pi^+ \pi^- \\ (J=1=1)}} \delta(p_+ + p_- - p_n) \times \\ \times \langle \pi^+ \pi^- | T | n \rangle \frac{(p_+ - p_-)^{\mu} \langle 0 | \mathcal{J}_{\mu}(0) | n \rangle^*}{(s - 4\mu^2)} = \beta f_{11} F_{\pi}^{-}(s) \theta(s - 4\mu^2) + D.$$

2/2

- 89 -

USSR

BAYYER, V. N., and FADIN, V. S., Institute of Nuclear Physics, Academy of Sciences USSR, Siberian Department

"The Process of Electron-Induced Production in Counterbeam Experiments"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 6, 20 Mar 71, pp 293-297

Abstract: The process of electron-induced production in counterbeam experiments ($e^+ e^- \rightarrow e^+ e + N$) lately has been discussed a number of times, particularly at the Kiev conference. The present article gives a more detailed analysis of the process of electron-induced pair production for the purpose of comparing it with the results of the latest counterbeam experiments. Two-photon and brake diagrams are considered. The authors thank A. ONUCHIN for discussing the experimental situation and S. EYDEL'MAN for assisting in the numerical calculations.

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USSR

UDC 619:576.807.7-576.858.4

BAZADZE, Ts. V., Scientific Associate, Georgian Zootechnical Veterinary
Scientific Research Institute

"Antigenic Properties of Some Strains of Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 9, 1971, pp 34-35

Abstract: Data obtained in comparative study of the antigenic properties of epizootic strains of foot-and-mouth disease (FMD) virus type 0 isolated in the Georgian SSR: Strain 121/68 isolated in 1968, 295/70, and 304/70 in 1970 with the derived strain O₁₉₄, epizootic strain O_{170/65} and the standard strain 0, are presented in the article. All of these strains were adapted to guinea pigs, 3-4 day old rabbits, and nursing mice, and strain-specific sera of guinea pigs were obtained for all of them. The complement fixation reaction according to the Traub and Mel'man method (1946), utilizing titration on homologous and heterogenous strains, was used. In addition the diffusion precipitation reaction, and serum protection reaction were employed. Studies showed that all of the strains isolated in Gruzinskoy SSR are identical, and correspond to the derived strain O₁₉₄; but differ from the standard strain of type 0. Strains O_{121/68}, O_{170/65}, and O₁₉₄ are identical. The saponified aluminum hydroxide formolvacine from strain O_{121/68} adapted to rabbits is immunogenic also for guinea pigs.

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Hematology

USSR

DOLETSKIY, S., Professor, GAVRYUSHOV, V., Doctor of Medical Sciences,
BAZAKOV, L., Candidate of Medical Sciences

"Direct Blood Transfusion"

Moscow, Meditsinskaya Gazeta, 5 Feb 71, p 3

Abstract: Infusions of stored donor blood to which preservatives have been added do not always yield the desired results, because such blood loses its ability to raise the coagulability of the recipient's blood and to stimulate regenerative processes in his tissues, especially during infection. For this reason, the method of direct blood transfusion has been reintroduced at the Children's Surgical Clinic. Parents or relatives of the children serve as blood donors after they have been medically examined and their blood has been typed and matched with that of the recipient. The transfusion is done by means of a special instrument supplied with a gentle finger-type pump. If the donor shows signs of emotional strain, he or she is kept in a different room than the child, and blood is transfused with a simple syringe. The amounts range from 10 to 30 ml of blood per kg body weight of the child per transfusion, with 1-10 transfusions performed at intervals of 3-4 days. To enhance the therapeutic effect, the donors are previously immunized with
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USSR

DOLETSKIY, S., et al, Meditsinskaya Gazeta, 5 Feb 71, p 3

staphylococcus toxoids and are given prodigiosan -- a biological stimulant of immunogenesis. Direct blood transfusions are conducted on children with severe staphylococcal infections, acute hemorrhagic osteomyelitis, purulent inflammations of lungs and pleura, ulcerative and necrotic enterocolitis, and other septic diseases. The results obtained from 135 direct transfusions performed on 34 children are promising. Most children began to improve after 1-3 transfusions. Weight loss was halted and was followed by weight gain. Sloughing of necrotic tissue as well as granulation and epithelization of wounds were accelerated. Apparently, fresh blood has special beneficial effects on tissue metabolism, endocrine glands, and the autonomic nervous system. The method of direct blood transfusion should find wide clinical applications, especially in the treatment of the newborn.

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USSR

UDC [537.226+537.311.33]:[537+535]

BAZAKUTSA, V. A., VOINOVA, L. G., ROGACHEVA, YE. I., and DEMBOVSKIY, S. A.

"Electrophysical Properties and Structures of Some Indium and Thallium Tellurides in Thin Layers"

V sb. Tonkiye plenki soedineniy tellura s metallami podgrupp tsinka i galliya (Thin Films of Tellurium Compounds With Metals of Zinc and Gallium Subgroups -- Collection of Works), Vil'nyus, 1970, p 111 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE760 by authors)

Translation: Thin layers of $TlSeTe_2$ were obtained by thermal evaporation in vacuum. Amorphous layers of condensate were obtained by deposition on cold substrates. Heat treatment of amorphous films of $TlSbTe_2$ in vacuum at $T=350^\circ K$ resulted in their crystallization. The authors studied the following basic electrophysical parameters of amorphous and polycrystalline layers of $TlSbTe_2$: specific conductivity, Seebeck coefficient, concentration and sign of current carriers, thermal activation energy. Transmission and reflection of amorphous and polycrystalline layers of $TlSbTe_2$ in the spectral range from 0.7-15 microns were measured. The effective mass of current carriers was calculated according to IR reflection spectra. In_2Te_3 films were obtained by cathode sputtering of the initial semiconductor in an Ar atmosphere. The

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USSR

BAZAKHITSIA, V. A., et al., Tonkiye plenki soyedineniy tellura s metallami podgrupp tsinka i galliya, 1970, p 111

structure and following basic electrophysical parameters of films were studied: specific conductivity, Seebeck coefficient, concentration and sign of current carriers, energy gap.

2/2

- 04 -

USSR

UDC 533.99

BAZAKUTSA, V. A., MOSKALETS, V. F., RUDAKOV, N. S., GOROKHOV,
M. P.

"Some Results of an Investigation of a Plasmatron Intended for
Plasma-Chemical Reactions"

Minsk, V sb. Vopr. fiz. nizkotemperaturn. plasmy (Problems of
the Physics of Low Temperature Plasma -- Collection of Works),
"Nauka i tekhn.," 1970, pp 421-424 (from RZh-Elektronika i yeye
primeneniye, No 2, February 1971, Abstract No 2A343)

Translation: An investigation is made of electrical arcing in
a transverse low-frequency magnetic field, based on a plasmatron
with combined stabilization of the arc by a vortex flow of gas
and the magnetic field. The voltampere characteristics of the
discharge are obtained. 2 illustrations. Summary.

1/1

USSR

BAZALIY, B. V., and DANILYUK, I. I.

"On the Stationary Points of a Functional Corresponding to a Boundary Value Problem With a Free Boundary"

Kiev, Matematicheskaya Fizika, No 8, 1970, pp 3-14

Abstract: Let Γ be some simple, sufficiently smooth curve on the plane $z = x + iy$ and let there be defined in domain G , bounded by Γ , the real-valued sufficiently smooth function $Q(x, y; v)$, where $v = (v_1, v_2, \dots, v_n)$ is a certain aggregate of numerical parameters ($v \in R^n$). $G_\gamma \subset G$ denotes a doubly connected curvilinear ring bounded by the fixed line Γ and some sufficiently smooth unknown line γ ("free boundary"), and under consideration is the family of functionals

$$I(\psi, \gamma; v) = \iint_{G_\gamma} [\psi_x^2 + \psi_y^2 + Q^2(x, y; v)] dx dy, \quad (1)$$

1/4

USSR

BAZALIY, B. V., and DANILYUK, I. I., *Matematicheskaya Fizika*, No 8, 1970, pp 3-14

defined on the pairs $(\psi(x,y), \gamma)$, where $\psi(x,y)$ is a function sufficiently smooth in G_γ , equal to zero on Γ and one on γ . Given a certain v let the pair (ψ, γ) furnish functional (1) with a stationary value and have classical differential properties sufficient for the use of Green's formula. Using formulas for calculating the first variation of the functional defined by an integral with a variable domain of integration, it can be shown that

$$\delta I(\psi, \gamma; v; \delta\psi, \delta z) = - \iint_{G_\gamma} 2(\psi_{xx} + \psi_{yy}) \delta\psi dx dy - \int_\gamma (|\nabla\psi|^2 - Q^2(x, y; v)) \delta z nds. \quad (2)$$

2/4

USSR

BAZALIY, B. V., and DANILYUK, I. I., *Matematicheskaya Fizika*, No 8, 1970, pp 3-14

Since on stationary points variation (2) must vanish, due to arbitrariness in the selection of $\delta\psi$, and $\overline{\delta z} = (\delta x, \delta y)$, the function ψ is harmonic and on the sought curve γ satisfies the generalized Bernoulli law

$$|\text{grad } \psi|^2 = Q^2(x, y; v).$$

The article considers an isoperimetric problem in which it is necessary to find all critical points for functional (1) on the set of all admissible pairs for which the area of ring G_γ is the given quantity c^2 : i.e.,

$$I_1(\gamma) \equiv \iint_{G_\gamma} dx dy - c^2 = 0. \quad (3)$$

3/4

USSR

BAZALIY, B. V., and DANILYUK, I. I., *Matematicheskaya Fizika*, No 8, 1970, pp 3-14

An earlier article by DANILYUK proved the existence of the classical pair (ψ, γ) such that functional (1) reaches its greatest lower bound on it and thus proved an existence theorem for a boundary value problem with conditions 1-3. No constraints were imposed on the functional structure of $Q(x, y; \nu)$. The present article considers the critical points of functional (1) and their branching on the assumption that $Q(x, y; \nu) = q(\rho; \nu, \rho^2 = x^2 + y^2)$. In addition, it is assumed that the curve Γ is a circle $|z| = 1$; this condition can always be satisfied by virtue of conformal invariance of Dirichlet's integral.

4/4

- 13 -

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BAZALIY, B. V. and DANILYUK, I. I., Corresponding Member of the Academy of Sciences UkrSSR

"Branching of the Critical Points of Functionals Determined by Integrals with Variable Region of Integration"

Kiev, Dopovidi Akademiyi Nauk Ukrayinskoyi RSR, Seriya A, Fizyko-tekhnichni ta matematychni nauky, No 1, Jan 70, pp 3-7

Abstract: Suppose that Γ is a circle $|z| = 1$, $\rho_0 = \sqrt{1 - c^2/\pi} > 0$, where $c^2 < \pi$ is given; $q^2 \equiv q^2(\rho, \gamma)$, where $\rho_0 = x^2 + y^2$; and $\gamma = \gamma_1, \dots, \gamma_n$ is a system of real parameters. Let (ρ_0, γ_0) satisfy

$$\frac{1}{\rho_0^2 n^2 \rho_0} + \frac{\rho_0}{m+1} \frac{\rho_0^n - \rho_0^{-m}}{\rho_0^n + \frac{m-1}{m+1} \rho_0^{-m}} \frac{d}{d\rho} q^2(\rho; \gamma_0) \Big|_{\rho=\rho_0} = 0.$$

for some $m > 1$; $\lambda = \lambda_m$ be determined by

$$\lambda = \lambda_m \equiv q^2(\rho_0; \gamma_0) + \frac{\rho_0}{m+1} \frac{\rho_0^n - \rho_0^{-m}}{\rho_0^n + \frac{m-1}{m+1} \rho_0^{-m}} \frac{d}{d\rho} q^2(\rho; \gamma_0) \Big|_{\rho=\rho_0};$$

1/3

USSR

BAZALIY, B. V., et al., Dopovidi Akademiya Nauk Ukrayinskoyi RSR, Seriya A, Fizyko-tekhnichni ta matematychni nauky, No 1, Jan 70, pp 3-7

and $q(\rho; \gamma)$ be analytic in some neighborhood of the point (ρ_0, γ_0) . Finally, let quantities

$$c_k = \frac{\pi}{k} \left(\frac{q_0^k}{1 - q_0^{2k}} \right)^2 \frac{\partial}{\partial q} [(q^2(\rho; \gamma_0) - \lambda) q^2 (q^{-k} - q^k)^2] \Big|_{\rho=\rho_0}^{\mu=1}, \quad k = 1, 2, \dots$$

for $k \neq m$ and derivative

$$\begin{aligned} \frac{\partial f_i}{\partial \mu_i} \Big|_{\mu=0} &= \left[-2\pi \left| \frac{2\pi q_0}{c_0} \frac{\partial}{\partial v_i} q^2(\rho_0; v) - \frac{1}{c_0} \frac{\partial^2 J}{\partial q \partial a_m^2} \frac{\partial \xi_0^2}{\partial \mu_i} \right| + \right. \\ &\left. + 2\pi(m+1) \left(\frac{q_0^m}{1 - q_0^{2m}} \right)^2 q_0^2 \left(q_0^m + \frac{m-1}{m+1} q_0^{-m} \right) \frac{\partial \xi_0^2}{\partial \mu_i} \Big|_{\mu=0} \right] \end{aligned}$$

for $i = 1$ be non-zero and for some $\mu = \gamma - \gamma_0$ the conditions

$$L_{30} \neq 0, \quad -L_{11}/L_{70} > 0.$$

be satisfied. Then the functional (1), in some neighborhood of the "trivial"

2/3

USSR

BAZALIY, B. V., et al., Dopovidi Akademiya Nauk Ukrayinskoyi RSR, Seriya A, Fizyko-tehnichni ta matematychni nauky, No 1, Jan 70, pp 3-7

critical point (ψ_0, γ_0) , $\psi_0 = \ln |z| / \ln \rho_0$, $\gamma: |z| = \rho_0$, has two $(n-1)$ -parametric families of the critical points (ψ, γ) for which the annulus G_γ has an area equal to c^2 .

$$I(\psi, \gamma; \lambda, c) = \int_{G_\gamma} (\psi_x^2 + \psi_y^2 + Q^2(x, y) - \lambda) dx dy + \lambda c^2; \quad (1)$$