

AAC052695-BAZANOV

S.V.

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 1-70

244031 CENTRALISED LUBRICATION SYSTEM e.g., of bearing units, comprising doser with electromagnetic drive, controlled by a command apparatus, and jets, differing in being mounted in a common bearing shield having channels connecting the consumption cavity to the dosing cavity and to the jet via the pressure cavity. This improves reliability with remote-controlled automatic lubricant supply.

18.3.68. as 1226228/25-8, KOVARSKII, E.M. et al.  
(26.9.69) Bul. 17/14.5.69. Class 47e, Int. Cl. F 16n.

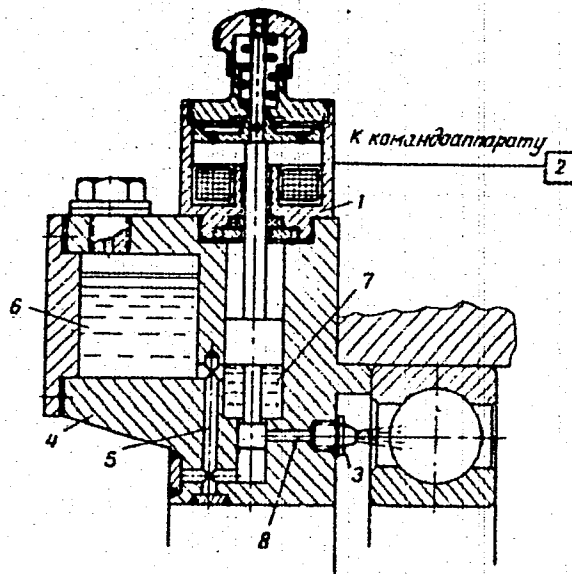
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Kovarskiv, Ye.M.; Bazanov, S.V.; Prokhorov, M.V.;  
Zharov, P.V.

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19821485

AA0052695



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19821486

7/19

USSR

UDC: 621.396.662:621.396.679

BAZANOV, V. U., KOZLOV, B. M., PANCHENKO, V. A.

"An Adapter for a Rod Antenna"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331459, Division H, filed 5 Jun 70, published 7 Feb 72, pp 172-173

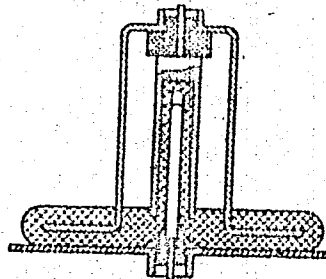
Translation: This Author's Certificate introduces: 1. An adapter for a rod antenna. The device contains a rigid section of coaxial line fitted with a standard coaxial connector. The adapter also includes a flange-supported housing which is simultaneously a shield. As a distinguishing feature of the patent, connection is simplified and reliability is improved, and also provision is made for DC isolation of the adapter from the antenna by making the central conductor of the coaxial line in the attachment in the form of an expanded hollow cylinder which forms an open coaxial line section together with the antenna rod. The support flange serves as the outer conductor of the coaxial line in the adapter. The flange is located in the insulator and forms an open section of radial line together with the base of the antenna. 2. A modification of this adapter distinguished by the

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BAZANOV, V. U. et al., USSR Author's Certificate No 331459

fact that matching with a top-fed antenna is improved by making a cylindrical constriction directly encompassing the insulator in the outer conductor of the coaxial line of the adapter within the limits of the protruding part of the antenna base.



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1/2 018

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--A MICROSCOPE STUDY OF MENBRANE POTENTIAL OF THE FROG'S BLADDER  
PARASYMPATHETIC GANGLION'S NEUTONESS -U-

AUTHOR--(03)-BAZANOVA, I.S., VOROBYEVAND, V.S., YEUDOKIMOV, S.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGICHESKIY ZHURNAL SSSR IMENI I. M. SECHENOVA, 1970, VOL 56,  
NR 5, PP 718-724.

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEURON, GENITOURINARY SYSTEM, BIOPOTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1172

STEP NO--UR/0239/70/056/005/0718/0724

CIRC ACCESSION NO--AP0126774

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126774

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MEMBRANE POTENTIAL WAS SHOWN TO BE 72 PLUS OR MINUS 16.5 MV. A MICROELECTRODE OF LESS THAN 1 MICRON IN DIAMETER DOES NOT APPARENTLY INJURE A NEURON WHILE PENETRATING IT. NEITHER REPEATED INSERTING OF THE MICROELECTRODE CAUSES ANY STRUCTURAL CHANGES OR CHANGES IN THE MEMBRANE POTENTIAL. WHILE MICROELECTRODE OF MORE THAN 2 MICRONS IN DIAMETER CAUSES SHARP STRUCTURAL CHANGES.

FACILITY: PAVLOV'S INSTITUTE OF PHYSIOLOGY ACAD. SCI. USSR, LENINGRAD.

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UDC 632.95

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YUKHTIN, N. N., MOLCHANOV, A. V., KELEKHSAYEVA, YE. A., BAYANOVA, S. S.,  
LEBEDEVA, L. I., GRISHINA, YE. A., and PRESHNYAKOVA, S. I.

"Propanid -- A Highly Effective Herbicide for Weed Control in Rice Paddies"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 156-163 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N514 by. O. A. Korotkova)

Translation: As a result of a study of propanid yield dependence on the solvent, reactant molar ratios and crystallization conditions, it is suggested that propanid be obtained by acylation of 3,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>NH<sub>2</sub> [sic] in a petroleum solvent medium at a 3,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>NH<sub>2</sub> and solvent ratio of 1:0.5.

The reaction is conducted for 12-15 hours with stirring and at 140-160°, distilling the aqueous azeotrops at 90-95° at the beginning of the process, and 135° at the end. The unreacted starting materials are recycled. The resultant propanid has a purity of 98.5-99.5 percent, melting point 89-91°, yield 83-98 percent.

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USSR

UDC:553.982.2(575.15)

AKRAMKHODZHAYEV, A. M., ERGASHEV, K. A., AKHMEDOV, Kh. A., OGAY, V. F.,  
BAZARBAYEV, E. G.

"Evaluation of Prospects for Oil and Gas Content of Eastern Portion of  
Fergana Depression in the Light of New Data"

Tashkent, Uzbekskiy Geologicheskii Zhurnal, No. 6, 1970, pp. 15-19

Abstract: In spite of the significant number of prospecting operations which have been conducted over the past decade in the Fergana depression, the prospects for oil and gas finds in the eastern portion of this depression have not yet been properly evaluated. This article presents a description of the Suzakskaya structure, which has been a judged promising. Based on the description presented, it is concluded that the formation of the overwhelming majority of oil and gas deposits in this region has occurred primarily due to migration of hydrocarbons from oil and gas conducting suites into collectors within formations, as well as due to lateral --

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UDC:553.982.2(575.15)

AKRAMKHODZHAYEV, A. M., ERGASHEV, K. A., AKHMEDOV, Kh. A., OGAY, V. F.,  
BAZARBAYEV, E. G., Tashkent, Uzbekskiy Geologicheskii Zhurnal, No. 6,  
1970, pp. 15-19

regional -- migration from the deeper portion of the oil and gas forming  
area throughout the entire history of geological development of the  
structural plan, i. e. both before and after the morphological formation  
of the structural forms.

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USSR

BAZARBAYEVA, T. G.

"Composition of Automata Using Generalized States of Inputs"

Proyektir. Diskretn. Upravlyayushchikh Ustroystv [Planning of Discrete Control Devices -- Collection of Works], Frunze, Ilim Press, 1972, pp 20-35 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V440, by A. Sapozhenko).

Translation: Automata are studied, the inputs of which receive Boolean functions of variables  $x_1, x_2, \dots, x_n$ . A method is suggested for writing the table of transitions for automata produced from two automata by means of the operations of combination and composition. The initial data are the tables of transitions for these automata. Examples are studied. According to a statement of the author, the use of generalized inputs (feeding the functions to the inputs rather than the values of the input variables) can yield a savings of memory elements of 20-25%.

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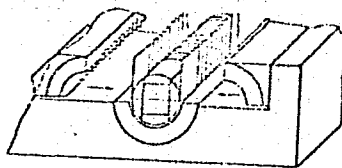
UDC 621.372.823

BAZARNYY, Ye. M., ISAKOV, V. N., NEFEDOV, V. G., LAGEREV, L. I.

"A Device for Making Corrugated Waveguides of Circular Cross Section"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 22, Aug 71, Author's Certificate No 309422, Division H, filed 24 Oct 69, published 9 Jul 71, p 206

Translation: This Author's Certificate introduces a device for making corrugated waveguides of circular cross section. The device contains a frame and a sectional corrugated mandrel. As a distinguishing feature of the patent, the manufacturing process is simplified by using sliders which move in a direction perpendicular to the axis of the waveguide. The inner spherical surface of the sliders is corrugated with respect to the waveguide profile.



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Acc. Nr.: AP 0031964

Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol 69, Nr 1, pp 95-96

ON THE PROCEDURE FOR ISOLATION OF MICROLYMPHOCYTES FROM THE PERIPHERAL BLOOD

Bazarnova, M.A.; Naydenova, R.I.

Kharkov Research Institute of General and Emergency Surgery - and Ukrainian Institute of Post-Graduate Medical Training

Two procedures (that of Coulson and Chalmers and of Holub as modified by N. A. Kraskina and the coauthors) were employed successively isolating microlymphocytes from the peripheral blood with a view to utilizing them for preparation of the lymphocytotoxic serum. This method enables obtaining from 300 ml of blood an amount of cells required for immunization of 4-5 rabbits, reckoned on the basis that 1 ml of physiological saline contains suspended in it  $5 \times 10^6$  of small lymphocytes. The bulk of the blood can be given back to the patient, provided complete sterility is observed.

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REEL/FRAME

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UDC:533.6

BAZARNOVA, N. M., KRYLOV, A. A., STARIKOV, B. B.

"Experimental Study of Flow Around a Sphere by a Stream of Rarefied Gas"

Aerodinamika Razrezh. Gazov [Aerodynamics of Rarefied Gases -- Collection of Works], No 6, Leningrad University Press, 1973, pp 105-113  
(Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 9, 1973, Abstract No 9.34.10)

Translation: Results are presented from experimental studies of the distribution of pressure on the surface of an insulated sphere in a stream of rarefied gas. Experiments were performed at  $M=3.6-3.8$ , the change in rarefaction of the stream with flow around the sphere corresponded to a transient flow mode ( $Re_{\infty}=10-130$ ). Results are produced as to the pressure on the surface of the sphere practically for the entire transient flow mode. The pressure on the upwind side of the sphere for all modes does not change as the rarefaction changes and is well described by the theory of Newton. The rarefaction of the stream has no influence on the nature of distribution in the bottom portion of the sphere; the measured bottom pressures, to 10% of the static pressure in the stream. 5 Figures;

11 Biblio. Refs.

Resume

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USSR

B

UDC 621.372.831.1

LAGEREV, L. I., BAZARNYY, Ye. M., ISAKOV, V. N., MAR'IN, V. I.

"New Waveguide Couplings"

Elektron. prom-st'. Nauchno-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1970, No 1, pp 121-123 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B177)

Translation: The authors consider two types of circular waveguide couplings made by the cold pressing method -- a permanent coupling (a sleeve into whose opening the sections to be joined are pressed) and a detachable coupling (a flange unit). One such flange coupling is a rapid-action unit made up of two flanges connected by bolts and a drift pin. The reliability and simplicity of the new couplings is noted. Three illustrations. N. S.

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USSR

UDC 591.105:612.11/.12

BAZAROV, A. I., Division of Physiology, Academy of Sciences Uzbek SSR

"Effects of a High Temperature on the Redox Enzymes of Leukocytes"

Tashkent, Uzbekskiy Biologicheskii Zhurnal, Vol 16, No 3, 1972, pp 66-68

Abstract: The effects of exposure to a high temperature of persons who arrived in Uzbekistan from different climatic zones on the content of the redox enzymes peroxidase (P) and cytochromoxidase (C) in their leukocytes were studied. Young men 18-20 yrs old belonging to three different groups, local inhabitants (group I), arrivals from areas with a moderate climate (group II), and arrivals from areas with a cold climate (group III), were subjected during 10 days to 2 hrs of exposure per day to a shade temperature of 30-34° at a relative humidity of 30-40° and solar irradiation amounting to 101.6 cal./sq. cm. during the 2 hrs. Blood analyses were carried out at 7 A.M., 2 P.M., and 7 P.M. In group I the level of P decreased by 8.2% on the first day and increased by 13.1% on the 5th day, with the increase taking place only in the evening hours. It increased on the 10th day at 2 P.M. The level of C remained constant during the 10 days. In group II the changes were similar to those in group I on the first day, while both P and C increased on the 5th day, the content of the enzymes being on a raised level at 2 and 7 P.M. On the 10th day the level of P had increased by 15.1-21.6%, while that of C remained

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BAZAROV, A. I., *Uzbekskiy Biologicheskiy Zhurnal*, Vol 16, No 3, 1972,  
pp 66-68

unchanged during the day and was approximately equal to that on the first day. In group III the content of P increased on the first day by 6.2% at 2 P.M. and remained at this level at 7 P.M., while the content of C did not change. On the 5th day the content of both P and C increased, particularly at 7 P.M. and then decreased on the 10th day. The data obtained indicated that the changes in the content of redox enzymes depended on the degree of adaptation to the environment, with subjects in groups II and III exhibiting more significant alterations in metabolic processes than those in group I.

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USSR

UDC: 621.375.132:621.375.4(088.8)

BAZAROV, B. V., LAVRENT'YEV, G. F., RAZORENOV, N. Ye.

"An AC Amplifier"

USSR Author's Certificate No 221054, filed 3 Jun 66, published 3 Dec 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D119 P)

Translation: An AC amplifier is proposed with a phase-sensitive rectifier with negative feedback proportional to the direct current of the load. To simplify the design and improve reliability, the primary winding of the feedback transformer is connected in series with the switches of the phase-sensitive rectifier, and the secondary winding is connected to the input of the AC amplifier.

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USSR

UDC[621.382.538.4].017.001.24

KUFA, E.N., BAZAROV, G.P.

"Terminal Losses in Montard Magnetohydrodynamic Generator"

V sb. Teplotekhn. probl. pryamogo preobrazov. energii (Heat-Engineering Problems Of Direct Energy Conversion--Collection Of Works), Issue 2, Kiev, "Nauk.dumka," 1971, pp 103-106 (from RZh--Elektrotehnika i energetika, No 12, Dec 1971, Abstract No 12A187)

Translation: An evaluation is made of the magnitude of the terminal losses at the output of the channel of a magnetohydrodynamic (MHD) generator and the effect of these losses on the efficiency of a MHD electrical power plant. An analysis is made of the channel and diffuser in a one-dimensional approximation, and the distribution of the parameters obtained is used for determination of the currents and potentials (plane problem). An analysis is made of the diffuser with electrostatics taken into account. 2 ill. [Voronez Polytechnical Institute]

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USSR

UDC: 621.373.029.7

BAZAROV, Ye. N., BIKETOV, V. D., GUBIN, V. P.

"Short-Term Instability of a Standard Based on a Rubidium Maser With Optical Pumping"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 887-889

Abstract: An investigation is made of the short-term instability of a frequency standard with quartz-crystal AFC circuit using a maser on  $Rb^{87}$  vapor with optical pumping. Measurement errors are analyzed. It was found that instability in the region  $\tau < 1$  s is determined by external additive receiver noise. Instability in the region  $\tau > 1$  s is determined by temperature fluctuations in the dimensions of the cavity. Temperature compensation by a buffer gas should be used to improve stability at  $\tau > 100$  s. The authors thank L. Z. Pososhenko for designing the electronic circuits of the frequency standard, and Ya. A. Yukhvidin for his interest in the work.

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## Lasers/Masers

USSR

UDC 621.373.029.7.001.5

BAZAROV, YE.N., BIKETOV, V.D., GUBIN, V.P., YUKHVIDIN, YA.A."Buffer Gas Influence On A Laser Operating On Rb<sup>87</sup> Vapors With Optical Pumping"Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 556-564

Abstract: A theoretical and experimental study is made of the operation of a rubidium laser in the process of generation, with filling of its resonator with nitrogen and mixtures of nitrogen--argon. The experiments were conducted on a model of a rubidium laser, the construction of which is analogous to that described by Ye. N. Bazarov and V.P. Gubin (Radiotekhnika i elektronika, 1969, 14, 6, 1045). However, in a given case, the magnitude of the coupling of the rubidium laser with the load can be selected within certain limits with the aid of a matching plate in the output waveguide. The resonator of the model was connected to a vacuum-pumping assembly which made it possible to evacuate it to a pressure of  $10^{-5}$  tor and to fill it with various gases. It is shown that with a concentration of rubidium atoms considerably exceeding the threshold, the limiting short-term stability of the rubidium laser does not depend on the parameters of the buffer mixture. The theoretical and experimental study conducted shows the possibility of creating a rubidium laser with a small temperature coefficient of the frequency, a large power of generation, and a high short-term stability. The authors thank B.M.Glebov for help in preparing the experiment and V.F.Zolin and E.I.Alekseyev for discussion of results. 7 fig. 12 ref. Received, 8 Dec 70.

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USSR

B

UDC: 621.373.029.67.001.5

ALEKSEYEV, E. I. and BAZAROV, Ye. N.

"Theory of Rubidium Lasers with Optical Pumping"

Moscow, Radiotekhnika i Elektronika, No 5, 1970, pp 1044-1051

Abstract: While the approximation theories of the rubidium laser offered by earlier papers give a satisfactory account of the processes taking place, they do not describe the frequency characteristics of the laser and cannot be used to compute shifts in oscillation frequency caused by optical pumping. The authors begin their more detailed consideration of rubidium lasers with the equation defining the matrix of the basic state density for  $Rb^{87}$  atoms. In the derivation of this equation, obtained from an earlier paper (Alekseyev, Bazarov, and Levshin, Radiotekhnika i Elektronika, 1969, 14, 11, p. 2026) it was assumed that the collisions between rubidium atoms and those of nitrogen, injected into

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USSR

ALEKSEYEV, E. I., et al, Radiotekhnika, i Elektronika, No 5, 1970, pp 1044-1051

the resonator to improve pumping efficiency, leads to complete confusion inside the  $5P_{1/2}$  and  $5P_{3/2}$  rubidium sublevels but has no effect on the junctions<sup>2</sup> between them. This assumption is based on the fact that the average energy exchanged in the thermal motion of the colliding nitrogen molecule and the excited rubidium atom is comparable to the Zeeman and very fine separation of the two sublevels, but is much less than the difference in their energies. To simplify their calculations, the authors make several further assumptions: that at each moment, the number of rubidium atoms in the excited state is small compared to the number of atoms in the fundamental state; that uniform relaxation occurs in collisions of the rubidium atoms with the buffer gas and the walls of the resonator; that the filtration is ideal. They thus obtain expressions for oscillation conditions, the width of the operating junction lines, and the generated power, by assuming a uniform magnetic

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USSR

ALEKSEYEV, E. I., et al, Radiotekhnika i Elektronika, No 5, 1970,  
pp 1044-1051

field in the resonator. A satisfactory agreement between experi-  
mental and theoretical results is obtained.

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Hydraulic and Pneumatic

USSR

UDC: 532+533/533.6

BAZARON, U. B., DERYAGIN, B. V., BUDAYEV, O. R.

"Mechanical Properties of Liquids"

Poverkhnost. Sily v Tonkikh Plenkakh i Dispers. Sistemakh [Surface Forces in Thin Films and Dispersed Systems], Moscow, Nauka Press, 1972, pp 279-301 (Translated: from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12B1029, by O. K. Rozanov)

Translation: Results are presented from an experimental study of the mechanical properties of liquids, including determination of the angle of mechanical losses. The dynamic measurement method was used, in which the liquid being studied is applied onto piezoquartz and covered with another quartz plate, thus forming a thin film. In contrast to earlier works, the authors determined the complex shear modulus by additional determination of the imaginary portion of the complex frequency shift, based on the change of the resonant curve of the piezoquartz. The working frequency of the oscillations was about 74 kHz. The following liquids were studied: water, hexyl alcohol, triethylene glycol, oleic acid, vaseline and castor oils and polymethyl siloxane. Measurements were performed at room temperature. The dependences of piezoquartz frequency shift on inverse film thickness produced are presented graphically.

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USSR

Bazaron, U. B., Deryagin, B. V., Budayev, O. R., Poverkhnost. Sily v Tonkikh Plenkakh i Dispers. Sistemakh, Moscow, Nauka Press, 1972, pp 279-301.

It is determined that in the case of triethylene glycol, polymethyl siloxane and vaseline and castor oils, the mechanical loss angle tangent is not dependent on film thickness within the limits of measurements error. This is explained by the absence of a boundary film with singular properties in these liquids, or the low thickness of this film if it is present. In the case of water and hexyl alcohol, it was found that there is a dependence of mechanical loss angle tangent on film thickness: as the thickness decreases, the tangent decreases. The results of measurements of mechanical parameters are presented in a table. An estimate is given of the effective viscosity manifested in oscillations of the piezoquartz for five liquids (all except water and hexyl alcohol), under the assumption of addition of elastic and viscous stresses (Kelvin body) or when elastic and viscous deformations are added (Maxwell body). The viscosity for the Maxwell body is about 15% higher than values for the Kelvin body. One exception is polymethyl siloxane, where significant divergences are explained by low values of mechanical loss angle tangent.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--RATE OF FORMATION OF CONDENSATION NUCLEI IN SUPERSATURATED VAPOR  
-U-  
AUTHOR--(03)-BLOKH, A.G., BAZAROV, S.M., VARVARIN, S.V.  
COUNTRY OF INFO--USSR  
SOURCE--INZH. FIZ. ZH. 1970, 18(3), 467-73  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--VAPOR CONDENSATION, NUCLEATION, KINETIC EQUATION, MOLECULAR  
INTERACTION, COMPLEX MOLECULE, BOND ENERGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1437 STEP NO--UR/0170/70/018/003/0467/0473  
CIRC ACCESSION NO--AP0118426  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118426

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC EQUATIONS FOR THE PHASE TRANSITIONS IN SUPERSATD. VAPOR WERE DERIVED ON THE BASIS OF THE DYNAMICS OF CONDENSATION PROCESSES. IT IS ASSUMED THAT THE FORMATION OF AN EQUIL. STEADY STATE COMPLEX OF G MOL. IS PRECEDED BY THE FORMATION OF INTERMEDIATE UNSTABLE ASSUCS. CONSITING OF A SMALLER NO. OF MOL. COLLISION OF 2 MOL. IS CONSIDERED THE STARTING POINT. A BOND IS FORMED BETWEEN THEM AND AN UNSTEADY STATE DOUBLE SATD. COMPLEX APPEARS. SUCH A MOL. COMPLEX IS DESIGNATED AS ACTIVATED BECAUSE THE BOND ENERGY IS CONCD. IN IT. THE REMOVAL OF THE BOND ENERGY FROM THE ACTIVATED COMPLEX CAN BE BY COLLISIONLESS WITH A 3RD GAS MOL. OR WITH A SOLID SURFACE. THE RELATIVE LIFE OF THE ACTIVATED COMPLEXES INCREASE WITH THE NO. OF MOL. IN THE COMPLEX. THIS IS ESP. NOTICEABLE IN COMPLEX CONTG. LESS THAN 10 MOL. WITH INCREASING NO. OF MOL. IN THE DEACTIVATED COMPLEX THE FREQUENCY OF COLLISIONS INCREASES NOTICEABLY.

UNCLASSIFIED

USSR

UDC: 629.7.036.54:536.46

ABUGOV, D. I., BAZAROV, V. G., and MALAKHOV, N. N.

"Method for Suppressing High Frequency Oscillation in Pressure"

USSR Author's Certificate No 309143, filed 22 Mar 66, published 15 Sep 71 (from Fzh-34. Aviatsionnyye i Raketnyye Dvigateli, Moscow, No 3, Mar 1972, Abstract No 3.34. 104 P)

Translation: A method is patented for suppressing high frequency oscillations in pressure primarily in the KS (combustion chamber). This is done by inducing oscillations in the rate of fuel discharge through the injector with a frequency equal to the frequency being suppressed and with an amplitude which exceeds the maximum amplitude of random perturbations. Efficiency is increased by changing the phase of the induced oscillations to the opposite of the oscillation level achieved in the chamber which exceeds the given value. Resume.

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USSR

UDC: 669.891.053.2

PUTILIN, Yu. M., ROMANOVA, A. D., BAZAROVA, S. I., KUCHANSKAYA, O. F.,  
SHIGANOVA, G. A.

"The Interaction of Fluorite with Aluminum Oxide with Heating"

Tekhnol. Mineral'n. Syr'ya [Technology of Mineral Raw Materials -- Collection of Works], Alma-Ata, 1972, pp 135-144 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G197, by G. Svodtseva).

Translation: The interaction of  $\text{CaF}_2$  with  $\text{Al}_2\text{O}_3$  was studied as they were heated in a vacuum (residual pressure about 0.1 mm hg) and in air in the 900-1300° temperature interval. The charge was made by a double decomposition reaction. In the 1200-1300° temperature interval,  $\text{CaF}_2$  partially sublimates and simultaneously interacts with  $\text{Al}_2\text{O}_3$  in an exchange reaction. The CaO liberated in this process forms Ca dialuminate with  $\text{Al}_2\text{O}_3$ . As the temperature is increased to 1200°, the quantity of dialuminate increases to 50%. A new compound appears,  $5\text{CaO}\cdot 3\text{Al}_2\text{O}_3$ . As the  $\text{CaF}_2$  is heated with  $\text{Al}_2\text{O}_3$  in air to 900-1100°, pyrolysis of  $\text{CaF}_2$  occurs. At 1200° and higher, sublimation and

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USSR

Putilin, Yu. M., Romanova, A. D., Bazarova, S. I., Kuchanskaya, O. F., Shiganova, G. A., Tekhnol. Mineral'n. Syr'ya, Alma-Ata, 1972, pp 135-144.

an exchange reaction between  $\text{CaF}_2$  and  $\text{Al}_2\text{O}_3$  are observed. The  $\text{AlF}_3$  formed is hydrolyzed by water vapor in the air. The products of the secondary interaction of  $\text{CaO}$  and  $\text{Al}_2\text{O}_3$  are: up to  $1200^\circ$  --  $\text{CaO} \cdot 2\text{Al}_2\text{O}_3$ , over  $1200^\circ$  --  $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$ . 4 tables, 6 biblio. refs.

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USSR

UDC: 778.4

BAZARSKIY, O. V., KOTOSONOV, N. V., KHLIYAVICH, Ya. L.

"Investigating a Holographic Method for Obtaining Visible Images of Phase Objects in the Microwave Range"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1733-1734

Abstract: Experiments described by the authors of this brief communication show how visible images of phase objects in the microwave range can be obtained by using the Cernik principle with full suppression of the zero-order spectrum -- i.e., the dark-field method. A block diagram of the equipment for doing this is reproduced and its operation explained. The radiation source in the apparatus was a backward wave tube, type OV-22, operating at a frequency of 125 GHz, and the object was a phase diffraction grating. A photograph of the restored image of the grating, as obtained by this method, is reproduced. The experiment demonstrates that it is possible to see phase objects with slight phase contrast in the microwave range.

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USSR

UDC 621.396.67

KOTOSONOV, N. V., KHLIVICH, YA. L., BAZARSKIY, O. V., Voronezh State University

"Study of the Spatial Radiation Coherence of Some Superhigh Frequency Antennas"

Gor'kiy, Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 150-152

Abstract: A study was made of the spatial coherence of the radiation of some superhigh-frequency antennas. The requirements on the radiators which are usually used to record radioholograms are defined. An analysis performed for quasimonochromatic superhigh-frequency sources with a coherent time much less than the observation time at each point demonstrated that application of horn antennas as radiators for recording radioholograms is inexpedient as a result of a different degree of spatial coherence in the E and H planes. The highest degree of spatial coherence is noted in the case of lens antennas with bell-shaped field distribution in the aperture for sufficiently large values of  $\beta$ . However, as a result of a significant radiation intensity gradient of the object, distortion of the image can occur during reproduction. A lens antenna with cylindrical field distribution in the aperture [N. V. Kotosonov, et al., Trudy XXV Vsesoyuznoy sessii NTO RES, Moscow, 1969] having a high degree of spatial coherence shapes uniform intensity distribution on 1/2

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USSR

KOTOSONOV, N. V., et al., Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika,  
Vol XV, No 1, 1972, pp 150-152

object. Consequently, the application of the indicated radiator is most expedient when recording microwave holograms. The arguments and the formula obtained for the degree of spatial coherence at two points are valid only for the case of location of the analysis region in the Fresnel zone where the radiation source is elongated relative to the points of measuring the spatial coherence.

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USSR

UDC: 778.4

KOTOSONOV, N. V., KHLIVICH, Ya. L., KOLESNIKOV, A. I., BAZARSKIY, O. V., DUSHKIN, I. R., and VISLYANSKIY, A. G.

"Recording and Restoring Microwave Holograms With Gradations of the Interference Picture"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1731-1732

Abstract: The purpose of this brief communication is to compare the quality of images restored from binary and multigradation radioholograms in the optical range. A block diagram of the hologram recording equipment used for the experiments described in this paper is shown, and a description of its operation given. The radiation source used was a type OV-22 backward wave tube, with a frequency of 125 GHz. The method of processing the obtained recordings is described. For restoration, the hologram was photographically reduced and was then restored in the diverging beam of a helium-neon laser type LG-36A. Photographs of the object, its image restored by multigradation hologramming, and the image restored by binary hologramming, are reproduced for comparison. The experiment showed that while the resolving capability of binary and multigradation holography are the same,

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USSR

UDC: 778.4

KOTOSNOV, N. V., et al, Radiotekhnika i elektronika, No 8, 1972,  
pp 1731-1732

the quality of the restored image is better with the latter  
method.

2/2

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--GAMMA RAY SPECTRA RESULTING FROM THE CAPTURE OF THERMAL NEUTRONS BY  
ZINC 64, ZINC 66, ZINC 67, AND ZINC 68 -U-  
AUTHOR--(05)-BARCHUK, I.F., BAZAVOV, D.A., BELYKH, G.V., GOLYSHKIN, V.I.,  
MURZIN, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(5), 934-41 . *B*  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--THERMAL NEUTRON, GAMMA RAY, SPECTRUM, ZINC ISOTOPE, PARTICLE  
CAPTURE, SEMICONDUCTOR DETECTOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3008/0582 STEP NO--UR/0367/70/011/005/0934/0941  
CIRC ACCESSION NO--AP0137667  
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0137667  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HARD PART OF GAMMA RAY SPECTRA  
RESULTING FROM THE CAPTURE OF THERMAL N BY PRIME 64, PRIME66, PRIME67,  
PRIME 67 ZN ISOTOPES WAS STUDIED BY USING A SEMICONDUCTOR GE(LI)  
DETECTOR. ENERGIES AND INTENSITIES OF GAMMA LINES WITHIN THE GAMMA  
SPECTRA RANGE MEASURED ARE DETD. TRANSITION SCHEMES ARE COMPILED BASED  
ON THE DATA OBTAINED. A STRONG DISCREPANCY IS FOUND BETWEEN THE VALUES  
OF SPECTROSCOPIC FACTORS FOR P LEVELS OBSERVED IN THE REACTION (D,P),  
AND THE PROBABILITY OF EL TRANSITIONS FROM THE CAPTURE STATE TO THESE  
LEVELS IN THE (N,GAMMA) REACTION. IN PRIME69 ZN THE MOST INTENSIVE  
TRANSITIONS FROM THE CAPTURE STATE ARE THOSE TO THE LEVELS WHICH ARE  
ABSENT IN THE OTHER REACTIONS. FACILITY: INST. FIZ., KIEV,  
USSR.

UNCLASSIFIED

Microelectronics

USSR

UDC: 621.396.6.049.75(088.8)

BOGACHEV, M. P., BAZAITOV, V. F., KUZNETSOV, N. V., LYUBIMOV, A. I.,  
MIKHAYLOV, N. A., NESTERENKO, Yu. F., PODOL'SKAYA, T. I., FROLOVA, I. S.,  
KHOVOSTOV, V. I.

"A Multilayered Printed Circuit Board"

USSR Author's Certificate No 265201, filed 18 Mar 68, published 23 Jun 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V254 P)

Translation: A multilayered printed circuit board is proposed in which sections of foil which are a continuation of printed conductors entering holes in the board are used as leads from layer to layer. To cut down on the number of transitional connecting elements and to produce contact areas, the above-mentioned leads are fastened to the outer layer of the printed circuit board and used as contact areas for unsoldering circuit elements and wiring leads.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--CHEMICAL STRUCTURE OF THE ANTIBIOTIC ALBOMYCIN. XXVI. SYNTHESIS OF  
ALPHA, TRIPEPTIDES OF L AND D, GLUTAMIC ACID AND THE TETRAMETHYL ESTER OF  
AUTHOR--(03)-PODDUBNAYA, N.A., ~~BAZALTOVA~~, L.V., CHALOVA, L.I.  
COUNTRY OF INFO--USSR **B**  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 487-91  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--TERPENE, GLUTAMIC ACID, ALIPHATIC ESTER, PEPTIDE, SERINE,  
MOLECULAR STRUCTURE, ANTIBIOTIC/(U)ALBOMYCIN ANTIBIOTIC  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1157 STEP NO--UR/0079/70/040/002/0487/0491  
CIRC ACCESSION NO--AP0123135  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123135

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DL, GLUTAMIC ACID WAS CONVERTED BY  
 ACYLASE I INTO PURE D, ISOMER AS SHOWN ON MICROFICHE. THESE WERE USED TO  
 PREPD. THE FOLLOWING PEPTIDES: (SHOWN ON MICROFICHE). THE L, D, D, ANALOG  
 TREATED WITH AQ. MEQH-NAOH 1 HR AT ROOM TEMP. GAVE 20PERCENT  
 L, GLUTAMYL, D, GLUTAMYL, D, GLUTAMIC ACID, AN OIL; D, D, L, ANALOG, 15PERCENT,  
 OIL. ME ESTER OF N, CARBOBENZOXY, D, SERYL, D, SERYL, D, SERINE AND N SUB2 H  
 SUB4 IN MEQH 1 DAY GAVE THE HYDRAZIDE, M. 202DEGREES; WHICH IN AQ.  
 ACOH-HCL AT MINUS 10DEGREES TREATED WITH NANO SUB2. EXTD. WITH ETOAC AND  
 THE CRUDE PRODUCT TREATED WITH II IN THE PRESENCE OF ET SUB3 N GAVE  
 42PERCENT OILY TETRA, ME ESTER OF N, CARBOBENZOXY,  
 D, SERYL, D, SERYL, SERYL, ALPHA PRIME, L, GLUTAMYL, ALPHA PRIME  
 D, GLUTAMYL, D, GLUTAMIC ACID, (ALPHA) PRIME20 SUBD MINUS 9.6DEGREES.  
 FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED



USSR

UDC 612.115-06; 577.161.11+577.161.4+613.2

KUDRYASHOV, B. A., BAZAZ'YAN, G. G., LYAPINA, L. A., and SYTINA, N. P.,  
Laboratory for the Physiology and Biochemistry of Blood Coagulation, Moscow  
State University

"Significance of a Relative Excess of Vitamin A and Unsaturated Fatty Acids in  
the Formation of Complex Heparin Compounds in Stressed Animals Kept on Natural  
and Atherogenic Diets"

Moscow, Voprosy Pitaniya, No 1, 1973, pp 23-29

Abstract: Administration of linethol (a mixture of ethyl esters of unsaturated fatty acids, especially linoleic and linolenic acids, contained in linseed oil) and excessive amounts of vitamin A to rats kept on natural and atherogenic diets stimulated the complexing of heparin with fibrinogen and plasminogen after the induction of stress by ringing a loud bell for 1 1/2 minutes. An epinephrine-heparin complex was also produced in the animals that received the atherogenic rations; the amount was greater than in the control, but less than in healthy animals. Intravenous injection of the experimental animals with thrombin completely prevented death from thrombosis (100% survival rate) compared to a 38% mortality rate among the controls that did not receive linethol.

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USSR

UDC 669.71:539.375

BAZELYUK, G. YA., KOZYRSKIY, G. YA., PETRUNIN, G. A., and POLOTSKIY, I. G.,  
Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Effect of Preliminary Ultrasonic Irradiation and Thermomechanical Treatment  
on Creep Strength of Aluminum"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul-Aug 71,  
pp 145-151

Abstract: In metals with a low stacking fault energy the weakening of these metals is due to recrystallization while metals with a high stacking fault energy are weakened primarily by means of polygonization. In conjunction with this there was much interest in studying the effect of preliminary ultrasonic irradiation and thermomechanical treatment on the creep strength of metals with a high stacking fault energy so that the authors selected 99.99% pure aluminum which has a stacking fault energy five times greater than copper. Samples measuring 5 mm in diameter and 50 mm long were vacuum annealed at 500°C for one hour, after which part of the samples were creep tested while the others were either irradiated by ultrasound for 0.5 to 6.5 minutes or subjected to plastic deformation at the rate of 0.4% min for a range of from 0.5 to 11%. Prior to testing for creep the samples

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USSR

BAZELYUK, G. YA., et al., Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul-Aug 71, pp 145-151

were annealed for one hour at the test temperature. It was found that by ultrasonic irradiation and preliminary plastic deformation followed by annealing at the test temperature, the rate of high-temperatures creep for aluminum is substantially lowered. The observed strengthening in the region of large degrees of preliminary deformation and irradiation for 30 seconds can be a basis for developing a technological treatment for increasing creep strength of aluminum for conditions of long-time high-temperature loads. Six figures, 17 bibliographic references.

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1/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--EFFECT OF PREVIOUS ULTRASONIC IRRADIATION ON THE HIGH TEMPERATURE CREEP AND MICROHARDNESS OF COPPER -U-

AUTHOR--(04)-BAZELYUK, G.YA., KOZRSKY, G.YA., POLOTSKY, I.G., PETRUNIN, G.A.

COUNTRY OF INFO--USSR

B

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, MAR. 1970, 29(3), 508-511

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--COPPER, HIGH TEMPERATURE EFFECT, ULTRASONIC IRRADIATION, METAL MICROHARDNESS, METAL CREEP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/0206

STEP NO--UR/0126/70/029/003/0508/0511

CIRC ACCESSION NO--AP0129462

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129462

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

ABSTRACT. THE EFFECT OF ULTRASONIC IRRADIATION ON THE CREEP AND MICROHARDNESS OF CU AT ELEVATED TEMP. (500DEGREESC) WAS STUDIED. PRELIMINARY ULTRASONIC IRRADIATION GREATLY INCREASED THE RESISTANCE TO HIGH TEMP. CREEP; THE LIFE OF CU SAMPLES IRRADIATED TO AN OPTIMUM EXTENT INCREASED BY A FACTOR OF 3 AND THE STEADY CREEP RATE WAS 8 TIMES SLOWER THAN IN SAMPLES NOT SUBJECTED TO IRRADIATION. THE MICROHARDNESS OF SOME SAMPLES BEFORE IRRADIATION WAS 40 KG-MM PRIME2; AFTER IRRADIATION FOR 10 MIN THIS VALUE DOUBLED. THE GEOMETRICAL DIMENSIONS OF THE IRRADIATED PARTS WERE UNAFFECTED BY THIS TREATMENT.

UNCLASSIFIED

BAZEYEV, Ye. T.

LAMINAR-FLOW LIQUID-METAL MAGNETOHYDRODYNAMIC SYSTEMS AND SYNCHRONOUS GENERATION OF ELECTRIC POWER

Article by Ye. T. Bazev, V. Ye. Pavlenko, G. H. Shekhtolev, Institute of Technical Thermodynamics of the Ukrainian SSR Academy of Sciences, L. G. Baryuz, K. I. Klyk, I. H. Peshirilo, Electrodynamics Institute of the Ukrainian SSR Academy of Sciences, Kiev, USSR; Barvov, IAEA Symposium on Electricity from Magnetohydrodynamics, 1968, pp 1635-1661

SPRS 60634  
27 November 1973

(1)

The primary difficulties when implementing liquid-metal magnetohydrodynamic generators by the known designs consist in accelerating the liquid-metal to high velocities before the channel, which is connected with high losses to friction in the two-phase nozzle and channel. If the expansion of the vapor (gas) is transferred to the channel, then the electrical conductivity of the flow (the vapor-liquid mixture) is significantly reduced. The magnetohydrodynamic generator in which the liquid-metal flow is separated into segments (liquid pistons) moving as a result of expansion of the medium (vapor or gas) between them appears to be much more prospective. Our preliminary experiments have demonstrated the possibility of obtaining a piston-like (inert) flow. The utilization of this principle without shocks and mutual slipping of the phases; 2) maximum reduction of the thermal contact surface between the phases and an increase in the thermodynamic efficiency of the cycle, realizing it in a broader temperature range; 3) realization of a constant flow velocity in the channel; 4) the production of electric power by a synchronous magnetohydrodynamic generator. The application of the synchronous principle combined with the described method of accelerating the liquid-metal permits the consideration that high-power generators can be built. The thermodynamic cycles of liquid-metal magnetohydrodynamic generators can be divided into two groups with respect to condensation temperature: high-temperature generators designed for use

USSR

UDC 539.3:534.1

BAZHANOV, B. G., GUSEV, B. M.

"Experimental Study of the Stability of Cylindrical Large-Diameter Shells in Axial Compression"

4-ya Vses. Konf. po Probl. Ustoychivosti v Stroit. Mekh., Tezisy Dokl. [Fourth All-Union Conference on Problems of Stability in Structural Mechanics, Abstracts of Reports], Moscow, 1972, pp 188-189, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V383).

Translation: Results are presented from an experimental study of stability beyond the elasticity limit in axial compression of steel welded cylindrical shells 600 mm in diameter with a range of ratios of radius to wall thickness of 25 to 200. The shells were manufactured by rolling from sheets with subsequent welding using the technology used at plants in the chemical and petroleum machine building industry. The ends of the shells were welded to flanges, through which the load was applied using a 1,000 ton hydraulic press. The central application of the load was checked during the tests, normal stresses were measured in the walls of the shells in the axial direction and the decrease in distance between the ends was measured, and a diagram of load

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USSR

UDC 539.3:534.1

BAZHANOV, B. G., GUSEV, B. M., 4-ya Vses. Konf. po Probl. Ustoychivosti v Stroit. Mekh., Tezisy Dokl., Moscow, 1972, pp 188-189.

vs. shortening of shell was continually recorded. Two shells had a circular seam in addition to the longitudinal welded seam in order to study its influence on the load-bearing ability of the shells.

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USSR

BAZHANOV, N. P., LOSEV, A. M., and MATVEYEVA, Ye. M.

"An Investigation Into the Depth and Quality of Document Indexing in the 'PIR-2' Automated Information Retrieval System"

Moscow, Nauchno-Tekhnicheskaya Informatsiya - Seriya 2: Informatsionnyye Protsessy i Sistemy, September 1972, pp 19-22

Abstract: Statistical characteristics of document search patterns were investigated. A generalized statistical document search pattern was derived from an analysis of a statistical collection of document search patterns carried out by eight specialists on the subject.

The study was predicated on two assumptions: first, that indexing depth characterizes indexing quality and that statistical document search patterns describe document primary subject matter with sufficient accuracy and completeness; and second, that if in comparing a generalized document search pattern with a generalized statistical document search pattern the former is found to have the higher quantitative indices, then the quality of indexing done by information officers is not inferior to that done by the subject specialists.

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USSR

BAZHANOV, N. P., et al., Nauchno-Tekhnicheskaya Informatsiya - Seriya 2: Informatsionnyye Protsessy i Sistemy, September 1972, pp 19-22

The indexing quality  $W_i$  is measured by the mathematical expectation; and indexing inconsistency (nonsequential indexing), by the standard deviation  $\sigma_i$ . For the "PIR-2" computer-based system,  $W_i = 90\%$  and  $\sigma_i = 9\%$ .

2/2

Acc. Nr.: AP0041061

B

Ref. Code: UR 0104

USSR

UDC 621.314.671:621.014.481.1

BAZHANOV, S. A.

"X-Ray Radiation of the Kenotron Installations"

Moscow, Elektricheskiye Stantsii, (Electrical Stations), No 1, 1970, pp 51-55 (from Elektricheskiye Stantsii, No 1, 1970, Abstract)

Translation: The kenotron installations under certain operating conditions can radiate X-rays and become dangerous to human.

The conditions conducive to X-ray radiation, the design peculiarities of mobile kenotron equipment, the type of rectifier tube used, etc., are discussed. The X-ray radiation in the mobile kenotron equipment was measured and the conditions for safe operation were established. Table - 1, Fig - 4, Bibliography - 3.

ea 21

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Reel/Frame

19750825

# BAZHANOV, V. V.

PHYSICAL TRAINING AS A MEANS OF MAINTAINING WORK CAPACITY OF WINTER OPERATORS UNDER THE CONDITIONS OF YOSKOK STATION

Article by V.V. Bazhanov, Ye.N. Plyusina and A.S. Kalashnikov, Leningrad, Informativnoye Sposobie, No 81, 1971, signed to press 19 December 1970, pp 104-106

*SPRS 55932  
9 May 72*

The existence of humans under conditions prevailing at the intra-continental alarctic station Voskok is characterized by the unfavorable effects of a series of extreme factors on the organism. The major ones are: hypoxia (the station is situated at an altitude of 1400 meters above sea level), low temperatures (down to -57 degrees Celsius), the long polar night, the lack of almost confined nature of the vegetation and, finally, as a result of the latter, a certain degree of sensory deprivation.

It is known that physical strain, being a nonspecific biological stimulus, increases the resistance of the organism to the unfavorable effects of the mentioned factors of the environment.

Earlier the method of operation of the permanent expedition at Voskok Station, physical training was used experimentally as a means of preventing exhaustion of the organism. The results of training consisted of nine persons, who along with other persons who did not receive training. The conduct of training was planned with consideration of seasonal peculiarities of physical exertion. The training cycle was begun at the end of April and ended at the beginning of November. Exertion was performed once a day, for periods of 25 to 30 minutes.

The main training apparatus used was the "7-jm combined trainer developed by the Institute of Medicine-Biological Problems. The trainer consists of a program-command block, and load structure and combined structure. The trainer can initiate a bicycle passage over broken terrain and mud. The program features operate varying the load in a broad range (from 200 to 2,000 kilograms per minute, with intervals of 50 kilograms) at time characteristics of 15, 30 and 60 seconds.

A four-day cycle (1 1 1) was taken as the basic structural unit of the training process; on the first day loads were chosen that lead to maximum strength and both speed and strength on the second multi-kilometer strength and endurance, and on the third general endurance.

BAZHANOV, V. V.

FUNCTIONAL STATUS OF THE CARDIOVASCULAR SYSTEM IN THE ACUTE PERIOD OF ACCUMULATION AT VOSTOK STATION

JPRS 55-932  
9 May 72

Article by Ye. N. Biryukov, V. V. Bazhanov and A. P. Kolyadenko, 14th Soviet Antarctic Expedition; Leningrad, Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii, Russian, No 81, 1971, signed to press 15 February 1970, pp 98-100]

The process of acclimatization to high altitude regions of the Antarctic is considerably more complex than at the coast (2). This is connected with the effects on the organism of supplemental factors, such as hypoxia and low temperatures.

New studies have been made of assessment of the functional status of one of the main systems of the organism, the cardiovascular system, under conditions of acclimatization, but they have not always been in mutual agreement in their assessment of the orientation of the process. Because of this it was considered of interest to assess the dynamics of indices of the functional status of the cardiovascular system, such as arterial and pulse pressure, and the rate of cardiac contractions during the first month's stay at Vostok Station, i.e. during the most acute acclimatization period. For this purpose 12 associates were examined on the second, seventh, fifteenth and thirtieth days of stay at the Station. Ten examinations were conducted under approximately uniform conditions. The data obtained were compared with the results of "background" examinations, performed before the wintering at the Antarctic station.

The results gave the following picture: systolic blood pressure on the second day averaged 134 millimeters of mercury (variation range from 110 to 149 millimeters), which surpassed the average value obtained at the preliminary examination, 121 millimeters of mercury (113 to 140 millimeters). The diastolic pressure also was elevated: 64 millimeters, compared to an initial value of 80 millimeters. The pulse pressure, also, rose from 41 millimeters to 46 millimeters. Despite pronounced individual lability of these indices, the average level on the seventh and fifteenth days differed only slightly from that established on the second day, and was 133 and 135 millimeters for the systolic, and 88 and 89 millimeters of mercury for the diastolic pressure. It should be mentioned that the tendency toward level-like of indices noted on the seventh day was again disrupted at the end of

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UDC 615.849.19:621.375.9/.033

KOZLOV, A. P., BAZHANOV, YE. B., DIMOV, V. I., TERPUGOV, V. G., and SHISHOV, V. A., Laboratory of High Energies, Institute of Oncology a imeni N. N. Petrov, Ministry of Health USSR, Leningrad

"Distribution of Depth Doses During Irradiation With Bremsstrahlung from a B5M-25 Betatron"

Moscow, Meditsinskaya Radiologiya, Vol 17, No 7, Jul 72, pp 72-76

Abstract: In experiments in which a water phantom was used, the distribution of ionization along the beam axis upon irradiation with bremsstrahlung from the new medical betatron B5M-25 in the energy range  $E_{\max} = 12-27$  Mev at DIB values of 80, 100, and 200 cm was studied. It was shown that as the distance from which irradiation of the surface was carried out increased, the ionization maximum at  $E_{\max} = 20-27$  Mev was displaced towards greater depths of the tissue-equivalent medium by 2.0 and 0.9 cm for every meter of this distance in irradiation with filtered and unfiltered radiation, respectively. With increasing values of  $E_{\max}$ , the position of the ionization maximum was displaced at the rate of  $0.12 \pm 0.05$  cm/Mev for both filtered and unfiltered radiation

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USSR

KOZLOV, A. P., et al., Meditsinskaya Radiologiya, Vol 17, No 7,

irrespective of the value of DIB. Steel plates were used to filter the radiation. Some characteristics of the isodose curves were determined. There was almost complete coincidence of the position of the 50% isodose with the geometric boundaries of the beam at the depth of the ionization maximum, while any dependence of this position on the dimensions of the radiation field was absent. The results obtained can be used in calculations to determine the optimum procedures in therapy.

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USSR

UDC: 669.715:621.77

BAZHANOV, Yu. M., KAVTAYEV, Ye. Ye.

"Improvement in the Technology of Pressing of Flat Panels of Aluminum Alloys"

Moscow, Tsvetnyye Metally, No 7, Jul 73, pp 74-76.

Abstract: Certain peculiarities of the design and operation of technological equipment are studied. The nature and reasons for the formation of the large-crystal rim around pressed panels of aluminum alloys are discussed. The factors causing this phenomenon include insufficient heating of the matrix set and long-term heating of the panel during hardening, uneven heating of the container cavity, when side surface temperatures may be 50-100° C lower than center temperatures, and insufficient, uneven heating of the tool combined with long-term heating in hardening.

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USSR

UDC 669.295:621.77

TSYTSENKO, V. A., BAZHANOV, Yu. M., and SUKHOROSOV, V. V.

"Production of Titanium Tubes by Argon Arc Welding"

Moscow, Tsvetnyye Metally, No 12, Dec 71, pp 51-53

Abstract: The described production of tubes (32 x 2 to 102 x 2 mm) by argon arc welding uses a band of VT1-0 alloy as initial skelp which before welding is cut on disc shears and etched in a solution of hydrochloric acid with ammonium fluoride. The welding is done in a special semi-hermetic chamber filled with type A argon to protect seams from oxidation. Test results of argon-arc-welded tubes are discussed by reference to microstructures and mechanical properties which show that the tensile strength of welded tubes is somewhat higher than of the initial band. The advantage of welded tubes in comparison with seamless tubes consists in their lower cost and sufficiently high reliability. Two illustr., two tables.

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USSR

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

"Synthetic Methods for  $\alpha$ -Naphthyl N-Methylcarbamate"

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

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

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USSR

UDC 537.533.2+537.534

SHUL'MAN, A. R., BAZHANOVA, N. P.

"On the Nature of the Effect of a Thin Film of Barium Oxide of Thickness 1.5 of a Monomolecular Layer on the Secondary Electron Emission of Tungsten at Different Energies of the Primary Electrons (1-150 ev)"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1970, No 311, pp 25-28 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12Zh651)

Translation: The secondary electron emission of W with thin films of BaO of different thickness in the range of primary electron energies from 1 to 150 ev was studied to explain the role of a thin BaO film on the surface of a metal in secondary electron emission at low energies of the primary electrons. The study showed that the basic role of the monomolecular layer of BaO on the surface of W at  $E_p > 8$  ev is that of lowering the work function of W. For  $E_p < 8$  ev the yield of secondary electrons from the film itself becomes considerable. 12 references. Authors abstract.

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1/2 021 -UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--METHODS OF PURIFYING ACIDIC WASTE WATERS AND THE CORROSION OF  
METALS DURING RECYCLING -U-  
AUTHOR-(03)-KATS, YU.A., SOKOLOVA, L.P., BAZHANOVA, S.N. *B*  
COUNTRY OF INFO--USSR  
SOURCE--TR., GOS. NAUCH.-ISSLED. PROEKT. INST. SPLAVOV OBRAB. TSVET. METAL  
1970, NO. 31, 40-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--ION EXCHANGE RESIN, COPPER, COPPER ALLOY, ZINC, CORROSION  
RATE, WATER PURIFICATION, INDUSTRIAL WATER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/0585 STEP NO--UR/0000/70/000/031/0040/0043  
CIRC ACCESSION NO--AT0134350  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0134350

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACIDIC WASTE WATERS FROM METAL PICKLING CAN BE PURIFIED BY USING RESIN ION EXCHANGERS. THE OPTIMUM RATE OF WATER FLOW THROUGH AN EXCHANGER IS 8.6 M PRIME3-HR. PURIFIED WATERS HAVE PH 6.5-8.0 AND LESS CORROSIVE POWER, WITH REGARD TO CU AND ITS ALLOYS, THAN NORMAL TAP WATER (PH 7.0). CATION AND ANION EXCHANGERS ARE REGENERATED IN 10PERCENT H SUB2 SO SUB4 AND 10PERCENT NAOH SOLNS., RESP. AND THE CONCD. REGENERATIVE SOLNS. ARE PROCESSED FOR THE RECOVERY OF CU, ZN, AND NA SUB2 SO SUB4.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--DIPOLE GIANT RESONANCES OF NONMAGIC NUCLEI -U-  
AUTHOR--(03)-BAZHENDV, A.A., GAMALYA, I.A., CHERDANTSEV, P.A.  
COUNTRY OF INFO--USSR **B**  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(1), 7-13  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--DIPOLE INTERACTION, NUCLEAR RESONANCE, WAVE FUNCTION,  
PHOTONUCLEAR REACTION, TITANIUM ISOTOPE, SCANDIUM ISOTOPE, CALCIUM  
ISOTOPE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1980/1433 STEP NO--UR/0139/70/013/001/0007/0013  
CIRC ACCESSION NO--AT0049555  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0049555

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF CALCN. OF DIPOLE GIANT RESONANCES OF NONMAGIC NUCLEI, CONNECTED WITH THE UTILIZATION OF DEFORMED SINGLE PARTICLE ORBITALS FOR THE CONSTRUCTION OF THE NUCLEI WAVE FUNCTIONS, IS PRESENTED. THE RESIDUAL INTERACTION POTENTIAL, CONSIDERED IN THE CALCN. OF THE DIPOLE STATES, CREATED BY THE PHOTOABSORPTION OF NONMAGIC NUCLEI, PRIME42 CA, PRIME42 SC, PRIME44 TI, PRIME46 TI, INCLUDED THE DEPENDENCE OF THE QUANTUM NOS. K, THAT ARE THE INTEGRALS OF THE MOTION IN THE PRESENTED SCHEME. THE CALCNS. OF THE OSCILLATOR FORCES AND THEIR DEPENDENCE UPON THE GIANT RESONANCE ENERGY WERE MADE AND THEIR RESULTS ARE GIVEN. FACILITY: TOMSK. POLITEKH. INST. IM. KIROVA, TOMSK, USSR.

UNCLASSIFIED

USSR

UDC 669.71.053.4(088.8)

BAZHENOV, A. YE., GRECHUKHIN, N. V., OSOKINA, V. K., PAL'CHIKOVA, A. I.,  
PAL'CHIKOVA, T. A., TARASOV, I. A., FEDORTSOV, V. D., CHALIK, A. D.,  
CHERNOV, V. Ye

"Method of Obtaining Cryolite"

USSR Author's Certificate No 312834, filed 3 Mar 70, published 15 Oct 71  
(from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G179P)

Translation: The procedure for obtaining cryolite by roasting the slurry at 700-800° formed as a result of wet removal of the gases in aluminum production is distinguished by the fact that in order to improve the quality of the product, the roasted slurry is subjected to water treatment at 35-40° with a L:S ratio of 5-10: 1 with subsequent leaching out of the precipitate by a 2-10% solution of HF at 55-75° with a L:S ratio of 3-10:1. An example is presented.

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USSR

UDC 621.314.263.072.6 (088.8)

GALOCHKIN, N.A., BAZHENOV, I.A., SMIRNOV, S.L., MUDROV, L.P. [Ivanov. energ.in-t  
--Ivanov Power Institute]

"Device For Control Of Ferromagnetic Frequency Multiplier"

USSR Author's Certificate No 272424, filed 19 July 68, published 11 Sept 70 (from  
RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 43657P)

Translation: A device is proposed for control of a ferromagnetic frequency multiplier which is equipped with a choke coil with a magnetization winding connected in parallel to the input; the device contains a magnetic amplifier with operating and control windings located in its magnetic circuit, and diodes and a voltage data unit [datchik] at the output of the multiplier. In order to simplify the multiplier and to improve its characteristics, it is supplied with a data unit for the load current, the output of which is connected to the control winding of the magnetic amplifier situated at the center bar [sterzhen'] of the magnetic circuit. The latter is fulfilled by 3 bars; the operating windings are located at the outside bars, connected into the arms of an auxiliary rectifier which is fed from the winding of the voltage data unit and connected from the output side with the magnetization winding of the choke coil.

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UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 2-70

244548

FIXING BLADES ON TO THE COMPRESSOR  
WHEEL OF AN AXIAL TURBINE

involves fitting of a bronze or metal bush 4 into the root section 3 of blade 1. The blades are then assembled onto wheel 5 and located by a dowel through bores 6. The compressor is then mounted for testing and the compressor results analysed. If an alternation is required in the relative position of the blade form 2 in order to reduce or increase the performance of the compressor, then the bushes 4 can be changed for others with an angular difference thus altering the performance of the compressor. The bushes 4 are machined in sets with a total variation in the angle of the bores within the limits of + or - 6°.

1.4.68 as 1230399/24-6 L.G. BAZHENOV et al.  
(8.9.69) Bul. 18/28.5.69. Class 27c, Int. Cl. F 04c.

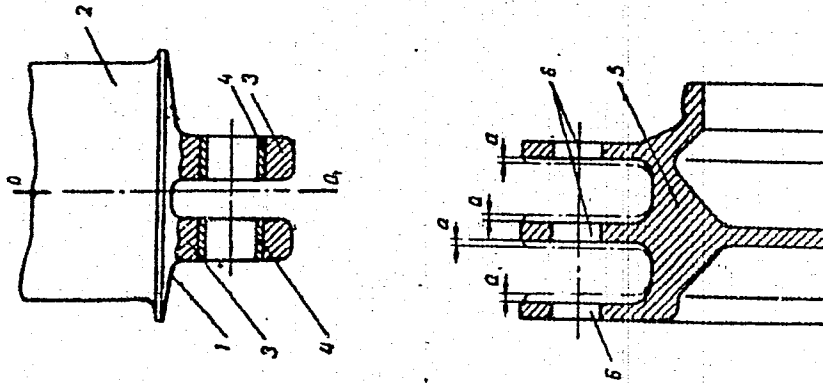
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Bazhenov, L.G.; Ishutin, G.I.; Rasskazov, V.I.



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19821468

USSR

UDC 669.715.004.82

BAZHENOV, M. F.

"Means of Raising the Production Level of Secondary Aluminum"

Moscow, Tsvetnyye Metally, No 12, Dec 70, pp 40-43

Abstract: The article poses problems on raising the levels of technology and organization of the production of aluminum alloys using secondary raw materials such as scrap and waste. The problems include organization of collection, initial preparation of metal for transporting, provision of modern and highly efficient equipment for sorting and preparing mixes, melts, and casting alloys, securing organizations and personnel for designing nonstandard equipment, the state of the art of research in new aluminum alloys, design of service specifications for these alloys, and detailing areas of production between aluminum and metallurgical plants. It is stated that the level of science in the area of development of new alloys (where potentials might be enormous) and of their introduction in production is extremely low. Scientific experimental bases must still be established, while experimentation at the plants is limited, due to the lack of capabilities and appropriate equipment. Rational utilization  
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USSR

BAZHENOV, M. F., Tsvetnyye Metally, No 12, Dec 70, pp 40-43

of secondary raw material in the production and consumption of aluminum alloys would require reinforcing and expanding scientific research institutes engaged in problems of secondary non-ferrous metallurgy, the establishment of an experimental industrial base, and the metallation of scientific research labs at large metallurgical plants. Further recommendations include planning of funding for scientific research, intensive research in new alloys using additions of rare and heat-resistant metals, new processing technologies for the secondary metallurgy of a variety of commercial items, and discontinuing the production of Al25, Al30, and ZhLS-type alloys at metallurgical plants working with secondary raw materials. The forthcoming plan for 1971-1975 for producing aluminum alloys from secondary raw materials must envisage radical reforms.

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USSR

UDC: 621.396.677.1

KOZYREV, B. P. and BAZHENOV, V. A.

"An Effective Method for Obtaining Infrared Radiation in a Specified Direction Diagram"

Leningrad, Priborostroyeniye, No 2, 1972, pp 104-107

Abstract: Attempts to form directional diagrams of infrared radiation within the limits of the Lambert distribution law without varying the structure of the radiator, by diaphragms for example, usually reduce the radiation efficiency. In this article, the authors investigate the problem of improving the radiator efficiency with the radiation concentrated into a narrow solid angle, which can be solved by placing an absolutely black body at the focus of a spherical or parabolic mirror. They consider the design of a radiator projecting a directional diagram in the form of a wide, plane beam in which the angles of the radiation spread differ by a ratio of 90:1 in the orthogonal planes. This can be done either by scanning a 1° beam over a 90° sector, or by using a radiator compounded of 90 one-degree infrared projectors. Both methods are discussed. Some information is given of a radiator with this type of directional diagram developed by the V. I. Lenin Electrical Engineering Institute, with which the authors are associated. A diagram of this radiator is given.

1/1

V.A. BAZHENOV

Acc. Nr.: AP0044037

Ref. Code: LR0362

JPRS 50054

Spectral Absorption of IR Radiation by Ozone

(Abstract: "Computing the Spectral Absorption of Infrared Radiation by Ozone in the 9.6 $\mu$  Band," by B. P. Kozyrev and V. A. Bazhenov, Leningrad Electrotechnical Institute; Moscow, Izvestiya Akademii Nauk SSSR, Fizika Atmosfery i Okeana, Vol. VI, No. 1, 1970, pp. 98-101)

The study of the O<sub>3</sub> band 9.6 $\mu$  has been emphasized in the past because this is the strongest absorption band of ozone, situated at the center of the atmospheric window of transparency. However, few studies have examined the spectral absorption of radiation in this band. Moreover, the analytical expressions proposed in the past are unwieldy and inconvenient for practical computations. It has also been unclear as to what additional errors are caused by approximate allowance for atmospheric inhomogeneity. The objective of this study was to fill these gaps to some degree. A convenient form for representing the absorption of IR radiation was found by I. N. Howard, et al. (J. Opt. Soc. America, 46, No. 5, 1956). On this basis, the authors test the possibility of such a representation of radiation absorption specifically for the O<sub>3</sub> 9.6 $\mu$  band. It is shown that error in computing spectral transmission of ozone can be reduced to zero provided atmospheric inhomogeneity is determined precisely

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rather than approximately. It is acknowledged that this considerably complicates the computations. For practical purposes, an error of about 5 percent will still be present, but this compares with an error of 10-20 percent when only an approximate allowance for atmospheric inhomogeneity is made.

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USSR

UDC:620.171

GORNOSTAY, V. I., BAZHENOV, V. G., TONYUK, N. I., Zhitomir

"Test Stand for Rotating Turbine Elements"

Kiev, Problemy Prochnosti, No 10, Oct 73, pp 100-103

Abstract: A universal test stand for testing of the stress state of plastic deformation and rupture of rotating structures spinning at up to 80,000 rpm is described. The stand consists of a main portion (direct current generator and control panel), in a separate room, and the actual spinning portion. The stand can be used for long-term and short-term studies at constant or variable (including cyclical) rotating speeds under normal, high and low temperatures, in air, in a vacuum and in corrosive media. Structures up to 1400 mm in diameter and 1200 mm long at the axis can be studied. The chamber is made of reinforced concrete in the form of an arch coupled to a concrete foundation. The arch is 1000 mm thick. The inside of the chamber is lined with wooden beams and armored sheets covered with rubber plates to reduce the impact of parts following ruptures.

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USSR

UDC 539.3

BAZHENOV, V. G., UGODCHIKOV, A. G., SHVETSOV, A. V.

"A Solution to the Problem of Stress Concentration in a Region Bounded on the Outside by a Circle and from Within by a Curve of Complex Shape Under Force and Temperature Effects"

Sb. nauch. tr. Perm. politekhn. in-t (Collection of Scientific Works of Perm' Polytechnical Institute), 1971, No. 98, pp 3-10 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V65)

Translation: A conformal mapping method was used to obtain a solution of the plane statics problem of thermoelasticity and the first boundary value problem of elasticity theory for a symmetric doubly connected region subject to the action of a steady-state temperature drop and uniform pressures from within and without. The solution is constructed in complex form using a Laurent expansion. The problem is reduced to the solution of an infinite system of linear algebraic equations. The reflection of a circular ring on the given region is achieved by power polynomials. It is noted that the best convergence of the solution occurs when the reflecting function is taken in the form of Lagrange interpolation polynomials. A numerical example of the solution of a thermoelasticity problem under isothermal boundary conditions is considered. 10 ref. N. T. Glazunova. 1/1

USSR

UDC: 621.396.6-181.5

BAZHENOV, V. K., D'YAKOV, V. V., PRESNOV, V. A.

"Voltage-Capacitance Characteristics of a Metal-Dielectric-Semiconductor Capacitor With Deep Centers"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific and Technical Collection. Semiconductor Devices), 1970, vyp. 5(55), pp 17-22 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V194)

Translation: The authors study the voltage-capacitance characteristics of MDS structures with deep acceptor and donor centers in the semiconductor layer. Resumé.

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1/2 041 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--LATTICE DEFECTS IN GALLIUM ARSENIDE -U-  
AUTHOR--(04)-BAZHENOV, V.K., BAZHENOVA, G.N., PRESNOV, V.A., FEDOTOV, S.P.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA TVERDOGO TELA, <sup>B</sup>VOL. 12, MAR. 1970, P. 908-910  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--IRON, METAL COATING, GALLIUM ARSENIDE, CRYSTAL LATTICE  
STRUCTURE, ELECTRON PARAMAGNETIC RESONANCE, SPECTROSCOPIC ANALYSIS,  
LUMINESCENCE, CRYSTAL LATTICE DEFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/1283 STEP NO--UR/0181/70/012/000/0908/0910  
CIRC ACCESSION NO--AP0107759  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0107759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE MECHANISMS OF THE INFLUENCE OF LATTICE DEFECTS ON THE ELECTRIC AND LUMINESCENT CHARACTERISTICS OF IRON DOPED GALLIUM ARSENIDE CRYSTALS (3,500,000 OHM CM) ANNEALED FOR 12 HR AT 700 TO 1200 C. THE TYPE OF LATTICE DEFECTS RESPONSIBLE FOR THE EPR SPECTRA IN HEAT TREATED CRYSTALS IS STUDIED, AND THE INTENSITY OF THE EPR SPECTRUM OF TRIVALENT IRON IONS IN GALLIUM ARSENIDE IS PLOTTED VS THE ANNEALING TEMPERATURE IN A VACUUM. FACILITY: ODESSKII GOSUDARSTVENNYI UNIVERSITET, ODESSA, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 612.5.014.43+612.53

BAZHENOV, Yu. I., Institute of Cytology and Genetics, Siberian Affiliate of the Academy of Sciences USSR, Novosibirsk

"Effect of Adaptation to Cold on the Energy Required for Muscular Activity"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 5, 1973, pp 1250-1252

Abstract: In experiments on rats adapted to cold by exposure to a temperature of 2-4°C for 6-8 wks, an attempt was made to verify conclusions to the effect that the efficiency of muscular activity is lowered by adaptation to cold - i. e., that the heat output associated with muscular contraction is increased. A correlation of the consumption of O<sub>2</sub> with the electrical activity of muscles, which served as a measure of the contractile activity (work performed by the muscles), for rats exercised on a treadmill at 22-24°C and 0-4°C showed that the expenditure of energy per unit of muscular work, as indicated by the O<sub>2</sub> consumption, was almost twice as high for rats adapted to cold than for unadapted control rats. The increase in the energy expenditure associated with the performance of work at the lower temperature of 0-4°C vs. that of 22-24°C was higher for the adapted than the unadapted animals. The increase in the heat output during muscular activity was concentrated in the working muscles of the thighs and back, while the thermal regulation activity (thermal regulation tonus and 1/2

USSR

BAZHENOV, Yu. I., Doklady Akademii Nauk SSSR, Vol 208, No 5, 1973, pp 1250-1252

shivering) of muscles of the neck and of the chewing apparatus decreased during work. The latter phenomenon was more pronounced for unadapted than adapted rats. (Submitted by Academician V. N. Chernigovskiy, 9 Jul 72)

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USSR

UDC 612.53+612.741

BAZHENOV, Yu. I., Institute of Cytology and Genetics, Academy of Sciences  
USSR, Siberian Division, Novosibirsk

"Effect of Muscle Conditioning on Adaptation of White Rats to Cold"

Leningrad, Fiziologicheskii Zhurnal SSSR, No 4, 1973, pp 595-599

Abstract: In rats, physical exercise (running on a treadmill at 20 m/min 5 days a week) in the course of cold adaptation over a period of 6 to 8 weeks delayed the onset of adaptive functional changes characteristic of animals adapted to cold without exercise, possibly because of the involvement of additional fast muscle fibers. Rats exercised during cold adaptation occupy an intermediate position between cold-adapted, untrained animals and unadapted animals, judging by the changes in physiological parameters (oxygen consumption, muscle electrical activity, and body temperature) in response to chilling.

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BAZHENOVA, GI.

SPS 59208

6-73

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XI-8. T-X PROJECTION OF THE PHASE DIAGRAM OF THE INAs-CdTe SYSTEM

Article by Ya. A. Babinova, G. I. Bazhenova, A. A. Byarantsev, K. E. Klyasov, Ikhvatij Novosibirsk, III Sibirskiy nauchno-issledovatel'skiy tsentr i Sibirskiy Sovetskoykh Khranilov i Pioner, Krasnoyarsk, 12-17 June 1972, p 154

The method of differential thermal analysis was used to construct the T-X projection of the diagram of state of the InAs-CdTe system. The system is of the simple eutectic type. The eutectic point corresponds to a composition of 33.2 mol.% CdTe at 814.4°C. The solid solution region reaches 30 mol.% CdTe at the eutectic temperature. By using the liquidus curve and data from the Bridgman method, it is possible to determine the position of the solidus in the system. The composition of the solid phase along the bars determined from the value of the crystal lattice period gives the position on the solidus curve for the given liquidus temperature. In addition, the solidus points were determined for temperatures of 796, 826 and 849°C with the help of x-ray phase analysis and determination of the microhardness. The results of the analysis coincide within the limits of the experiment.

BAZHENOVA, G.I.

SPRS 59308

6-73

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XI-4. STUDY OF THE PROCESS OF EPITAXIAL GROWTH OF SOLID INAs-CdTe SOLUTIONS

Article by G. I. Bazhenova, E. N. Khudarov, Irkutsk-Novosibirsk, III Sibirskii  
Lun no. Prosvetennogo Fonda I Sibirskii Poluprovodnikovakh Kriestalliv i Fizik. Rus-  
skom, 12-17 June 1972, p 169]

Monocrystalline layers of the InAs-CdTe solid solution were obtained by the method of liquid epitaxy from the solution-melt in indium. The reaction conditions and their relation to the physical properties of the grown solid solutions of InAs-CdTe were investigated.

Beginning with the results of x-ray structural analysis it is stated that the layers of solid solution of InAs-CdTe grow with variable composition and are enriched with tellurium. This coincides with the results of measuring the galvanomagnetic properties of the investigated solid solutions. According to the distribution data with respect to the composition, the separation coefficients of the solid solution of InAs-CdTe were calculated for growth of epitaxial layers. A comparison was made with the results obtained by the diagram of state of the quaternary system.

The optical absorption edge of the layers is characterized by the anomalously steep course of the spectral dependence by comparison with the materials obtained by crystallization from the stoichiometric melts. The reflection spectra are measured, and the data on the minima are used to calculate the parameters of the conduction electrons.

1/2 041 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--LATTICE DEFECTS IN GALLIUM ARSENIDE -U-  
AUTHOR--(04)-BAZHENOV, V.K., BAZHENOVA, G.N., PRESNOV, V.A., FEDOTOV, S.P.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA TVERDOGO TELA, VOL. 12, MAR. 1970, P. 908-910  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--IRON, METAL COATING, GALLIUM ARSENIDE, CRYSTAL LATTICE  
STRUCTURE, ELECTRON PARAMAGNETIC RESONANCE, SPECTROSCOPIC ANALYSIS,  
LUMINESCENCE, CRYSTAL LATTICE DEFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/1283 STEP NO--UR/0181/70/012/000/0908/0910  
CIRC ACCESSION NO--AP0107759  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0107759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE MECHANISMS OF THE INFLUENCE OF LATTICE DEFECTS ON THE ELECTRIC AND LUMINESCENT CHARACTERISTICS OF IRON DOPED GALLIUM ARSENIDE CRYSTALS (3,500,000 OHM CM) ANNEALED FOR 12 HR AT 700 TO 1200 C. THE TYPE OF LATTICE DEFECTS RESPONSIBLE FOR THE EPR SPECTRA IN HEAT TREATED CRYSTALS IS STUDIED, AND THE INTENSITY OF THE EPR SPECTRUM OF TRIVALENT IRON IONS IN GALLIUM ARSENIDE IS PLOTTED VS THE ANNEALING TEMPERATURE IN A VACUUM. FACILITY: ODESSKII GOSUDARSTVENNYI UNIVERSITET, ODESSA, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 615.9.092:54-162.2

BRAKHNOVA, I. T., Candidate of Medical Sciences, and BAZHENOVA, L. N.,  
Institute of Labor Hygiene and Occupational Diseases and Polytechnical Institute,  
Kiev

"Structure of the Crystal Lattice of Simple Substances and Compounds as an  
Indicator of Their Toxicity"

Moscow, Gigiyena i Sanitariya, No 10, 1971, pp 95-100

Abstract: The structure of the crystal lattice of a substance which is determined by the nature of its electronic structure is clearly correlated with its biological activity. High toxicity is associated with a low degree of symmetry of the crystal lattice. Substances possessing a body-centered cubic lattice have little pneumoconiotic effect. Substances with a face-centered cubic lattice have a chronic general toxic effect mostly involving the parenchymatous organs. Substances with a hexagonal close-packing or other less symmetrical structures (rhombic, rhombohedral, tetragonal) are markedly toxic and can cause both acute and chronic intoxication. The characteristics of the crystal lattice of inorganic substances can be used for preliminary evaluation of the toxicity of new chemical compounds. It is recommended that the provisional maximum permissible concentration of substances with a body-centered cubic structure be set at 6 to 10 mg/m<sup>3</sup>, those with a face-centered cubic lattice 1/2

USSR

BRAKHNOVA, I. T., and BAZHENOVA, L. N., *Gigiyena i Sanitariya*, No 10, 1971, pp 95-100

at 3 to 5 mg/m<sup>3</sup>, and those with a hexagonal close-packing lattice at 1 to 2 mg/m<sup>3</sup>. The maximum permissible concentration of other substances with less symmetrical crystal lattices (rhombic, rhombohedral, tetragonal, monoclinic, etc.) should not exceed 0.5 mg/m<sup>3</sup>.

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USSR

UDC 678.84.01:537

BAZHENOVA, T. S., PAKHOMOV, V. I., ZHDANOV, A. A., POLYAKOVA, L. L.,  
SMIRNOVA, L. N., EKSAKOVA, N. D., and TARASOV, Ye. V.

"Electric Properties of the Epoxyorganosilicon Resin ES-9 and Compounds  
Based on This Resin"

Moscow, Plasticheskiye Massy, No 2, 1973, pp 21-23

Abstract: Results are reported of the study of electric properties of the compounds based on dianic resin ED-5, polyfunctional resin ETP and epoxy-siliconorganic resin TPE-9 containing triphenylpentamethoxytrisiloxane [resin ES-9]. It was shown that the ES-9 resin is a good, active solvent for compounds based on any epoxy resin prepared for electrotechnical utilization. The ES-9 resin lowers considerably the starting viscosity of the epoxy binder preserving at the same time all of the desired electric properties of epoxy compounds both under normal usage as well as during prolonged heating, increased humidity, and elevated temperature.

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USSR

UDC 533.6.011.72

BAZHENOVA, T. V., GVOZDEVA, L. G., KOMAROV, V. S., and SUKHOV, B. G.

"Investigation of the Diffraction of Strong Shock Waves at Convex Angles"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 4, 1973, pp 122-134

Abstract: Results are presented of an investigation of the diffraction of strong shock waves at two-dimensional convex angles ( $M_0 = 2-10$ ) in gases with change of the adiabatic exponent from 1.66 to 1.05.

New features of the diffraction pattern are disclosed, that are linked by interaction of the retardation wave with the free jet boundary layer. It is established that the shape of the diffracting shock wave depends upon the Mach number  $M_0$  of the shock wave and the diffraction angle  $\alpha_0$ . The Mach number of the wall portion of the shock wave does not depend upon the adiabatic exponent of the gas  $\nu$  if the adiabatic exponent varies within the range of 1.4--1.15. With an increase of the diffraction angle and the Mach number of the incident shock wave in the wall portion of the diffracting shock wave, there consecutively originate a point of inflection, a Mach reflection, and a nearly regular reflection.

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USSR

BAZHENOVA, T. V., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 4, 1973, pp 122-134

Experimental values of the stall angles are obtained. It is shown that the stall takes place at a pressure greater than  $p_0$ , but less than  $2 p_0$ . The pressure on the wall surface during diffraction of the shock wave changes from the value at the front of the diffracted part of the shock wave to the value at the end of the rarefaction wave. An approximation formula is presented, which gives the relationship of the value of the pressure on the front of the diffracted shock wave to the Mach number of the incident wave and to the wedge angle. Values of the pressure at the end of the expansion wave are obtained on the basis of experimentally measured values of the stall angle. 15 references.

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USSR

UDC 621.391:519.2

TOLKALIN, L. N., BAZHEV, V. M.

"Some Characteristics of Reception of Discrete Radio Signals with Carrier Frequency Multiplication"

Vopr. radiotekhniki—V sb.(Problems of Radio Engineering — collection of works), Tula, Tula Polytechnical Institute, 1970, pp 112-120 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A92)

Translation: The operating characteristics of discrete signal carrier frequency multipliers of a receiver with a linear and quadratic amplitude characteristic of the nonlinear element are investigated. Transmission of "pure" noise and noise in the form of interference is analyzed.

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B

USSR

UDC 621.396.6.002:621.793(088.8)

KAZAKOVA, S. M., LAZDIN, V. P., BAZHEVA, T. P.

"A Heat Indicator Coating"

USSR Author's Certificate No 254826, Filed 6 Jul 68, Published 18 Mar 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V295 P)

Translation: This Author's Certificate introduces a heat indicator coating which contains chromium oxide as a pigment, a copolymer of butyl methacrylate and methacrylic acid as binder, and butyl acetate as the solvent. As a distinguishing feature of the patent, a temperature of  $95 \pm 2^\circ\text{C}$  is indicated by introducing as a basic temperature indicator 30-35 wt.% pyrogallol, 0.5-0.55 wt.% chromium oxide, 2.5-3 wt.% copolymer of butyl methacrylate with methacrylic acid, and enough butyl acetate to make up a mixture of 100 wt.%.

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112

1/2 037 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--CALCULATION OF THE THERMODYNAMIC PROPERTIES OF CHEMICALLY REACTING  
SYSTEMS BASED ON THE EQUATION OF STATE -U-  
AUTHOR--(02)-BAZHIN, M.A., NESTERENKO, V.B.  
COUNTRY OF INFO--USSR **B**  
SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(4), 317-20  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--THERMODYNAMIC CHARACTERISTIC, GAS STATE, LOW PRESSURE,  
EQUILIBRIUM CONSTANT, ENTROPY, ENTHALPY, REAL GAS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1163 STEP NO--UR/0250/70/014/004/0317/0320  
CIRC ACCESSION NO--AT0134845  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0134845

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPRESSIONS WERE DERIVED FOR  
CALCG. THE ENTROPY S AND ENTHALPY H OF CHEM. REACTING REAL GASEOUS  
SYSTEMS IN RELATION TO PRESSURE, VOL. TEMP., NO. OF MOLES AND MOLE  
FRACTION, THE HEAT CAPACITY AT A VERY LOW PRESSURE, AND THE EQUIL.  
DEGREE OF CONVERSION CALCD. FROM THE DEPENDENCE OF THE IDEAL EQUIL.  
CONST. ON TEMP. IN THE STD. AND IDEAL STATES. FACILITY: INST.  
YAD, ENERG., MINSK, USSR.

UNCLASSIFIED

USSR

UDC 612.146.1

BERSHTEYN, S. A. and BAZILYUK, O. V., Institute of Physiology im. O. O. Bogomolets, Academy of Sciences, Ukrainian SSR, Kiev

"Changes in Hemodynamics and Efferent Sympathetic Impulses During Some Pressor Cardiovascular Reflexes in Acute Hypoxic Hypoxia"

Kiev, Fiziologichniy Zhurnal, No 6, 1972, pp 769-778

Abstract: In experiments on anesthetized cats, changes in the main parameters of hemodynamics and efferent sympathetic impulses were compared in the post-ganglionic fibers of the renal nerve at the height of the pressor reaction elicited by a decrease in perfusion pressure in the carotid sinuses and electrical stimulation of the A and C fibers of the tibial nerve under normal conditions and during acute hypoxic hypoxia. Some qualitative and quantitative differences were observed in the hemodynamic structure of the pressor cardiovascular reflexes and efferent impulses in the animals exposed to acute hypoxic hypoxia. The results show that the bulbar and spinal structures of the cardiovascular center are excited by acute hypoxia. The observed differences are believed to be the consequence of excitation of the cardiovascular center and integration of reflex sympathetic and local metabolic influences in the effector.

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Heat Treatment

USSR

UDC 621.791.053:621.78:669.245

KUZ'MIN, G. S. (Cand. of Techn. Sciences) and BAZHIN, S. N. (Engineer), Perm' Polytechnic Institute

"Effect of Heat Treating on the Properties of the Welds of Nickel with Higher Carbon Contents"

Moscow, Svarochnoye proizvodstvo, No 2, Feb 72, pp 32-33

Abstract: Welded nickel structures are generally operated under high-temperature conditions. This study concerns the effects of carbon, temperature, and hold times of the metal on the plastic properties of nickel welds. Involved were welded NP-2 nickel specimens. The carbon content was varied by adding various amounts of silver graphite to the experimental electrode coatings. Manual positive-electrode welding was used. The plastic properties were determined the moment the pieces were welded and held for various periods in an electric furnace at different temperatures. It was found that the cooling of welded nickel welds with higher C contents (above 0.1%) in open air sets a structure of lower plasticity. Annealing of welded nickel parts with over 0.1% C in the welds reduces the mechanical properties, specifically the plasticity. Addition of C to nickel welds in amounts higher than 0.1% 1/2

USSR

KUZ'MIN, G. S., and BAZHIN, S. N., Svarochnoye proizvodstvo, No 2, Feb 72,  
pp 32-33

requires steps to ensure its combination with the welds for high-temperature service. Addition of certain amounts of Ti together with C to nickel welds resulted in a marked increase of the plastic properties of the welds.  
(4 illustrations, 7 bibliographic references)

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USSR

UDC 629.78.076.8

BAZHINOV, I. K., IVANOV, N. M., MARTYNOV, A. I.

"Discrete Algorithm for Controlling the Final Launch Velocity of Spacecraft in the Atmosphere of Mars"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1972, Vol. 3, No. 4, pp 59-64 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.97)

Translation: A discrete algorithm for controlling the final escape velocity of a space ship in the atmosphere of Mars is discussed, the achievement of which is possible by simple autonomic means. The lift vector is controlled by the change in the angle of roll (i.e., the effective component of the lift force). The algorithm for the control uses the lines of intersection remembered by the on-board computer. Numerical results are given for a calculation of the efficiency of the control algorithm. It is shown that the control algorithm can be used in constructing control systems for the final escape velocity for a wide class of launched craft and for various injection velocities. 4 ill., 4 ref. Resume.

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USSR

UDC 629.78.015.076.8

BAZHINOV, I. K., IVANOV, N. M., NOGOV, O. A., and YAKOVLEV, O. S.

"Some Adaptive Algorithms of Control of the Descent of Planetary Space Vehicles in the Earth's Atmosphere"

Inform. Materialy. Nauch. Sovet po Kompleks. Probl. (Information Materials of the Scientific Council on Complex Problems), "Kibernetika." AN SSSR, No 6 (53), 1972, pp 38-47 (from Referativnyy Zhurnal, Raketostroyeniye, No 5, 1972, Abstract No 5.41.173, Resume)

Translation: The problem of controlling the descent of a space vehicle entering the Earth's atmosphere at hyperbolic velocities is presently becoming a constantly more urgent one. With an increase of the entry velocity, the solution of the problem of landing of the craft in a given region of the Earth acquires substantial complexity, and there is a corresponding increase in the demands made upon the descent control system. Such a descent control system must be versatile, capable of functioning in various kinds of emergency situations, at any practicable range of descent, at various entry velocities, with random changes of the aerodynamic characteristics of the descending craft within the limits of tolerance, etc. An algorithm for operating such a descent control system is a complex one; it can be brought to realization only with  
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USSR

BAZHINOV, I. K., Informat. Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika." AN SSSR, No 6 (53), 1972, pp 38-47 (from Referativnyy Zhurnal, Raketostroyeniye, No 5, 1972, Abstract No 5.41.137, Resume)

the employment of a digital computer aboard the space vehicle. Some types of algorithms for operating descent control systems of this kind are examined. 7 references.

2/2

- 4 -

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--SPECTRAL CHARACTERISTICS OF HIGH FREQUENCY ELECTRODELESS LAMPS WITH  
VAPORS OF LEAD AND LEAD SALTS -U-  
AUTHOR--(02)-BAZHOV, A.S., ZHEREBENKO, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(4), 760-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--ELECTRIC LAMP, ELECTROLUMINESCENT LAMP, LEAD, METAL VAPOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/1777 STEP NO--UR/0368/70/012/004/0760/0762  
CIRC ACCESSION NO--AP0135344  
UNCLASSIFIED