

2/2 011

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140359

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 151 REFS. THROUGH PART OF 1969 COVERING THE BASIC PRINCIPLES USED IN THE STUDY OF HYDROGEN BONDING IN ALCS. AND PHENOLS BY NMR SPECTROSCOPY IN CASES OF FORMATION OF INTER OR INTRAMOL. BONDS AND THE EFFECTS OF STRUCTURAL FACTORS ON THESE. FACILITY: INST. FIZ. KHIM. IM. PISARZHEVSKOGO, KIEV, USSR.

UNCLASSIFIED

USSR ..

UDC 539.186.2

BRODSKIY, A. M., and LEVICH, V. G., Corresponding Member of the Academy of Sciences USSR, Moscow State University imeni M. V. Lomonosov

"Formulation of Equations for Rearrangement Scattering in Coordinate Representation"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 6, 1970, pp 1294-1297

Abstract: The article presents, in a coordinate representation, the derivation of nonsingular integral equations for the problem of rearrangement scattering with the participation of three composite fragments. Relations are obtained which make it possible to clarify the difficulties which arise in attempts to use adiabatic approximation in the rearrangement problem. These relations indicate the need to limit the choice of effective potentials in the distorted wave method and offer the possibility of a simple way of obtaining general threshold formulas. A subsequent article will deal with a generalized threshold consideration which allows for the long-range part of the potential.

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- 45 -

Acc. Nr: ~~0038048~~ <sup>B</sup>

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 1, pp 264-280

ASYMPTOTIC BEHAVIOR OF THE CHARGE EXCHANGE  
CROSS SECTION

~~Brodskiy, A. M.~~ Potapov, V. S.; Tolmachev, V. V.

The asymptotic behavior of terms of the iteration expansion of the transition amplitude for reaction (1a) is studied for the extreme case of high relative velocities of the colliding particles. Asymptotic expressions are obtained for the total and differential cross sections. Some features which the Born approximation possesses when applied to rearrangement problems are noted.

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REEL/FRAME  
19731091

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1/2 053 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--WAVE THEORY OF CROSS SECTIONS OF GAS PHASE SUBSTITUTION REACTIONS.  
I. DERIVATION OF A FORMULA FOR THE CROSS SECTIONS -U-  
AUTHOR--(03)-LEVICH, V.G., BRODSKIY, A.M., TOLMACHEV, V.V.  
COUNTRY OF INFO--USSR  
\*SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 101-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--DIFFERENTIAL CROSS SECTION, QUANTUM MECHANICS, GAS KINETICS,  
WAVE FUNCTION, REACTION KINETICS, PERTURBATION METHOD, HAMILTONIAN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1419 STEP NO--UR/0456/70/004/002/0101/0107  
CIRC ACCESSION NO--AP0118408  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118408

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW QUANTUM MECH. METHOD WAS DEVELOPED FOR THE CALC. OF DIFFERENTIAL CROSS SECTIONS OF GAS PHASE SUBSTITUTION REACTIONS. THE REACTION WAS CONSIDERED AS A GENERAL SCATTERING PROCESS WITH A REDISTRIBUTION OF REACTING PARTICLES. THE DEPENDENCE OF THE CROSS SECTIONS ON ENERGIES AND ANGLES IS DETD. PRIMARILY BY THE OVERLAP INTEGRAL OF WAVE FUNCTIONS OF INITIAL AND FINAL STATES OF HEAVY PARTICLES. BY USING THE MEHTOD OF PERTURBED WAVES AND WITH A SPECIAL FORM OF THE HAMILTONIAN, EXPLICIT EXPRESSIONS FOR THE CROSS SECTIONS WERE OBTAINED. FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--JUSTIFICATION OF THE SEPARATION OF ELECTRON AND NUCLEAR MOTIONS  
DURING REACTIONS IN ATOMIC MOLECULAR SYSTEMS -U-  
AUTHOR-(02)-BRUDSKIY, A.M., LEVICH, V.G.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 126-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL REACTION MECHANISM, ELECTRON MOTION, NUCLEAR MODEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1080 STEP NO--UR/0020/70/191/001/0126/0129  
CIRC ACCESSION NO--AT0119939  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0119939

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MATH. EXAMN. OF A SIMPLE CHEM. REPLACEMENT REACTION  $A - B + C$  YIELDS  $A - C + B$  (WHERE A, B, C, ARE DIFFERENT ATOMS, AND  $A - B$ ,  $A - C$  ARE DIAT. MOL.) INDICATES THAT THE SEPN. OF ELECTRON AND NUCLEAR MOTIONS CANNOT BE JUSTIFIED IN THE GENERAL CASE OF CHEM. REACTIONS AND OTHER AT. MOL. PROCESSES WITH RECONSTRUCTION. FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.187.26

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ZABALUYEV, YU. I., MOSHKEVICH, YE. I., BURYAKOVSKIY, G. A., BRODSKIY, G. M.,  
and NIKULIN, A. A., Dneprospetsstal' Plant and All-Union Scientific Research  
Institute of Electric Welding Equipment

"Improving the Quality of Electroslag Remelted Steel by the Action of a Magnetic  
Field"

Moscow, Stal', No 8, Aug 73, pp 710-711

Abstract: The effectiveness of electroslag remelting of large ingots is lowered  
due to the development of segregation phenomena (formation of "barbs" in the  
macrostructure, etc.). Reducing the remelting rate eliminates this defect but  
causes deterioration of surface quality and, therefore, is permissible only in  
narrow limits. Electromagnetic action with the aid of a solenoid makes it  
possible to eliminate segregation defects and to produce metal of satis-  
factory quality even with a slight increase in the remelting rate. Comparative  
data on the quality of steels ShKh15SCSh and ShKh15Sh are presented in which  
remelting was done in the same modes in a crystallizer measuring 415 x 415 mm  
with and without the solenoid. M. H. KUZNETSOV, H. A. STETSENKO, L. P.,  
BULYSHENSKAYA, and S. S. KAZAKOV participated in this work. Two biblio-  
graphic references.

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USSR

UDC 621.385.833.2:535.87

ARTAMONOV, O.M., BRODSKIY, G.N. [N.-i. Fiz. in't--Scientific-Research Institute  
Of Physios]

"Reflection Electron Microscope"

USSR Author's Certificate No 255430, filed 9 Nov 66, published 31 Mar 70 (from  
RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A184P)

Translation: The construction of an electron reflection microscope (EFM) of spherical design is patented. Such an EFM consists of a source of electrons and a spherical condenser (SC), the inner electrode of which is an objective of spherical form, and a luminous screen is applied at part of the exterior of the electrode. The electrons enter into the SC through an aperture in the exterior sphere and move here in hyperbolic trajectories. The magnifying power of the EFM is proportional to the ratio of the radiuses of the spheres. The EFM in question has a simple construction; however, it is only possible to obtain resolution on the order of  $1000 \text{ \AA}$  and a magnification of  $1000\times$ .

1/1

- 51 -

Marine and Shipbuilding

USSR

UDC 621.87

BRODSKIY, I. L., and POLYAKOV, A. Ye.

"Analysis and Synthesis of Round Cylinders of Variable Cross Section"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Mashinostroyeniye, No 4, 1973, pp 48-52

Abstract: A differential equation is found for the winding of a thin, inelastic thread, twisted with a constant pitch around a round cylinder of variable cross-section. The equation is developed by considering the cylinder as static and the thread mobile. Using the equation either the length of thread wound or the contour of the cylinder may be found. Approximate analysis of a conical cylinder shows that all such cylinders pass through the same point in the middle of the cone formed, called the nodal point. Further graphoanalytic approximation of a cylinder as consisting of conical elements leads to the cylinder profile. A numerical example is presented. The method is being applied to ship construction.

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USSR

UDC 595.771(575.2)

BRODSKIY, K. A., and OMOROV, E. O., Institute of Zoology, Academy of Sciences USSR, Leningrad, and Osh Pedagogic Institute, Osh

"Distribution of Larvae of Mosquitoes of the Families Blepharoceridae and Deuterophlebiidae (Diptera) in the River Ak-Bura of the Altay Range"

Leningrad, Entomologicheskoye Obozreniye, Vol 51; No 1, 1972, pp 66-73

Abstract: A collection of specimens along the river Ak-Bura and its tributary Kichik-Alay on the northern incline of the Altay Range indicated that the following mosquitoes of the family Blepharoceridae were present: *Tianschanella monstrosa* Brodsky, *Asiorea nivia* (Brodsky), and *Blepharocera asiatica* Brodsky. Of the family Deuterophlebiidae, the species *Deuterophlebia mirabilis* Edw. was present. The distribution of the four species along the course of the Ak-Bura, as indicated by the number of specimens found, varied with ecological, hydrodynamic, and climatic conditions. In the upper reaches of the Ak-Bura (elevation 2700-4000 m above sea level, mean rate of water flow on the surface 2.5 m/sec, mean water temperature in the summer 6.2°) *A. nivia* predominated. In the middle course of the river (elevation 1100-2700 m, rate of water flow 2.5-3.2 m/sec, water temperature 9.9-11.6°), *B. asiatica*, *T. monstrosa*, and *D. mirabilis* were 1/2

USSR

BRODSKIY, K. A., and OMOROV, E. O., Entomologicheskoye Obozreniye, Vol 51, No 1, 1972, pp 66-73

present, with *B. asiatica* and *T. monstrosa* predominating. At the end of the upper section and in the beginning of the lower section of the middle course, the number of *D. mirabilis* tended to decrease. In the lower course of the river (elevation 900-1100 m, rate of water flow 1.47 m/sec, water temperature 19.0°), only *B. asiatica* and *T. monstrosa* were present, with *B. asiatica* predominating.

2/2

- 34 -

USSR

UDC 621.396.674.3.001.5:535.9.082

BRODSKIY, V.B., TEMINA, YE.M.

"Radiation Of Dipoles Through A Matched Layer Of Magnetized Plasma"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1427-1432

Abstract: Approximate analytical expressions are presented for the patterns of radiation of dipoles through a uniform layer of plasma found in a uniform magnetic field perpendicular to the layer. The plasma layer is matched with the exterior space. Graphs are shown of a number of radiation patterns. 10 fig. 3 ref. Received by editors, 16 June 1971.

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- 5 -

1/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--MEASUREMENT OF THE CROSS SECTION FOR SECOND ORDER IMPACT OF AN  
EXCITED MERCURY ATOM WITH A CESIUM ATOM, HG 6 PRIME3 P SUB1 PLUS CS  
AUTHOR--(03)-BRODSKIY, V.B., VORONCHEV, A.T., TATARINOV, M.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(5), 1116-19

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR CROSS SECTION, NUCLEAR REACTION, NUCLEAR COLLISION,  
EXCITED STATE, MERCURY, CESIUM, PHOTOIONIZATION, ELECTRON EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0078

STEP NO--UR/0057/70/040/005/1116/1119

CIRC ACCESSION NO--AP0138943

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CROSS SECTION OF THE TITLE REACTION WAS DETD. AS (6 PLUS OR MINUS 2) TIMES 10 PRIME NEGATIVE 14 CM PRIME NEGATIVE 2 FROM EXPTL. DATA ON THE RATIO OF THE CROSS SECTION OF THE 2ND ORDER COLLISION OF AN EXCITED HG ATOM WITH A CS ATOM TO THE CROSS SECTION OF THE POLARIZATION OF CS ATOM BY THE HG RESONANCE LINE (2537 ANGSTROM). THE RATIO OF THE CROSS SECTIONS WAS DETD. FROM EXPTL. DATA ON THE RATIO OF ELECTRON GENERATED DURING THE 2ND ORDER COLLISION AND THOSE GENERATED BY PHOTOIONIZATION. THE CONC. OF THE EXCITED HG ATOMS WAS DETD. FROM THE ABSORPTION OF THE 2537 ANGSTROM LINE IN HG VAPOR. THE EXPTL. DETD. CROSS SECTION EXCEEDS BY SIMILAR TO 20 TIMES THE CALCD. DATA (K. J. KATSUURA, 1965; B. SMIRNOV, AND O. FIRSOV, 1965).

UNCLASSIFIED

USSR

UDC: 513.88+517.948

BRODSKIY, V. M.

"Some Theorems on Operator Integrals With Respect to Chains of Orthoprojectors and Their Application to the Theory of Eigenfunctions. III"

V sb. Mat. issledovaniya (Mathematical Research--collection of works), T. 5, vyp. 3, Kishinev, Academy of Sciences of the Moldavian SSR, 1970, pp 3-23 (from RZh-Matematika, No 5, May 71, Abstract No 5B789)

Translation: Conclusion of the article (RZh-Mat. 1970, 11B602; 1971 3B444). A series of multiplicative representations of eigenfunctions  $\theta_T(\zeta)$  of operators  $T$ , close to unitary, is established. The main one takes the following form:

$$\theta_T(\zeta) = u_0 \int_{(\mathfrak{D})} \left( I - \frac{e^{i\varphi(P)} + \zeta}{e^{i\varphi(P)} - \zeta} dF(P) \right) \Big|_{(I - T^*T) \mathfrak{H}}$$

where  $\mathfrak{H}$  is a Hilbert space,  $\mathfrak{D} = \{P\}$  is a chain of orthoprojectors acting in  $\mathfrak{H}$ ,  $\varphi(P) \in \mathbb{R}$  is a continuous scalar function which is nondecreasing from the left,  $F(P) \in \mathcal{B}(\mathfrak{H})$  is a  $J_T$ -self-adjoint operator function, and  $u_0$  is a linear bounded operator which satisfies the condition

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$$u_0 J_T u_0^* = J_T, \quad (J_T = \text{sgn}(I - T^*T)). \quad \text{Author's abstract.}$$



USSR

UDC 612.821.2

BRODSKIY, V. Ya., Laboratory of Cytology, Institute of Developmental Biology,  
Academy of Sciences USSR, Moscow

"Trace Phenomena in the Functional Dynamics of Protein Synthesis"

Moscow, Zhurnal Vysshey Nervnoy Dayatel'nosti imeni I. P. Pavlov, Vol 23,  
No 2, Mar/Apr 73, pp 323-330

Abstract: A literature review (32 references) on cellular memory is presented. Infusoria become accustomed to certain types of prolonged stimulation and cease to respond, neurons display rhythmic activity long after the rhythmic stimulus is no longer applied, and periodic fluctuations in protein synthesis by secretory cells continue with an experimentally imposed rhythm. Acinar cells of the parotid gland of the rat have an endogenous rhythm of rising and falling protein synthesis and concentration in the cytoplasm with about 4 cycles per 3 hrs. In rats receiving a meal every 2 or every 6 hrs, the cycle period is altered so that the rate remains 4 cycles per 3 hrs. The experimentally induced rhythm persists for at least 16 hrs in vivo and in vitro, even if a cholinolytic agent is injected into the rats after the training, indicating that control is exerted by the cells (though not at the level of transcription).

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- 56 -

USSR

BRODSKIY, V. Ya., Zhurnal Vysshey Nernvoy Deyatel'nosti imeni I. P. Pavlov,  
No 2, Vol 23, Mar/Apr 73, pp 323-330

Intercellular communication within a tissue or an organ is postulated, differences between systemic cerebral and local cellular memory are pointed out, and preference for the term trace manifestations in cellular behavior is expressed.

2/2

USSR

BRODSKIY, Ya. S.

"Asymptotic Expansion of Random Processes Dependent on a Small Parameter"

Teoriya sluchayn. protsessov [Theory of Random Processes], No 1, Kiev, Nuak. Dumka Press, 1973, pp 35-43 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V94 by the author)

Translation: The asymptote of random processes dependent on a small parameter is studied. The results of Yu. N. Blagoveshchenskiy are extended to random differential equations in which the random portion at a fixed point in space is an arbitrary process with continuous increments. Under certain conditions, placed on the coefficients, the possibility is proven of asymptotic expansion of the process and the residual term is estimated. The application of the results produced to oscillations with nonlinear random perturbations is studied, moments are calculated and the distribution of the first approximation is noted.

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Acc. Nr:

AP0047392

Abstracting Service:  
GEOPHYSICAL ABST.

5/70

Ref. Code:  
UR0065

**BRODSKIY E.S.**

91892t Mass-spectrometric study of petroleum sulfides of 170-310° fractions of Arian petroleum. Khmel'nitskii, R. A.; Brodskij, E. S.; Chertkov, Ya. B.; Spirkin, V. G. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(1), 55-7 (Russ). The sulfides were sepd. by selective extrn. with an aq. H<sub>2</sub>SO<sub>4</sub> soln. (Chertkov, Ya. B.; Spirkin, V. G.; Demishev, V. N., 1967). Their group compn. was detd. with a MKh-1303 spectrometer at an accelerating voltage of 2kV, ionizing-electron energy 50 eV, temp. of the ion source, analyzer, and inlet system 250°. The main sulfide fraction contained thioalkanes 6.4, alkylthiocyclanes 45.0, alkylthiobicyclanes 24.9, alkylthiotricyclanes 12.8, alkylcycloalkylsulfides 0.7, thiophenes 3.8, paraffinic-naphthenic hydrocarbons 4.3, and C<sub>6</sub>H<sub>6</sub>, indan, and Tetralin derivs. ≤ 2.5 mole %. The characteristics and compn. of the sulfides are tabulated.

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REEL/FRA  
19790918

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--MASS SPECTROMETRIC STUDY OF THE STRUCTURE OF SOME ORGANIC SULFIDES  
AND THIOPHENES SEPARATED FROM ARLANSKII PETROLEUM -U-  
AUTHOR--(03)-BRODSKIY, YE.S., NIKITINA, V.S., LYAPINA, N.K.  
COUNTRY OF INFO--USSR *B*  
SOURCE--NEFTEKHIMIYA 1970, 10(1), 120-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--MOLECULAR STRUCTURE, PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION,  
CHEMICAL COMPOSITION, THIOPHENE, SULFIDE, ORGANIC SULFUR COMPOUND,  
SOLVENT EXTRACTION, MASS SPECTROSCOPY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/2078 STEP NO--UR/0204/70/010/001/0120/0122  
CIRC ACCESSION NO--AP0127451  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127451

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. S COMPS. SEPD. BY EXTN. WITH 86PERCENT H SUB2 SO SUB4 FROM A 150-250DEGREES KEROSENE FRACTION OF ARLAN PETROLEUM AND FURTHER SEPD. INTO SULFIDES BY COMPLEX FORMATION WITH AGNO SUB3 AND INTO THIOPHENES BY SUCCESSIVE EXTN. WITH 82 AND 86PERCENT H SUB2 SO SUB4 WERE IDENTIFIED BY MASS SPECTRAL ANAL. THE SULFIDES CONSISTED OF 3.0PERCENT ALKYL SULFIDES, 1.6PERCENT CYCLOALKYL SULFIDES, 68.8PERCENT THIACYCLOALKANES HAVING ONE LONG CHAIN ALKYL AND 2-3 ME SUBSTITUENTS, 24.3PERCENT THIABICYCLOALKANES HAVING 1-3 ME SUBSTITUENTS, AND 2.3PERCENT THIA TRICYCLOALKANES. THE THIOPHENES CONSISTED OF 74PERCENT ALKYLTHIOPHENES HAVING A C SUB2-3 AND A C SUB3-5 ALKYL GROUP AND 1-2 ME GROUPS, 24PERCENT CYCLOALKYLTHIOPHENES, AND 2PERCENT THIAINDANS. FACILITY: VSES. NAUCH.-ISSLED. INST. PERERAB. NEFT., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.327.534.3:62-752.3:535.231.4

BRODSKIY, YU. D., VALUYSKIY, P. G., SHCHERBINA, D. M.

"Radiation Stabilizer for High-Pressure Xenon Tubes"

Tr. metrol. in-tov SSSR (Works of the Metrology Institutes of the USSR), 1971, No. 110(170), pp 101-107 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.1928)

Translation: A radiation stabilizer for ultrahigh pressure dc xenon arc tubes is described that consists of a multiphase rectifier, a reference light source, a comparison circuit, and a tube current regulator connected in parallel to a ballast resistance. The stabilizer provides a constant operating regime with an accuracy of at least 0.5% under a change in the supply voltage in the range  $\pm 10\%$ . The time constant of the stabilizer is no more than 0.15 sec. 2 ill., 2 ref.

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Electromagnetic Wave Propagation

USSR

UDC: 621.396.677

ASHKONAZI, D. Ya., BELIAYEV, V. P., BRODULENKO, G. I., DOBANOV, N. P.,  
RULEV, S. O.

"Starting Losses in SHF Dischargers"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 9, pp 123-124 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B98)

Translation: An experimental study was made of the power dissipated in the discharge as a function of the transmitter pulse duration for an electrodeless discharger with double dielectric walls. Measurements were taken on two different wavelengths in the decimeter band; the dischargers had a different height in each of these cases. The dissipated power was measured with an air calorimeter. The results show a high proportion of starting losses (up to half the dissipated power). This means that the process of growing electron concentration in the discharge continues considerably longer than the process of growing current determined by the wave impedance of the waveguide channel. Three illustrations, bibliography of two titles.  
N. S.

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USSR

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UDC 621.396.677

ASHKENAZI, D. YA., BRODULENKO, G. I., BELYAYEVA, G. N., KALMYKOVA, T. A.

"Push-In Lightning Arrester with a Capillary"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Engineering. Scientific and Technical Collection. Superhigh Frequency Electronics), 1970, vyp. 6, pp 158-160 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9879)

Translation: This article contains an investigation of the use of a capillary as one of the elements of a wide-band lightning arrester which is installed in a wave guide filter or resonator. The capillary is coupled to the wave guide via a cylindrical housing in which the capillary is fastened. The design of the discharger permits combination of small losses and small recovery time inherent to a capillary discharger with high mechanical strength and convenience of replacement during operation. There are two illustrations and a one-entry bibliography.

1/1

- 17 -

USSR

UDC 621.385.623.4

BRODULENKO, I.I., PAVLOV, V.A.

"Concerning The Effect Of The Feedback Factor On The Power And Efficiency Of A Low-Power Transit Oscillating Klystron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 7, pp 25-31 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A127)

Translation: On the basis of kinematic theory, the effect is investigated of the feed-back factor on the power and efficiency of a two-cavity transit oscillating klystron. The results of the analysis are given in the form of simple formulas, expressions, and graphics, which give a clear idea of the dependence of the power and efficiency of the klystron on the feedback factor and other parameters, and also of the maximum possible values of the efficiency. 4 ref. Author's summary.

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USSR

UDC 621.385.623.5

BRODILENKO, I.I., GALANIN, A.K., GRIGOROV, N.K., ROZE, YE. A., VOVNENKO, V.L.,  
SHMELEV, A. YE.

"Reflex Klystrons With Interchangeable Resonators"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology.  
Scientific-Technical Collection. Microwave Electronics), 1971, Issue 5, pp 74-82  
(from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10A163)

Translation: The paper considers glass and metalceramic reflex klystrons with interchangeable [s"yemnyy] resonators, which operate in the shortwave part of the centimeter range of wave lengths with output powers up to 0.5 watt. Metalceramic klystrons with interchangeable resonators assure high output electrical parameters and in comparison with glass klystrons are more resistant to mechanical and climatic effects and are also more promising during utilization of the shortwave part of the centimeter range of wavelengths. Summary.

1/1

- 169 -

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--REACTION OF COBALOXIMES WITH URACIL DERIVATIVES -U-  
AUTHOR--(04)--BRGDULINASHVETS, V.I., RUDAKOVA, I.P., DYMOVA, S.F.,  
YURKEVICH, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 703-4 *B*  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COBALT COMPLEX, OXIME, URACIL, CHEMICAL REACTION MECHANISM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/0877 STEP NO--UR/0079/70/040/003/0703/0704  
CIRC ACCESSION NO--AP0124540  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE—30GCT70

CIRC ACCESSION NO--AP0124540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF HYDRIDES OF  
 CUBALOXIMES WITH URACIL DERIVS. RESULTS IN INCLUSION OF CO IN THE URACIL  
 RING IN REACTIONS USING HYDRIDES OF DIMETHYL, AND DIPHENYLGLYOXIMATE  
 COMPLEXES OF CO WITH PYRIDIEN AND PH SUB3 P LIGANDS, AND URACIL,  
 URICIEN, 2 PRIME, AHNYDROURIDINE, OR URIDINE, 5 PRIME, PHOSPHATE AS THE  
 OTHER REACTANT. THIS AFFORDS A NEW ROUTE TO POLYNUCLEOTIDE  
 MODIFICATIONS. REACTION OF 0.28 G I IN AQ. ETOH UNDER N WITH A SOLN.  
 OF 0.0167 G NABH SUB4 IN ETOH FORMED A BLUD GREEN HYDRIDE; 0.0445 G  
 URACIL IN H SUB2 O WAS ADDED AND THE MIXT. KEPT 45 MIN TO PPT. 75PERCENT  
 II. THE REACTION MECHANISM WAS DISCUSSED. FACILITY: VSES.  
 NAUCH. ISSLED. VITAM. INST., USSR.

UNCLASSIFIED

USSR

UDC 620.198;621.793.3

KARPENKO, G. V., POKHMURSKIY, V. I., DALISOV, V. B., RUSIN, S. I.,  
ZAMIKHOVSKIY, V. S., and BRODYAK, YA. P., Academy of Sciences Ukrainian SSR,  
Physicomechanical Institute

"Endurance of Chemically Nickel-Plated Aluminum Alloy D16"

Moscow, Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 364-367

Abstract: The article describes results of a study of the effect of chemical nickel-plating on the fatigue and corrosion-fatigue strength of D16, an aluminum alloy widely used in industry (0.74 percent Mn, 4.6 percent Cu, 0.87 percent Si, 0.56 percent Fe, 1 percent Mg). Specimens were nickel-plated in an alkaline solution of the composition (g/l):  $\text{NiCl}_2$  21,  $\text{NaH}_2\text{PO}_2$  24,  $\text{NaO}_2\text{C}(\text{CO}_2\text{H})_2(\text{OH})\text{C}_3\text{H}_4$  45,  $\text{NH}_4\text{OH}$  50,  $\text{NH}_4\text{Cl}$  30 at a temperature of 75-80°.

Fatigue tests showed that the endurance of aluminum alloy D16 with a nickel layer of about 0.045 (nickel-plating for three hours without subsequent heat treatment) is no less than that of the alloy without a coating, despite the presence of residual tensile stresses. Heat treatment of chemically nickel-plated specimens at 240° for one hour significantly increased their fatigue

1/2

KARPENKO, G. V., et al., Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 364-367

strength. The endurance limit of specimens with a coating about 0.008-0.010 mm thick (nickel-plating for 0.5 hour) increased 45 percent compared to uncoated specimens and specimens nickel-plated without subsequent heat treatment. An increase in the coating thickness to 0.040-0.045 mm led to a further rise in the endurance limit to almost 70 percent. The effect of a rise in endurance declines somewhat with a further increase in the coating thickness to 0.070-0.075 mm (nickel-plating for five hours). In the case of the simultaneous action of cyclic strains and a corrosive medium (3-percent aqueous solution of sodium chloride), chemically deposited nickel is not an effective means of protection against corrosion-fatigue failure of aluminum alloy D16.

2/2

- 19 -

USSR

UDC 621.59

BRODYANSKIY, V. M., Doctor of Technical Sciences, Professor, Moscow Order of Lenin Power Engineering Institute

"Prospects for the Development of Cryogenic Engineering"

Minsk, Izvestiya vysshikh uchebnykh zavedeniy, Energetika, No 8, 1972, pp 54-62

Abstract: Cryogenic engineering which encompasses temperatures below 120° K, just as power engineering as a whole, has a multibranch nature and serves both the national economy and scientific research. In engineering it includes the storage and transportation of liquefied gases, the separation of mixtures of gases, the treatment of biological subjects and technical materials, cooling electronic and electromagnetic devices and space research. In scientific research it includes bubble chambers, superconducting devices, vacuum pumps, and so on.

The trends in the development of cryogenic engineering are aimed at lowering the level of reliably obtainable temperatures to  $1 \cdot 10^{-20}$  K and lowering the expenditures of power. An increase in the power of the units and simultaneous creation of microcryogenic systems are being observed. Along with the building of new cryogenic devices, the prospective areas of their application are expanding, in particular, in electric power engineering. Experimental-industrial developments of superconducting electric power transmission lines,  
1/2



USSR

BRODYANSKIY, V. M., Izvestiya vysshikh uchebnykh zavedeniy, Energetika, No 8, 1972, pp 54-62

electric machinery and equipment and also power storage elements are in progress, but the future development of cryogenic engineering requires improved training of the necessary specialists. The techniques involved in using cryogenic engineering in each of the mentioned areas and the effects on which they are based are discussed briefly.

2/2

- 109 -

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ENERGY CHARACTERISTICS OF THE ENRICHMENT OF AIR WITH OXYGEN -U-  
AUTHOR--(02)-BRODYANSKIY, V.M., KALININA, YE.I. **B**  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., ENERG. 1970, 13(1), 60-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, ATMOSPHERIC SCIENCES  
TOPIC TAGS--AIR, OXYGEN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1543 STEP NO--UR/0143/70/013/001/0060/0064  
CIRC ACCESSION NO--AP0125169  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125169

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ENERGY CHARACTERISTICS OF 2  
LOW TEMP. RECTIFICATION METHODS FOR THE ENRICHMENT OF AIR WITH O WERE  
COMPARED BY USING A ENERGY CONC. DIAGRAM OF THE N-O MIXT. THE INDIRECT  
METHOD IS BASED ON THE PRODUCTION OF AN ENRICHED AIR WITH A HIGHER O  
CONCN. THAN NEEDED AND THE DILN. OF THE ENRICHED AIR TO THE CONC.  
NEEDED. THE DIRECT METHOD IS BASED ON THE DIRECT PRODUCTION OF ENRICHED  
AIR WITH THE REQUIRED O CONC. FOR PRODUCING ENRICHED AIR 30-50 VOL.  
PERCENT O, THE INPUT OF WORK IS SIGNIFICANTLY LESS IN THE CASE OF THE  
DIRECT METHOD THAN IN THE CASE OF THE INDIRECT METHOD. WITH CONCNS.  
LARGER THAN 50 VOL. PERCENT O, THE WORK INPUT OF BOTH METHODS IS NEARLY  
THE SAME. FACILITY: MOSK. ENER. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 681.332.65

CHAVCHANIDZE, V. V., BRODZELI, M. I., KERTSMAN, E. L., CORBUSHINA, L. P.,  
and MALKIN, Ya. P.

"Electrooptical Trigger with Calculating Input"

USSR Author's Certificate No 277844, filed 20 May 69, published 3 Nov 70  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6,  
Jun 71, Abstract No 6 B210 P)

Translation: Electrooptical flip-flops based on optron-type polycrystals are well known. In particular, they can consist of a light radiator -- an electroluminescent capacitor -- and a photoreceiver -- a photoresistor. The basic principle on which polycrystalline electrooptical elements are built consists in realizing local optical coupling between the radiator and the photoresistor inside the optron and electrical coupling between the elementary cells. The proposed flip-flop is distinguished by the fact that in it two series-connected photoresistors are connected parallel to the electroluminescent cell connected in series to one of the photoresistors and coupled optically with it. One of the photoresistors is also optically connected to the electroluminescent cell, and the other, jointly with the first resistor, is connected to the input optical signal source. This permits an increase in operating stability of the system.

1/1

- 76 -

1/2 031 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--FLIGHT SURGEON'S APPRAISAL OF DISORDERS IN THE AUTOMATISM,  
CONDUCTION AND EXCITATION FUNCTIONS OF THE HEART -U-  
AUTHOR-(03)-BROKHES, L.I., SVAROVSKIY, N.I., GLEBOVSKAYA, N.T.  
COUNTRY OF INFO--USSR *B*  
SOURCE--VOENNO MEDITSINSKII ZHURNAL, FEB. 1970, P. 69-72  
DATE PUBLISHED----FEB70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--HEART DISEASE, EXCITED STATE, MEDICAL EXAMINATION, AIRCRAFT  
PILOT, AEROMEDICINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REL/FRAME--1990/0927 STEP NO--UR/0177/70/000/000/0069/0072  
CIRC ACCESSION NO--AP0109084  
UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--DURABILITY OF ELASTIC PLASTICS UNDER UNIFORM STRESS -U-

AUTHOR--(02)-BROKHIN, YU.I., RATNER, S.B.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 5(b) 754-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYMETHYLMETHACRYLATE, POLYVINYL CHLORIDE, CALCULATION,  
DIFFERENTIAL EQUATION, MATERIAL DEFORMATION, MECHANICAL STRESS

2/2 031 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109084

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF OBSERVATIONS OF  
HEART RHYTHM DISORDERS AMONG INDIVIDUALS FROM A LARGE GROUP OF FLYING  
PERSONNEL SUBJECTED TO EXAMINATIONS. NUMERICAL DATA ARE GIVEN FOR THE  
OCCURRENCE OF VARIOUS HEART THYTHM DISORDERS AMONG THIS GROUP. SYNUSAL  
BRADYCARDIA WAS THE MOST FREQUENT DISORDER, FOLLOWED BY SYNUSAL  
ARRHYTHMIA.

2/2 030

UNCLASSIFIED

PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0111548

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DIFFERENTIAL EQUATION (SIMILAR TO BAILEY'S EQUATION) WAS DERIVED FOR THE CALCN. OF DURABILITY (THETA SUBB) AS A FUNCTION OF STRESS. INTEGRATION OF THE EQUATION GAVE AN APPROX. SOLN. FOR THETA SUBB. THE CALCD. THETA SUBB FOR PLASTICIZED POLY(ME METHACRYLATE) (I) AT 70DEGREES AND FOR POLY(VINYL CHLORIDE) (II) AT 55DEGREES WERE IN GOOD AGREEMENT WITH THE EXPTL. RESULTS. THUS, THE THETA SUBB OF I AND II SUBJECTED TO CONINUOUS LOADING AT A CONST. RATE CAN BE EVALUATED FROM THE EQUATION DERIVED (BASED ON SUMMATION OF DEFORMATIONS).

UNCLASSIFIED

1/2 037

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--TEMPERATURE TIME RELATIONSHIP OF THE STIMULATED ELASTICITY LIMIT OF  
POLYMERS -U-

AUTHOR--(02)--RATNER, S.B., BROKHIN, YU.I.

COUNTRY OF INFO--USSR

SOURCE--SOVIET PHYS. DOKL. (USA), VOL. 14, NO. 10, P. 807-10 (APRIL 1970)  
IN RUSSIAN., P. 1014-17

DATE PUBLISHED----APR70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ELASTICITY, POLYMER, STRESS ANALYSIS, STRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605030/E06 STEP NO--US/0000/70/014/010/0807/0810

CIRC ACCESSION NO--AT0141858

UNCLASSIFIED



2/2 037

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0141859

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF SOME EXPERIMENTS IN THE PROCESS OF STIMULATED ELASTICITY WITH A CONSTANT SPECIFIED STRESS ARE CONSIDERED. THE TEMPERATURE TIME LAW GOVERNING THE CHANGE IN THE STIMULATED ELASTICITY LIMITS,  $G_{SUBB}$ , IS VERIFIED. THIS LAW IS REPRESENTED BY THE EQN.  $G_{SUBB} = G_{SUBB0} \exp\{-\gamma \theta - R[(L-T) - (L-T)_{SUBP}]\}$  WHERE  $\theta$  IS THE CRITICAL PERIOD OF ACTION REQUIRED TO REDUCE  $G_{SUBB}$  TO THE VALUE OF THE APPLIED STRESS AND IS KNOWN AS THE STRAIN DURABILITY  $\tau$ . THE STRAIN CONSTANTS OF THIS EQUATION WE COMPARED WITH THE STRENGTH CONSTANTS OF THE EQN.  $\tau_{SUBB} = \tau_{SUBB0} \exp\{-T_{SUBP}\}$  FOR THE SAME MATERIALS AND SAME MODE OF LOADING. (13 REFS). FACILITY: SCI. RES. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 542.65:546.431

ROKHLENKO, D. A., SOKOL, V. A., KONONOVA, L. I., and BROMBERG, A. V.

"Investigation of the Synthesis and Hot Pressing of BaF<sub>2</sub> Powders in Air"

Moscow, Neorganicheskiye Materialy, Vol 9, No 11, 1973, pp 1932-1935

Abstract: The relationship between synthesis conditions, hot pressing procedure in air, and quality of an optical ceramic of barium fluoride was investigated. BaF<sub>2</sub> particles smaller than 0.5 microns possess the maximum activity when they have been fired at about 500°C. Ceramic elements with a thickness of 3 mm, manufactured from these powders, have a 40% transparency in the visible portion of the spectrum and about 60-80% transparency in the infra-red region with a thickness of 2 to 7 microns. 4 figures, 2 tables, 5 bibliographic references.

1/1

- 24 -

1/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--STABILITY OF SILVER COMPOUNDS WITH SOME MERCAPTO ACIDS -U-  
AUTHOR--(021)-GERASIMOVA, T.N., BROMBERG, A.V.  
COUNTRY OF INFO--USSR **B**  
SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOGR. 1970, 15(1), 9-15  
DATE PUBLISHED-----70  
SUBJECT AREAS--METHODS AND EQUIPMENT, CHEMISTRY  
TOPIC TAGS--CHEMICAL STABILITY, SILVER COMPOUND, ORGANIC ACID,  
PHOTOGRAPHIC CHEMISTRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1603 STEP NO--UR/0077/70/015/001/0009/0015  
CIRC ACCESSION NO--AP0112597  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112597

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VALUES OF THE STABILITY CONSTS. OF MERCAPTO SILVER (I) COMPS. (DERIVED AND DETD. EXPTL.) INCREASED APPRECIABLY WITH INCREASING PH AT LOW PH VALUES, REMAINING SUBSTANTIALLY UNCHANGED AT HIGH PH. COMPARISON OF APPARENT STABILITY CONST. VALUES GAVE THE FOLLOWING ORDER OF DECREASING STABILITY OF I COMPS. INVESTIGATED: UNITHIOL MUCH LARGER THAN THIOLGLYCOLIC ACID APPROXIMATELY EQUAL TO CYSTEINE LARGER THAN THIOSALICYCLIC ACID MERCAPTOSUCCINIC ACID LARGER THAN P MERCAPTobenzoic ACID. THE STABILITY OF THE I COMPS. IN SOLNS. WAS ALSO EVALUATED, BOTH WITHOUT AND WITH THE STD. METOLHYDROQUINONE DEVELOPER UP-2. IN CONTROL SOLNS. CONTG. NO DEVELOPER, THE I COMPS. DISSOC., FORMING A BLACK SEDIMENT. IN SOLNS. WITH DEVELOPER A RED COLORATION WAS OBSD. WHICH INCREASED WITH TIME. IN THE ALIPHATIC THIOL SERIES, THE REDN. OF AG IONS DECREASED WITH INCREASING STABILITY CONST. OF THE I COMPS. IN THE FIRST APPROXN., THE STABILITY CONST. MAY BE OF PRACTICAL IMPORTANCE IN THE FIXING STEP.

FACILITY: VSES. NAUCH.-ISSLED. INST. KHIM.-FOTAGR. PROM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.398.3

BROMBERG, E. M., KULIKOVSKIY, K. L., and MOREV, B. V.

"Self-Correcting Analog-Digital Converter of the Low-Voltage, Pulse-Time Type"

Leningrad, Priborostroyeniye, No 5, 1972, pp 13-17

Abstract: The device described in this article, written by members of the V. V. Kuybyshev Polytechnical Institute, is an analog-digital converter designed to overcome the deficiencies of most instruments of that type, low sensitivity and relatively poor accuracy. The device employs a new method of self-correction through which the errors in the output code, the coefficient connecting the input voltage with the output code and depending on the amplifier gain as well as the rapidity of change in the balancing voltage, and finally the changes in the scale factor resulting from nonlinearity of the amplifier transfer function and the deviations of the balancing voltage from linearity, cannot affect the accuracy of the converter's operation. This new method differs from the conventional one in that it requires only two standards for the transformation of even a substantially non-linear function. A block diagram of the converter is given together with a theoretical explanation. Experiments with it showed  
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USSR

UDC: 621.398.3

BROMBERG, E. M., et al, Priborostroyeniye, No 5, 1972, pp 13-17

that it has an error of 0.05%, with a measurement limit of 50 mV and within the temperature range of -30 to +50° C.

2/2

- 81 -

USSR

UDC 681.3:657.47

BROMBERG, G. L., Candidate of Economic Sciences

"Procedural Principles of Automation of the Control of Financial Activity of a Sector"

Moscow, Pribory i Sistemy Upravleniya, No 2, 1972, pp 1-5

Abstract: The control subsystem of the ASU-pribor [automatic instrument-making control system] for the financial activity of a sector is describe. The goals of the subsystem, the results of a statistical investigation of the outfitting processes at the sector enterprises, and a mathematical model of the supply and demand for material resources are presented. Implementation of the model will lead to optimization of the circulating capital standards. Algorithms are presented for solving the problems with respect to determining the circulating capital required by the enterprises and analyzing the implementation of the commodity sales and profit plans. The functioning of the financial activity control system and the form of primary documentation used with it are described and analyzed.

1/1

- 34 -

Equipment & Machinery

USSR

UDC: 621.319.52

BRON, O. B.

"Electrical Equipment for Very High Rated Currents"

Novocherkassk, Izvestiya VUZ--Elektromekhanika, No 12, 1972,  
pp 1346-1354

Abstract: Because of the increase in power developed by turbo and hydrogenerators, high currents in power stations are becoming more and more the rule. This paper considers a number of problems arising in the development and manufacture of equipment using high currents. One of the factors determining current ratings is the temperature for contact junctions, an increase in which may lead to increased resistance due to oxidation. Methods of cooling and their consequences are discussed together with the author's experience in solving problems in oil switches with a rated current of 50 kA with all the current-carrying parts immersed in transformer oil. Conditions limiting the raising of current loads are considered, and diagrams as well as photographs of some of the high-current Russian switches are shown. All discussions are purely qualitative and practical.

1/1



1/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--THERMAL MAGNETIC PULSE METAL PROCESSING -U-

AUTHOR-(03)-BRON, O.B., YEPECHURIN, V.P., VERSHILOV, YU.I.

COUNTRY OF INFO--USSR

*B*

SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVODSTVO, NO. 2, 1970, PP  
12-14

DATE PUBLISHED-----70

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

TOPIC TAGS--MAGNETIC FIELD EFFECT, METALLURGIC FURNACE, ELECTRIC FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0264

STEP NO--UR/0182/70/000/002/0012/0014

CIRC ACCESSION NO--AP0100774

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100774

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE DESCRIBES A DEVICE WHICH COMBINES HIGH FREQUENCY HEATING WITH STRONG MAGNETIC FIELD PULSES FOR THE PURPOSE OF PROCESSING METALS BY PRESSURE. IN MOST MACHINES OF THIS TYPE, A MAGNETIC INDUCTION IN THE AIR GAP BETWEEN THE INDUCTOR AND THE SPECIMEN OF UP TO 100 WEBERS-M PRIME<sup>2</sup> IS OBTAINED; THE RESULTING PRESSURE ON THE SPECIMEN IS THEREFORE INSUFFICIENT. THE DEVICE DESCRIBED IN THIS ARTICLE RECTIFIES THIS DEFICIENCY BY HEATING THE SPECIMEN BEFORE THE PROCESSING, A METHOD KNOWN AS THERMAL MAGNETIC PULSE METAL PROCESSING. THE INDUCTOR HERE PERFORMS A DOUBLE FUNCTION: IT HEATS THE SPECIMEN WITH HIGH FREQUENCY CURRENTS, AND CARRIES PULSED DISCHARGE CURRENTS FOR THE REQUIRED MAGNETIC FIELD PULSES. A CIRCUIT DIAGRAM OF THE DEVICE IS GIVEN. IT COMBINES THE CIRCUIT OF THE ORDINARY DEVICE PLUS A HIGH FREQUENCY OSCILLATOR OF 45 KILOVOLT AMPERES WITH A VOLTAGE OF 500 AND A FREQUENCY OF 10 KHZ. DRAWINGS OF THE SYSTEM OF WATER COOLING REQUIRED FOR THE INDUCTOR ARE SHOWN, TOGETHER WITH CURVES ILLUSTRATING THE DEFORMATION OF THE SPECIMEN AS A FUNCTION OF THE TEMPERATURES DEVELOPED BY THE DEVICE. THE AUTHORS CONCLUDE THAT THE METHOD OF THERMAL MAGNETIC PULSE CREATES THE CONDITIONS NECESSARY FOR A NUMBER OF ENGINEERING OPERATIONS DIFFICULT TO ATTAIN BY OTHER METHODS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--PRESSURE ON COMPONENTS OF DIFFERENT SHAPE DURING PULSE MAGNETIC  
FORMING OF METALS -U-  
AUTHOR--(02)-BRON, D.B., SEGAL, A.M.  
COUNTRY OF INFO--USSR **B**  
SOURCE--IZV. VUZ. SSSR ELEKTROMEKH. (USSR), NO. 9, P. 935-43 (1969)  
DATE PUBLISHED-----69  
  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--MAGNETIC PULSE FORMING, METAL FORMING, PRESSURE DISTRIBUTION  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAZE--1995/0239 STEP NO--UR/0144/69/000/009/0935/0943  
CIRC ACCESSION NO--AP0115943  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRESSURE AND ITS DISTRIBUTION ON THE SURFACE OF PLANE, CONICAL AND CYLINDRICAL COMPONENTS, DURING PULSE MAGNETIC FORMING OF METALS, IS INVESTIGATED. THE RESULTS SHOW THAT CONICAL AND PLANE INDUCTORS PRODUCE UNEVEN PRESSURE ON THE METAL. THE LIMITING PRESSURE ON CONICAL COMPONENTS DEPENDS ON THE ANGLE AT THE TOP OF THE CONE AND, FOR A CONSTANT UPPER AND LOWER BASE RATIO, IT IS PROPORTIONAL TO  $\sin^2 \alpha$ , WHERE  $\alpha$  IS ANGLE AT THE TOP OF THE CONE. FOR RELATIVELY LONG CYLINDRICAL INDUCTORS AND SMALL AIR GAPS, THE PRESSURE IS DISTRIBUTED EVENLY ON THE SURFACE OF THE COMPONENT.

UNCLASSIFIED

USSR

UDC 666.763.46.001.4

BRON, V. A., KUKURUZOV, A. P., DIYESPEROVA, M. I., and STEPANOVA, I. A., Eastern Institute of Refractories

"Magnesite-Chromite Products of High Purity Magnesite and Chromite"

Ogneupory, No. 2, 1971, pp 32-37

Abstract: The manufacturing technology, properties, and microstructural peculiarities are studied for products manufactured of magnesite and chromite with low contents of impurity oxides. The products have high refractory properties: the temperature at which deformation begins under load is 1700°C and higher, the bending strength at 1300°C is 2.5-3 times higher, and the deformation rate during creep tests 3 times lower than ordinary periclase-spinellide products. The products have good heat resistance, particularly if a small quantity of granular chromite is introduced to the charge. A direct bond is formed between the crystals of periclase -- periclase -- spinellide in the products. The presence of two forms of direct bonding is established.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SERVICE OF CHROMIUM SPINEL FORSTERITE CERAMICS IN UPTAKES OF ROOFS  
OF SLAG POCKETS AND REGENERATORS OF OPEN HEARTH FURNACES -U-  
AUTHOR--(04)-UZBERG, A.I., BRON, V.A., VYDRINA, ZH.A., BESPAMYATNYKH, V.I.  
COUNTRY OF INFO--USSR B  
SOURCE--OGNEUPORY 1970, 35(2), 23-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--SPINEL, OPEN HEARTH FURNACE, CHROMIUM COMPOUND, CERAMIC  
MATERIAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/0890 STEP NO--UR/0131/70/035/002/0023/0031  
CIRC ACCESSION NO--AP0118059  
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70  
CIRC ACCESSION NO--AP0118059  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CR SPINEL FORSTERITE (I) CERAMICS  
WERE FOUND ON EVALUATION TO BE SUITABLE AS REPLACEMENT FOR MAGNESITE  
CHROMITE (II) LININGS. THE USE OF I WAS EXPECTED TO ECONOMIZE THE  
PROCESS. THE POSSIBLE CRYSTALLOGRAPHIC AND CHEM. CHANGES OCCURRING  
DURING SERVICE (REVERSIBLE REDN. OF FE SUB2 O SUB3, RECRYSTN. OF  
FORSTERITE, CHROMITE, AND SILICATE PHASE) IS DISCUSSED.  
FACILITY: VOST. INST. OGNEUPOR, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC: 51

BRON, V. I., DYSYY, O. V.

"Optimum Conveyance of Freight Cars in a Branch of a Railway"

V sb. Mat. metody v ekon. issled. (Mathematical Methods in Economic Research--collection of works), Ufa, 1971, pp 106-109 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V589)

[No abstract]

1/1

- 49 -



USSR

UDC 621.762.01(088.8)

BRONDZIYA, YE. V., KLIMENKO, V. N., MASLYUK, V. A., Radomysel"SKIY, I. D.,  
Institute of Problems in Materials Science, Academy of Sciences Ukrainian SSR

"P/M Alloy"

USSR Authors' Certificate No 273437, Cl. 40b, 29/00; 80b, 1/04; 40b, 1/04  
(C 04b 35/56, C 22c 1/04, G22c 29/00), filed 24 Mar 69, published 21 Sep 70  
(from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G402P)

Translation: A chromium carbide-base, nickel-containing P/M alloy is suggested.  
In order to lower sintering temperature, P is put into it, and components  
are taken in the following ratio (in wt.%): Ni 5-40, P 0.2-1.5, Cr carbide the  
rest.

1/1

USSR

UDC: 8.74

BRONER, Yu. D.

"Critical-Path Method of Planning Multiprogram Processing of Economic Data"

V sb. Teoriya i praktika sbora, peredachi i obrabotki ekon. inform. (Theory and Practice in Collecting, Transmitting and Processing Economic Information--collection of works), Moscow, 1971, pp 165-176 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V524)

Translation: The paper deals with the feasibility of using the critical-path method to solve problems in planning multiprogram processing of economic data, which are characterized by a considerable volume of initial information. Let there be given  $n$  programs of users  $A_i (i=1, \dots, n)$  to be solved on a computer consisting of  $m$  devices  $P_j (j=1, \dots, m)$  which permit independent parallel operation. Each program is represented by a complex of jobs in the form of an oriented graph whose edges are either individual operators of the programs or some set of operators  $Q_{ij}$ . Placed in one-to-one correspondence with each  $Q_{ij}$  is a device  $P_j$  and a serving time  $T_{ij}$ . It is required to minimize the function  $T = \max_i (T_i)$ , where  $T_i$  is the serving

time of the  $i$ -th program with the constraint  $\sum_{i=1}^n P_{ji}^*(t) < P_D^*$ , where  $P_{ji}^*(t)$  is

1/2

- 1 -

USSR

BRONER, Yu. D., Teoriya i praktika sbora, peredachi i obrabotki ekon. inform., Moscow, 1971, pp 165-176

a resource of  $k$ -form for any  $t$ , if  $P_D^k$  is the permissible volume of resources of  $k$ -form. A flowchart of the work of a supervisory program is presented for planning by the critical-path method. On the basis of data obtained from the block for transforming the algorithm to the parallel form of recording, block 1 forms the mass of routine jobs for service ( $M_1$ ) in the memory. Block 2 forms a multiprogram graph of the set of distributed programs. Block 3 is used to accelerate calculation of the network schedule. Kan's algorithm is used as the algorithm for block 3. By calculation of the finished network, block 4 models the course of completion of all programs introduced from mass  $M_1$ . On the basis of the preceding calculations, block 5 isolates jobs causing delay in the course of modeling and gives them higher priority, which is taken as the basis for a new calculation of the network in accordance with block 4. Bibliography of 15 titles.

2/2

USSR

UDC: 669.11.24.71:538

KOTOV, A. P., ZELENIN, L. P., BRONFIN, B. M., SIDORENKO, F. A., GEL'D, P. V.,  
Ural Polytechnic Institute imeni S. M. Kirov

"Structure and Magnetic Properties of Mutual Solid Solutions of Iron and  
Nickel Monoaluminides"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 3, Mar 72, pp  
602-606

Abstract: The lattice period, density, and temperature dependence of susceptibility of solid solutions of  $Fe_{1-x}Ni_xAl$  ( $0 \leq x \leq 1$ ) are measured, and their energy spectrum is discussed. The curve for the lattice period as a function of composition shows anomalous behavior: the lattice period decreases linearly with increasing  $x$  from approximately 291 pm for iron monoaluminide to 288.7 pm for 50 mol.% NiAl, remaining constant above  $x=0.5$ . The temperature-dependent part of susceptibility in the intermetallic compounds is attributed to iron atoms. The concentration dependence of the properties of mutual solid solutions of iron and nickel monoaluminides is explained in terms of redistribution of electron densities.

1/1

- 99 -

USSR

UDC 669.141.241.2:621.746.5

BURDONOV, B. A., ANOKHINA, A. I., RYZHKOV, V. P., VAL'TER, V. A., and  
BRONFENMAKHER, A. M., Kazakh Metallurgical Plant

"The Quality of Small Ingots of Killed Steel"

Moscow, Metallurg, No 12, Dec 70, pp 17-19

Abstract: The optimum consumption of aluminum (300-400 g/ton) for the deoxidation of St.3 and St.6 steels poured to small ingots was determined. With an aluminum consumption of 300-400 g/ton and a pouring rate of 0.4 m/min or less, cracks do not generate and hairline cracks are not observed on the final rolled metal. An increase in the number of deoxidizers in the foundry ladle results in a greater concentration of oxide impurities. A linear dependence was established between the depth of the shrink hole and the bailing period. The possibility of using calcium carbide for desulfurization of steel in the ladle is demonstrated.

1/1

Vacuum

USSR

UDC: 533.599

BRONFIN, M. B., DRUGOVA, I. A.

"Introducing a Cooled Inductor Into a High-Vacuum Chamber"

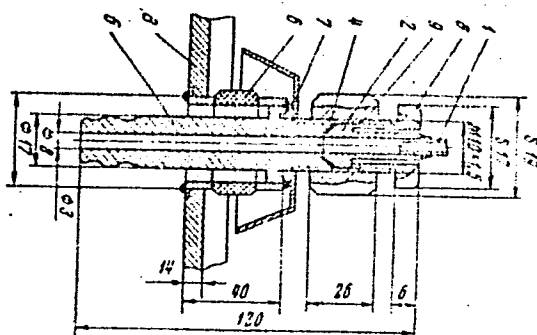
Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/June 72, p 161

Abstract: The paper describes a lead-in designed for introducing a high frequency inductor into the working chamber of a vacuum installation for studying sublimation of metals. The lead-in is diagrammed in the figure. Silver-soldered to each end 1 of the tubular copper inductor mounted in the vacuum chamber is a 1Kh18N9T stainless steel feed-through insulator 2. The tapered outer surfaces of these end-pieces are coupled through aluminum or copper sealing gaskets 4 to the corresponding reception sockets in water cooling fittings 5 as the inductor is seated in the bottom of the chamber 3. One of these fittings is argon-arc welded to the chamber floor, which is made of 1Kh18N9T, and the other is connected through combination insulator 6. A metal jacket 7 protects the ceramic surface of the insulator from the vaporized metal. The inductor is made vacuum tight at disconnect points by screwing bolts 8 into nuts 9 whose position can be changed on the threaded part of the fittings. The proposed device has been in use for two years,

USSR

BRONFIN, M. B., DRUGOVA, I. A., Pribory i Tekhnika Eksperimenta, No 3,  
May/June 72, p 161

and allows evacuation to  $10^{-8}$  mm Hg in the process of heating specimens with a mass of about 2 g in a volume of 30 liters. In this time period, the device was used in heating more than 200 specimens to temperatures of the order of  $1300^{\circ}\text{C}$ . Any coolant can be used, including liquid nitrogen.



2/2

USSR

UDC: 629.19:533.6

BIBERMAN, L. M., BRONIN, S. Ya., LAGAR'KOV, A. N.

"Flow Around Blunt Bodies and Heating During Atmospheric Entry"

Tr. Sektsii po chisl. metodam v gaz. dinamike 2-go Mezhdunar. kollokviura p gazodinamike vzyva i reagiruyushchikh sistem. 1969. T. 3 (Works of the Section on Numerical Methods and Gas Dynamics of the Second International Colloquium on Gasdynamics of Explosion and of Reacting Systems), Moscow, 1971, pp 134-153 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B424)

Translation: The authors consider the problem of aerodynamic heating of blunt bodies entering the atmosphere at velocities exceeding planetary escape velocity. The assumptions made in the paper are substantiated in detail. This enables solution of the problem of determining the total heat flux at the critical point of a blunt body with adequate precision and with acceptable time expenditure. For instance in the case of hypersonic flight velocities it is justifiable to assume that the thickness of the impact layer is small in comparison with the characteristic dimension of the body. It is found that the flow field in the neighborhood of the critical point can be described by a system of ordinary differential equations. It is

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USSR

BIBERMAN, L. M. et al., Tr. Sektsii po chisl. metodam v gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem. 1969. T. 3, Moscow, 1971, pp 134-153

shown that the viscous structure of the compression shock need not be taken into consideration. The problem is solved without separating the impact layer into an inviscid region and a boundary layer. It is noted that the final expression for the overall heat flux at the critical point contains only quantities obtained from solution of the "inviscid" problem with regard to emission of the gas in the shock wave, and from solution of the "viscous" problem, but disregarding emission. An iteration method is used for solving the integrodifferential system of equations. The weak convergence of the method makes it necessary to use an approximate method for calculating each step. The gist of the method is outlined. The paper gives graphic results of computer calculations of curves of the total heat flux and its convective and radiant components with variation of flight speeds (up to  $20 \text{ km}\cdot\text{s}^{-1}$ ) and in the radius of curvature of the nose cone at the critical point. Bibliography of 17 titles. Yu. V. Vasil'yev.

2/2

- 22 -

USSR

UDC 536.6.011.55:536.244

BIBERMAN, L. M., BRONIN, S. Ya., LAGAR'KOV, A. N., Moscow

"Radiation-Convective Heat Exchange in Hypersonic Flow Over a Blunt Body"

Moscow, Mekhanika zhidkosti i gaza, No. 5, Sep/Oct 72, pp 112-123

Abstract: Flow close to the critical point over a blunt body in a hypersonic air flow is considered. It is assumed that the parameters of the gas at the front of the shock wave are discontinuous and that the gas in the shock wave is in a state of local thermodynamic equilibrium. Heat exchange in the neighborhood of the critical point is determined by examining the gasdynamic conservation equations in conjunction with the radiation transfer equation written in integral form. Viscosity, heat conductivity, and the actual radiation properties of air, including the radiation of the spectral lines, are taken into account. Profiles of the thermodynamic values along the critical line are obtained. The dependence of the radiation and convective components of aerodynamic heating on the velocity, pressure ahead of the front and the radius of curvature of the blunt portion of the body is discussed. Approximate relationships are obtained for heat flows in the neighborhood of

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BIBERMAN, L. M., et al, Mekhanika zhidkosti i gaza, No. 5, Sep/Oct 72,  
pp 112-123

the critical point which have the form of similarity laws. The limits of applicability of the approximation of locally thermodynamic equilibrium in the compressed area are discussed. Also considered is the effect of absorption of radiation of the compressed air by the cold incident flow on aerodynamic heating. The relationship between the spectral coefficient of absorption of the cold air and the intensity of the radiation incident on it is taken into account. It is noted that if considerable ablation of the heat shield and noticeable screening of the surface of the body from radiation due to this occur, the problem is considerably complicated since possible illumination of the boundary layer must be taken into account in cases of strong injection. In the opposite case the values of the radiant flows may be greatly lowered. This formulation of the problem requires the simultaneous solution of equations of gasdynamics and physical kinetics considering radiation transfer. Considerable difficulties arise in considering heat exchange far from the critical point that are associated with a sharp rise in the complexity of the system of equations of gasdynamics. It is recommended that the approximations of the theory of radiation transfer used in this paper be used in solving this more complex problem.

2/2

BRONIN, S. Ya.

RMN / 11.11.60 / S.M.S. 1973  
18

shape of the shock wave, the surface pressure distribution, and the wave resistance of the body. The research was performed on a cylinder with spherical bluntness, and on a truncated cone with a developing break. The surface porosity was 60%, the Mach numbers were  $M = 3-5$ , and the relative flow rate of the injected gas was varied within the limits of 0 to 1.0. Two experimental regimes were established: a regime with moderate injection intensity (relative flow rate less than 0.2) and a regime of "strong" injection (flow rate greater than 0.2). In the moderate flow regime, a sharp change of the flow characteristics takes place as the rate is increased (increased resistance, shock-wave separation, and increased angle of shock-wave incidence). The flow calculation can therefore be conducted on the basis of boundary-layer theory, taking viscous interaction into account. The regime of "strong" injection is characterized by the presence of a boundary "blow-off" region of the boundary layer. In this case the flow parameters cannot be determined on the basis of boundary-layer theory.

Bjberman, L. M., S. Ya. Bronin, and A. N. Lagarkov. Heating and flow around blunt bodies during atmospheric entry. IN: Trudy Sektii po chislennym metodam v gazovoy dinamike 2-go Mezhunarodnogo kollektivnaya po razobnarnike vzryva i reagiruushchikh sistem, 1969, Moskva, v. 3, 1971, 134-153. (RZhMekh, 5/72, no. 53424)

The problem of the aerodynamic heating of blunt bodies entering the atmosphere at velocities higher than parabolic is considered. A detailed justification is given of the theoretical assumptions, permitting an efficient solution to the problem of determining the total heat flux at the

USSR

UDC 629.78.015:533.6.011.6

BIBERMAN, L. M., BRONIN, S. Ya., LAGAR'KOV, A. N.

"Flow Around and Heating of Blunt Bodies Upon Entry into the Atmosphere"

Tr. Seksii po Chisl. Metodam v gaz. Dinamike 2-go Mezhdunar. Kollokviyuma po Gazodinamike Vzryva i Reagiruyushchikh Sistem, 1969, T. 3 [Works of Section on Numerical Methods in Gas Dynamics, 2nd International Colloquium on Gas Dynamics of Explosions and Reacting Systems, 1969, Vol 3], Moscow, 1971, pp 134-153, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.161 from the Resume).

Translation: This work studies heat exchange at the critical point on a blunt body, as well as flow in the area of the critical flow line with axisymmetrical flow around a blunt body by an equilibrium air stream. This statement of the problem, significantly simplifying the hydrodynamic portion of the calculations, allows detailed study of the specifics of heat exchange during hypersonic heating and, in particular, detailed study of the processes of radiation transfer which define the heat flux at the critical point at velocities higher than escape velocity. 7 Figures; 17 Biblio. Refs.

1/1

USSR

UDC: 533.95

BRONIN, S. Ya. and LAGAR'KOV, A. N.

"Radiation Transmission in Heterogeneous Layers of a Shock Profile Spectral Line"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 8, No 4, 1970, pp 741-748

Abstract: This paper proposes a method of determining, by spectral lines, the radiation transmitted by a shock profile in nonuniform layers, in which the multiplet structure of a spectral line and the dependence of its absorption factor on local pressure and temperature values are taken into account. The method is convenient for computations on an electronic computer; the asymptotic expressions obtained easily from the general formulas can be used without the computer. The authors state that problems of a similar type have already been considered in the literature, which he cites, but that the results they obtained are not general enough and are not presented in a form convenient for use in practical applications. They also derive expressions describing the transmission of the radiation by several closely positioned spectral lines a commonly encountered situation, since atomic states usually have a multiplet structure.

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- END -

USSR

UDC: 537.312.62

BRONNIKOV, A. N., POPOV, I. G., DIDKOVSKAYA, O. S.

"A Miniature Thermocryostat for Measuring the Electric Characteristics of Nonlinear Dielectrics"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Parts), 1972, vyp. 1(26), pp. 101-103 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12B547 by A. K.)

Translation: The paper describes a miniature cryostat which operates in a set with an MLCh-2M high-frequency bridge in the temperature range from  $-80$  to  $+165^{\circ}\text{C}$ . The cryostat is designed for determining the capacitance, loss tangent and leakage current of nonlinear dielectrics as functions of temperature and electric field strength on different frequencies. The temperature in the cryostat is monitored by a copper-constantan thermocouple shielded by an electrostatic screen. Temperature is held constant with an accuracy of  $1-2^{\circ}\text{C}$ . A conventional method is used for determining the characteristics of nonlinear dielectrics with application of a DC field. The error in determination of capacitance and loss tangent with regard to the inherent capacitance and losses of the thermocryostat is no greater

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USSR

BRONNIKOV, A. N. et al., Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali, 1972, vyp. 1(26), pp 101-103

than the error of the MCh-2M bridge. The minimum measurable loss tangent was 0.0002. The range of working frequencies of the thermocryostat is 0.1-10 MHz, maximum bias voltage is 7 kV. Liquid dielectrics can be used as the ambient for test specimens.

2/2

- 110 -



87601

S/019/60/000/022/051/161  
A156/A026

24.2200 (1138, 1158, 1160)

AUTHOR: Bronnikov, A.A.

TITLE: A Method for Reducing the Thermal Frequency Factor of  
Magnetostrictive Transducers and Resonators

PERIODICAL: Byulleten' izobreteniy, 1960, No. 22, p. 25

TEXT: Class 21g, 34. No. 133539 (658100/26 of Mar 11, 1960).  
This method is applied to above-specified magnetostrictive trans-  
ducers and resonators made from a ferro-nickel alloy containing  
44-45 % of nickel, by means of heating it to a high temperature,  
in a hydrogen medium, followed by a cooling. In order to reduce  
the thermal frequency factor down to a value of  $10 \cdot 10^{-6}$  per a  
degree within a wide temperature range, parts made from the above-  
named alloy are heated, in accordance with this novel method, to  
700°C. At a temperature increase of 200°C per hour, which is

Card 1/2

87601

S/019/60/000/022/051/161  
A156/A026

A Method for Reducing the Thermal Frequency Factor of Magneto-  
strictive Transducers and Resonators

followed by a soaking at the same temperature during two hours,  
whereupon the part is cooled to a room temperature at a rate of  
100°C per hour.

Card 2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--A NONLINEAR CERAMIC DIELECTRIC -U-

AUTHOR--(05)-DIDKOVSKAYA, O.S., ZHABKINA, G.I., BRONNIKOV, A.N., SHVORNEVA,  
L.I., KLIMOV, V.V. B  
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,201  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PATENT, CERAMIC DIELECTRIC, NONLINEAR SYSTEM, LEAD, TITANATE,  
STRONTIUM, ZINC OXIDE, CALCIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/1784

STEP NO--UR/0402/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109745

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
CIRC ACCESSION NO--AA0109745  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM OTDRYTIYA, IZOBRET., PROM.  
OBRAZTSY, TOVARNYE ZNAKI 1970, 47(6), 42. THE TITLE DIELEC. CONTAINS A  
SOLID SOLN. OF A PB TITANATE AND SR TITANATE, 1-30 MOLE PERCENT ZN OXIDE  
(OR TITANATE) AND SMALLER THAN 45 MOLE PERCENT CA TITANATE.

UNCLASSIFIED

USSR

UDC: 621.372.412

BFONNIKOVA, Ye. G., SKOBELKINA, L. B.

"Equivalent Parameters and Temperature-Frequency Characteristics of Resonators made from a Single Crystal of X-Cut Lithium Tantalate"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 31-34 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D355)

Translation: The paper presents the results of measurements of the parameters of resonators of Soviet X-cut  $\text{LiTaO}_3$  single crystals, in particular the dynamic inductance and capacitance, coefficient of electromechanical coupling and temperature coefficient of frequency as a function of the precision of making the cut. It is shown that these crystals have a good future for use in high-frequency wide-band filters. Resumé.

1/1

- 175 -

USSR

B

UDC 621.376.2

BRONNIKOVA, YE. G., LARIONOV, I. M., SHPENTSER, B. I.

"Problem of Planning and Designing High-Frequency Single-Layer Single-Side Band Filters"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Engineering. Scientific and Technical Selection), 1970, ser. 9, vyp. 2, pp 45-58 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D230)

Translation: This article contains an investigation of three possible schematics for single-layer single-side band filters. The difficulties in planning and designing such filters for high-frequencies are demonstrated. The basic problems arising when designing such filters are listed. There are 11 illustrations and a four-entry bibliography.

1/1

Acc. Nr:

AP0049953

Abstracting Service:

CHEMICAL ABST. 5-78

Ref. Code:

UR0467

102443a Preparation of novolak coal-phenol resins based on low-temperature hydrogenation products of bituminous coal and lignite. Bronovets, T. M.; Taitis, E. M. (Inst. Goryuch. Iskop., Moscow, USSR). *Khim. Tverd. Topl.* 1970, (1), 86-94 (Russ). The synthesis of thermosetting polymers by mild hydrogenation of slightly modified bituminous coals (I) and lignite (II) was studied. Plasticized I and II were brought into a reaction with PhOH in an acidic medium and then condensed with HCHO to give new infusible and insol. polymers, characterized by high coke nos. and gelation rates. The polymers prepd. met all the requirements of novolak phenolic resins and were thus suitable binders for molding materials. CKJR

REEL/FAME  
19801891

1/2 011 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--MOLECULAR WEIGHT OF MALATE DEHYDROGENASE OF SOYBEAN COTYLEDONS -U-  
AUTHOR--(02)-BRONJVITSKAYA, Z.S., KRETOVICH, V.L.  
COUNTRY OF INFO--USSR **B**  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(2), 461-3  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--AGRICULTURE CROP, DEHYDROGENASE, ULTRACENTRIFUGE, GEL,  
FILTRATION  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0936 STEP NO--UR/0020/70/190/002/0461/0463  
  
CIRC ACCESSION NO--AT0105805  
UNCLASSIFIED



2/2 011

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0105805

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ULTRACENTRIFUGATION OF THE TITLE MATERIAL YEILDED 2 FORMS OF THE ENZYME FROM THE LEAF MATERIAL, ONE FRACTION HAVING A MOL. WT. OF SIMILAR TO 275,000, THE OTHER 69,000. ADJUSTMENT OF PH TO 6.2 OR TREATMENT WITH CSCL, NACL, OR UREA DISSOCD. THE FORMER FRACTION INTO THE LATTER FORM. AT A LOW-CONCN. OF NACL (0.1N) THIS DID NOT OCCUR. USING THE TAGGED PROTEIN TECHNIQUE AND GEL FILTRATION THE SPECIMENS OF THE TITLE ENZYME DERIVED FROM THE COTYLEDONS WAS FOUND TO HAVE MOL. WTS. OF SIMILAR TO 140,000-145,000 IN THE HIGHER FRACTION AND 67,000-70,000 IN THE LOWER FRACTION. EVIDENTLY THESE ARE TETRAMER AND DIMER UNITS. FACILITY: INST. BIOKHM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

USSR

BRONSHTEN, V. A., Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 3, 1972, pp 84-90

a weak spherical or cylindrical shock wave propagated from top to bottom in an inhomogeneous exponential isothermal atmosphere of low altitude and also the rates of its propagation.

2/2

UDC 591.488.4-135.044:597.82

USSR

VINNIKOV, Ya. A., GAZENKO, O. G., TITOVA, L. K., GOVAREDOVSKIY, V. I.,  
GRIBAKIN, F. G., BRONSHTEYN, A. A., PEVZNER, R. A., ARONOVA, M. Z.,  
MASHINSKIY, A. L., PAL'MBAKH, L. R., IVANOV, V. P., TSIRULIS, T. P.,  
KHARKEYEVICH, T. A., and PYATKINA, G. A., Laboratory of Evolutional  
Morphology, Institute of Evolutionary Physiology and Biochemistry imeni  
I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Development of the Vestibular Apparatus (Labyrinth) of the Frog *Rana  
temporaria* in Weightlessness"

Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 8, No 3,  
May/June 72, pp 343-350

Abstract: To study the effect of weightlessness on development of vertebrate  
vestibular apparatus, 43-hour artificially fertilized *Rana temporaria* eggs  
were subjected to a 40-hour flight in the Soyuz-10, after which they were  
fixed and observed with an electron microscope. Embryos in the early gastrula  
stage were used to ensure that takeoff acceleration was experienced prior to  
establishment of definitive vestibular apparatus, in light of evidence that  
acceleration does have considerable impact on receptor cell development at  
the later stages. Normal development proceeded to the tail bud stage during  
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USSR

VINNIKOV, Ya. A., et al., Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 8, No 3, May/June 72, pp 343-350

the flight, as it did in control embryos, and no differences were detected in development of the presumptive otocysts and the eighth ganglion. Morphology is described in detail, the main feature being the beginning of differentiation of receptor and support cells in the presumptive otocysts and of bipolar neuroblasts in the eighth ganglion. Thus weightlessness has no effect on development in general and on differentiation of the future vestibular apparatus in frog embryos.

2/2

Acc. Nr: AT0043974

**B**

Ref. Code: UR0000

PRIMARY SOURCE: Geofizicheskiy Sbornik, Kiev, 1970, Nr 33,  
• pp 78-83

EL'BERT, A. I.; BRONSHTEYN, A. N.

APPLCATION OF THE PERFORATED MAPS  
WITH SYSTEMATIZATION AND ANALYSIS OF THE RESULTS OF DETERMINING  
THE PHYSICAL PROPERTIES OF ROCKS

(Geophysical Complex Expedition, Kiev)

Summary

The article deals with the state of studying the physical properties of crystalline rocks of the South-Western part of the Ukraine. It is recommended to apply the perforated maps for systematization of materials by the physical properties that makes it possible to widen considerably the volume of the obtained information and accelerate prospecting as well as fascilitate the carrying out of the statistic correlation analysis. The information prospecting system developed by the authors is suggested for this purpose.

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REEL/FRA  
ME 19770408

Feb 12

1/2 022

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--PHOTOMETRIC DETERMINATION OF THE TOTAL CONTENT OF TRI AND  
TETRANITRODIPHENYL SULFONES IN 3,3 PRIME DINITRODIPHENYL SULFONE -U-  
AUTHOR--(04)-KAMINSKIY, A.YA., BRONSHTEYN, E.A., GITIS, S.S., IVANOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 155-8 (RUSS)

DATE PUBLISHED-----70

*B*

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOTOMETRIC ANALYSIS, BENZENE DERIVATIVE, AROMATIC NITRO  
COMPOUND, SULFONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--200G/2144

STEP NO--UR/0032/70/036/002/0155/0158

CIRC ACCESSION NO--AP0125727

UNCLASSIFIED

2/2 022  
CIRC ACCESSION NO--AP0125727

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOTAL AMT. OF TRINITRODIPHENYL SULFONE (I) AND TETRANITRODIPHENYL SULFONE (II) IN 3,3 PRIME DINITRODIPHENYL SULFONE (III) CAN BE DETD. AFTER DISSOLVING A 0.01 G SAMPLE IN 7 ML ME SUB2 CO AND ADDING 3 ML SOPERCENT AQ. NH SUB4 OH. THE ABSORBANCE OF THE COLORED SOLN. (ABSORPTION MAX. 605 AND 520 NM FOR I AND 520 AND 610 NM FOR II) WAS MEASURED 20-30 MIN AFTER ITS PREPN. IN 2 CM CUVETTES. BY USING THE ABOVE METHOD IT WAS FOUND THAT III CONTAINS 0.3-0.4PERCENT OF THE TRI AND TETRANITRODIPHENYL SULFONES.  
FACILITY: VES. NAUCH. ISSLED. PROEKT. INST. MONOMER., TULA, USSR.

UNCLASSIFIED

USSR

UDC: 681.325.3

GORODETSKIY, M. S., BRONSHTEYN, G. V., MAYOROVA, E. A.

"Procedure for Manufacturing Code Discs of Contact Angle-Code Converters"

USSR Author's Certificate No 254221, Filed 14 Jun 68, Published 20 Jan 70  
(from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 9, Sep  
70, Abstract No 9B565P)

Translation: Procedures for manufacturing code discs of contact angle-code converters based on etching or applying a thin layer of metal to a substrate of insulating material are known. However, code discs manufactured by these methods are insufficiently long-lived, and they cannot be restored because of the small thickness of the metal layer. This Author's Certificate introduces a procedure which differs from the known procedures by the fact that the code mask in the foundry mold is made of bit rings which have centering heads, orienting grooves, and fixing holes. Then they are poured under pressure from wear resistant plastic, and after hardening, the risers are removed for electric separation of the contacts. This permits manufacture of the lamella of the code disc from quenched steel, which operation increases the life appreciably. The considerable thickness of the metal permits multiple restoration of the disc by grinding its operating surface. There are four illustrations.

1/1



USSR

UDC 577.391:576.809.7

SHUBIK, V. M., KOLOTVIN, V. A., LIVSHITS, R. Ye., and BRONSHTEYN, I. E.,  
Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of  
Health RSFSR, Leningrad

"Comparative Study of the Dynamics of Changes in the Indexes of Non-Specific  
Immunity Under the Effect of Long-Wave and Short-Wave X-Rays"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 540-544

Abstract: Nonspecific immunological reactivity was studied upon irradiation of rats with long-wave and short-wave x-rays with an effective energy of 14 and 75 keV, respectively. The immunological reactivity was determined on the basis of the area of postinjection infiltration 24 hrs after intracutaneous injection to the animals of 0.1 ml of anti-rat serum, the bactericidal activity of the blood serum towards E. coli, the lysozyme titer of the blood serum with respect to Micrococcus lysodeicticus, and the complement titer of the blood serum as indicated by the hemolysis of ram erythrocytes. On exposure of the animals to equal doses of long-wave and short-wave radiation, the nonspecific immunity was suppressed to a greater extent by the action of short-wave than long-wave radiation. This was due to the fact that, as shown by calculations for the total body, the skin,  
1/2

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SHUBIK, V. M., et al., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 540-544

and the spleen, the average absorbed doses were higher at equal exposure doses for the high-energy short-wave radiation than the low-energy long-wave radiation.

2/2

- 24 -

USSR

UDC 621.382.2:535.376

BRONSHTEYN, I. K., DOLGINOV, L. M., ZHITKOV, Yu. A., LIBOV, L. D., SHARIN, A. I., SHLENSKIY, A. A.

"Some Characteristics of Electroluminescent Diodes Based on Hetero PN Junctions in  $Al_xGa_{1-x}As$ "

Moscow, Radiotekhnika i Elektronika, vol 16, No 12, Dec 71, pp 2330-2332

Abstract: The authors investigate electroluminescent diodes based on the epitaxial heterostructure P-GaAs-P- $Al_xGa_{1-x}As$ -N- $Al_yGa_{1-y}As$  ( $x \cong 0.05$ ,  $y \cong 0.1$ ). The radiation from the P- $Al_xGa_{1-x}As$  layer propagates in a direction perpendicular to the PN junction through the transparent N-region. The emitting layer is doped with germanium to a hole concentration of about  $5 \cdot 10^{18}/cc$ , and the N-layer is tellurium-doped to an electron concentration of about  $10^{18}/cc$ . The area of the PN junction is about  $0.01 \text{ cm}^2$ . The electrical parameters of the diodes at room temperature: specific zero-bias capacitance of the PN junction about  $10^5 \text{ pF/cm}^2$ , current cutoff voltage 1.3-1.4 V depending on the mole fraction of aluminum arsenide in the solid solution, breakdown voltage 7 V, residual resistance 0.5 ohm or less.

1/2

USSR

BRONSHTEYN, I. K. et al., Radiotekhnika i Elektronika, vol 16, No 12,  
Dec 71, pp 2330-2332

An investigation of the principal electroluminescence characteristics of the diodes shows that they satisfy all the requirements for use as emitters in high-speed electron-optical devices. One figure, one table, bibliography of eight titles.

2/2

- 98 -

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--INELASTIC SCATTERING OF ELECTRONS AND SECONDARY ELECTRON EMISSION  
OF DIELECTRICS -U-  
AUTHOR--(02)--BRONSHTEIN, I.M., PROTSENKO, A.N. *B*  
COUNTRY OF INFO--USSR  
SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, APR. 1970, P 805-811  
DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--INELASTIC SCATTERING, SECONDARY ELECTRON EMISSION, ELECTRON  
SCATTERING, DIELECTRIC LAYER

CONTROL MARKING--NO RESTRICTIONS

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2/2 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123608

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF SECONDARY ELECTRON EMISSION FROM LIF, NAL, KL KBR, AND NAOL DIELECTRICS, WITH SPECIAL EMPHASIS ON THE ROLE OF INELASTICALLY REFLECTED ELECTRONS IN THE PROCESS. DIELECTRIC LAYERS WERE IRRADIATED IN VACUUM BY ELECTRON BEAM PULSES FROM 5 TO 10 MSEC IN DURATION. BEAM DIAMETER RANGED FROM 4 TO 5 MM, AND BEAM CURRENT WAS .1 MICROAMPERE. RESULTS ARE GIVEN FOR THE INELASTIC ELECTRON REFLECTION COEFFICIENTS AND THE SECONDARY ELECTRON EMISSION COEFFICIENTS AT VARIOUS LAYER THICKNESSES AND PRIMARY ELECTRON ENERGIES. FACILITY: AKADEMIIA NAUK SSSR, NAUCHNYI SOVET PO FIZICHESKOI ELEKTRONIKE, SESSIIA, LENINGRAD, USSR, FEB. 7, 1969.

UNCLASSIFIED

USSR

UDC 519.4

ASHMANOV, S. A., BRONSHTEYN, M. A.

"Simple Polyverbal Operations"

Moscow, Izvestiya AN SSSR, Ser. Matematicheskaya, Vol 35, No 6,  
Nov/Dec 71, pp 1409-1428

Abstract: The paper is devoted to construction and investigation of a new series of neutral polyverbal Maltzevian operations on groups -- so-called simple operations, including all those which satisfy Maltzev's postulate. The authors define the new series in such a way as to cover all known polyverbal Maltzevian operations. The properties of simple operations are defined, and it is shown that the set of all neutral polyverbal Maltzevian operations has the power of the continuum. It is also proved that all different Maltzevian operations (not necessarily polyverbal) form a set. A continuum of polyverbal Maltzevian operations which are not simple is constructed. The authors thank O. N. Golovin for interest in the work. Bibliography of 15 titles.

1/1

BROVSHTEYN, M. P.

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UDC 01(031)

BROVSHTEYN, M. P.

"Creativity, and Not Only Technology"

Sovetskaya Bibliografiya, No 5, 1970, pp 62-76 (from R-Zh -- Informatika, No 4, Apr 71, Abstract No 71.4.21 (71R-945))

Translation: The basic content, merits, and shortcomings of Prakticheskoye Posobie po Sostavleniyu Retrospektivnykh Bibliograficheskikh Ukazateley Nauchnoy Literatury (A Practical Aid for the Compilation of Retrospective Bibliographic Indexes of Scientific Literature), published in Leningrad in 1969, are analyzed. It is noted that the text does not disclose a sufficient number of the most important questions in the methodology of compiling retrospective bibliographic indexes to aid science, particularly the specific features of compiling retrospective indexes as indexes which fulfill a summary or historical function. A critical evaluation of the text's treatment of bibliographic methods is given. It is pointed out that despite serious shortcomings in the textbook being considered, it may be useful to practical workers in the field of bibliography, especially those sections which deal with the problems of organizing bibliographic work and publishers' requirements regarding the layout of a manuscript.

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1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--THE ROLE OF COLLATERAL CIRCULATION IN A COMPENSATION OF  
CEREBROISCHEMIC HYPERTENSION APPEARING IN LIGATION OF SOME BRANCHES OF  
AUTHOR--(03)--SUCHKOV, V.V., OVRUTSKIY, YA.S., BRONSHTEYN, R.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,  
VOL 70, NR 6, PP 834-840  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--BRAIN, BLOOD CIRCULATION, ANGIOGRAPHY, MEDICAL EXPERIMENT  
CCNTRGL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0240 STEP NO--UR/0246/70/070/006/0834/0840  
CIRC ACCESSION NO--AP0126017  
UNCLASSIFIED

2/2 021

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126017

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN 20 RABBITS WHO HAD UNDERGONE IPSILATERAL LIGATION OF SOME BRANCHES OF THE GENERAL CAROTID ARTERIES A CHRONIC HYPERTENSIVE REACTION APPEARED. A REPEATED LIGATION OF SIMILAR ARTERIES ON THE OTHER SIDE AFTER 6-7 MONTHS IN 16 ANIMALS WAS NOT ACCOMPANIED BY AN INCREASE OF ARTERIAL PRESSURE. IN 12 EXPERIMENTS THE COLLATERAL BRAIN CIRCULATION WAS STUDIED BY ANGIOGRAPHY AND A FILLING OF THE CEREBRAL VESSELS BY LATEX. IN 10 ANIMALS THE AUTHORS STUDIED THE INTRACULAR PRESSURE AND OPHTHALMOGRAPHY OF THE VESSELS OF THE EYE GROUND. THE ACHIEVED DATA WERE COMPARED WITH THE RESULTS SEEN IN 5 CONTROL ANIMALS AND 5 INTACT ANIMALS. IT WAS ESTABLISHED THAT A RECONSTRUCTION OF COLLATERAL CIRCULATION BEGINS DIRECTLY AFTER LIGATION OF THE CAROTID ARTERIES. AFTER 242-389 DAYS THERE IS A DILATATION OF THE SPINAL AND BASILLAR ARTERY, THE ARTERIES OF THE CIRCLE OF WILLIS, A DILATATION OF THE EXISTING AND A FORMATION OF NEW ANASTOMOSIS, VASCULAR NEOPLASMS IN THE PLACE OF ARTERY LIGATIONS BETWEEN THE INTRA AND EXTRACEREBRAL VESSELS. THE AUTHORS DISCUSS THE ROLE OF COLLATERAL CIRCULATION IN THE COMPENSATION OF BRAIN CIRCULATORY INSUFFICIENCY.

FACILITY: INSTITUT KARDIOLOGII, AMN, MOSKVA.

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