

USSR

TERESHIN, O. N., et al., Radiotekhnika, Vol 27, No 1, 1972, pp 31-35

antennas. Experimental radiation patterns are presented. The analysis demonstrates the possibility of constructing wave channel antennas with modulated phase velocity and quadruple use of the array. The application of such antennas permits a significant decrease in the length of the antenna by comparison with ordinary antennas of the wave channel type.

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USSR

UDC: 621.396.677.73(088.8)

TERESHIN, O. N., YEROKHIN, G. A., YUAKO, A. N., Moscow Electrical Engineering Institute of Communications

"An Antenna"

USSR Author's Certificate No 263693, filed 24 Sep 68, published 4 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No: 12B77 P)

Translation: This Author's Certificate introduces an antenna in the form of a rectangular horn with ribbed walls in the aperture section. The antenna is excited through a waveguide junction which widens out in the H plane. The ribbed walls of the horn are a continuation of the wide walls of the junction; the grooves are rectangular and parallel to the wide walls of the feeder; the spacing of the grooves is 0.1 of a wavelength in free space. The depth of the grooves varies with respect to the length of the antenna in such a way that the envelope of the ribs is described by a parabolic law. This design provides a radiation pattern of plateau or cosecant shape in the E plane. One illustration. N. S.

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USSR

UDC: 621.396.677.32(088.8)

TERESHIN, O. N., SEDOV, V. M., Moscow Electrical Engineering Institute of Communications

"An Exciter for a Flat Surface Wave Antenna"

USSR Author's Certificate No 251026, filed 4 Mar 68, published 9 Jun 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11153 P)

Translation: This Author's Certificate introduces a horn-type exciter with one of its walls made in the form of a ribbed surface. The shape of the surface and the law of change in the depth of the grooves gives a high coefficient of surface wave excitation over a broad frequency range as well as reducing the overall dimensions of the horn. For this purpose, the ribbed surface is made concave and is inclined to the horn at an angle of 45°. A linear slot source is used in the horn. One illustration. N. S.

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USSR

UDC: 621.396.677

TERESHIN, O.N., KUZNETSOV, L.N., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A.S. Popov

"A Backward-Wave Antenna With Modulated Phase Velocity Based on Rod-Type Decelerating Structures"

Moscow, Radiotekhnika, Vol 25, No 12, Dec 70, pp 39-43

Abstract: The "wave channel" method is used as a basis for formulating the problem of synthesizing a backward-wave antenna with modulated phase velocity. Theoretical and experimental studies show that such an antenna can be constructed with rod-type decelerating structures. The use of backward-wave antennas with modulated phase velocity can appreciably reduce the longitudinal dimensions of antennas as compared with conventional antennas with unmodulated phase velocity. The transverse dimensions of the antennas are increased by the reflecting shield.

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USSR

UDC 621.396.677.732

TERESHIN, O. N., YEROKHIN, G. A., YUVKO, A. N.

"Synthesis of Horn Antennas with Impedance Walls"

Tr. Mosk elektrotekhn. in-ta svyazi (Works of Moscow Electrotechnical Communications Institute), 1969, vyp. 1, pp 222-225 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B66)

Translation: This article contains an investigation of the possibility of obtaining a given phase-amplitude field distribution in the aperture of horn antennas with impedance boundary conditions on the horn walls. It is proposed that the field of the exciting source have the nature of TM-waves. There are three illustrations and a seven-entry bibliography.

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1/2 034 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ANTENNA -U-
AUTHOR--TERESHIN, D.N., YEROKHIN, G.A., YUVKO, A.N.
COUNTRY OF INFO--USSR T
SOURCE--PATENT NO 263693
REFERENCE--MOSCOW, OKTRIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 8,
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS
TOPIC TAGS--HORN ANTENNA, ANTENNA ENGINEERING, ANTENNA RADIATION PATTERN,
PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1094 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0112216
ZZZZZZZZZZZZ UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRG ACCESSION NO--AA0112216

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES AN ANTENNA MADE IN THE FORM OF A RECTANGULAR HORN. THE WALLS OF THE HORN WHICH DIVERGE FROM THE WIDE WALLS OF THE FEEDER WAVEGUIDE HAVE A RIBBED SURFACE FORMED BY TRANSVERSE GROOVES. TO PRODUCE A MESA OR COSECANT SHAPED RADIATION PATTERN IN THE E PLANE, THE DEPTH OF THE GROOVES IS VARIED OVER THE LENGTH OF THE ANTENNA, THE LAW OF THE RIB ENVELOPE BEING CLOSE TO PARABOLIC.

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USSR

UDC 621.396.67.001

TERESHIN, O. N., GOFMAN, V. G., KUZNETSOV, L. N.

"Synthesis of a Relief Impedance Axial Radiation Antenna with a Radiation Pattern of Special Shape"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrotechnical Communications Institute), 1970, vyp. 1, pp 130-136 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B2)

Translation: Beginning with representation of the field near the antenna with a modulated phase velocity in the form of the sum of surface waves with different delays propagated at various angles to the antenna axis (see RZh-Radiotekhnika, 1970, 1B46), a method of synthesis of an antenna with a sectoral radiation pattern is discussed. The parameters of an endon rod impedance antenna and an antenna based on a rod delay structure are calculated. There is one illustration and a three-entry bibliography.

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USSR

UDC 621.396.677.32(088.8)

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TERESHIN, O. N., GOFMAN, V. G.

"Impedance Antenna"

USSR Author's Certificate No 240044, Filed 1 Jul 67, Published 28 Jan 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B63P)

Translation: The proposed impedance antenna is executed in the form of coaxial metallic discs of variable diameter separated by grooves. In order to reduce the overall dimensions, the diameters of the mentioned discs and the depth of the grooves between them vary along the antenna according to a wave periodic law. There is one illustration.

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USSR

UDC 621.396.677.495

TERESHIN, O. N., KUZNETSOV, L. N.

"The 'Wave Channel' Antenna with Modulated Phase Velocity"

Moscow, Radiotekhnika, Vol 25, No 8, 1970, pp 39-43

Abstract: The authors find fault with present antennas of the "wave channel" type designed in the form of a delaying structure consisting of a uniform grid of passive vibrators excited by an active vibrator with reflector. Its basic advantage is its simplicity, but its disadvantage is its narrow band and inability to yield a high gain. Because of this and other drawbacks, the authors propose the following design system. An axially radiating antenna constructed on the principle of transforming a primary, strongly delayed wave into a weakly delayed wave is to be taken as the basic form; the two-dimensional impedance structure is to be computed using the method of an earlier paper (by O. N. Tereshin and V. G. Gofman in Radiotekhnika, Vol 24, No 8, 1969), in which the delay factor of the secondary wave is determined by the parameters of the antenna directional diagram; the law for the change in relief is to correspond to the line along which the phase centers of the passive grid vibrators are arranged; and the law for the phase velocity change is to correspond to the law for the impedance change in the vibrator structure through a change in vibrator length. The benefits of this design method were experimentally demonstrated.

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UDC 621.396.677.7

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TERESHIN, O. N., MOROZOV, B. N.

"A Procedure for Decreasing the Reaction of an Auxiliary Mirror to an Exciting Horn in a Cassegrainian Antenna"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of Moscow Electrotechnical Communications Institute), 1970, vyp. 1, pp 136-140 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B46)

Translation: This article contains an investigation of the possibility of using a relief impedance adaptor for redirection of part of the emitted energy reflected from an auxiliary horn on the primary mirror in order to exclude its return incidence on the exciting horn. The parameters of the adaptor are defined. Comparison of it with the one usually used for the same purposes demonstrates its advantages. There are two illustrations and a two-entry bibliography.

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USSR

UDC: 621.396.677.75

TERESHIN, O. N., SEDOV, V. M., Moscow Electrotechnical Institute of Communications

"An Exciter for a Flat Surface-Wave Antenna"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 216, patent No 251026, filed 4 Mar 68

Abstract: This author's certificate introduces an exciter for a flat surface-wave antenna. The unit is made in the form of a horn and a ribbed section with varying impedance. As a distinguishing feature of the patent, the overall dimensions of the exciter are reduced and its effectiveness is improved by making the outer surface of the ribbed section concave, and inclining the horn to the ribbed section at some angle, say 45° .

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USSR

UDC 621.396.677.73

TERESHIN, O. N., YEROKHIN, G. A. and YUVKO, A. AN.

"Synthesis of Two-Dimensional Impedance Horn Antennas According to a Specific Distribution in the Aperture"

Moscow, Radiotekhnika, Vol 25, No 1, Jan 70, pp 63-69

Abstract: A method is outlined for the synthesis of impedance horn antennas according to the field distribution in the aperture. The relationship between the field distribution in the aperture and the required radiation pattern may be determined on the basis of relations known from the classical theory of radiation system synthesis. Possible ways for specifying the field structure satisfying the wave equations and ensuring the possibility of selecting any given field distribution in the aperture are analyzed. The method is illustrated by the synthesis of a horn antenna having a sector-shaped radiation pattern. The results are presented in graphs in the form of relief and impedance functions, as well as radiation patterns (theoretical and experimental). It is concluded that this method makes it possible to synthesize the horn antennas with impedance walls, whose experimental radiation patterns coincide well with theoretical ones. Orig. art. has 7 figures and 17 formulas.

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Acc. Nr.: AP0040399

Ref. Code: UR 0108

USSR

UDC 621.396.677.73

JPRS 50248

TERESHIN, O. N., MEROKHIN, G. A. and YUVKO, A. AN.

"Synthesis of Two-Dimensional Impedance Horn Antennas According to a Specific Distribution in the Aperture"

Moscow, Radiotekhnika, Vol 25, No 1, Jan 70, pp 63-69

Abstract: A method is outlined for the synthesis of impedance horn antennas according to the field distribution in the aperture. The relationship between the field distribution in the aperture and the required radiation pattern may be determined on the basis of relations known from the classical theory of radiation system synthesis. Possible ways for specifying the field structure satisfying the wave equations and ensuring the possibility of selecting any given field distribution in the aperture are analyzed. The method is illustrated by the synthesis of a horn antenna having a sector-shaped radiation pattern. The results are presented in graphs

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in the form of relief and impedance functions, as well as radiation patterns (theoretical and experimental). It is concluded that this method makes it possible to synthesize the horn antennas with impedance walls, whose experimental radiation patterns coincide well with theoretical ones. Orig. art. has 7 figures and 17 formulas.

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UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--CALCULATION OF PLASMOID MOTION IN AN AXIALLY SYMMETRIC, SPATIALLY PERIODIC, ALTERNATING MAGNETIC FIELD -U-
AUTHOR--(05)-KALMYKOV, A.A., TERESHIN, V.I., CHEBOTAREV, V.V., KHIZHNYAK, N.A., LYSENKO, O.YE.
COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, ZHURNAL TEKHICHESKOY FIZIKI, VOL. 40, NO. 3, MAR 70, PP 466-474
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMOID, PLASMA FLOW, MOTION EQUATION, COMPUTER CALCULATION, VELOCITY DISTRIBUTION, MAGNETIC FIELD EFFECT, PLASMA CONDUCTIVITY, MAGNETIC PERMEABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1351

STEP NO--UR/0057/70/040/003/0466/0474

CIRC ACCESSION NO--AP0131782

UNCLASSIFIED

2/3 039

CIRC ACCESSION NO--AP0131782
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE MOTION OF A PLASMOID IN A MAGNETIC FIELD PRODUCED BY A SYSTEM OF COILS WITH MUTUALLY OPPOSING CURRENTS IS CONSIDERED. THE ANALYSIS IS CONDUCTED WITHIN THE FRAMEWORK OF THE INTEGRAL MODEL OF A SMALL BUNCH, CONSIDERING THE EFFECTS OF DISSIPATION AND THE GAS KINETIC PRESSURE. THE PAPER IS AN EXTENSION OF EXPERIMENTAL WORK IN WHICH STABILIZATION AND FOCUSING OF A PLASMA MOVING IN A SPATIALLY PERIODIC, ALTERNATING, AXIALLY SYMMETRIC MAGNETIC FIELD WAS FIRST OBSERVED. THE EQUATIONS OF MOTION WERE INTEGRATED ON A COMPUTER FOR DIFFERENT PARAMETERS OF THE PLASMOID. THE FOLLOWING CONCLUSIONS WERE DRAWN FROM THE COMPUTATIONS: 1. THE INITIAL VELOCITY OF THE PLASMOID IS THE BASIC PARAMETER EFFECTING THE PASSAGE OF PLASMOIDS THROUGH THE SYSTEM. 2. FOR LARGE INITIAL VELOCITIES THERE EXISTS AN INTERVAL OF VALUES OF THE RATIO $N-H \text{ PRIME}^2 \text{ SUBO}$ UNDER WHICH PASSAGE OF THE PLASMOID THROUGH THE SYSTEM IS OBSERVED. AS THE INITIAL VELOCITY INCREASES, THE $N-H \text{ PRIME}^2 \text{ SUBO}$ INTERVAL BROADENS. 3. UPON REFLECTION OF THE PLASMOIDS THROUGH THE MAGNETIC SLIT. 4. WHEN BUNCHES WITH SUBSEQUENT EMISSION THROUGH THE SYSTEM, CURRENTS ARE INDUCED IN THEM WHICH FULLY COMPENSATE THE APPLIED MAGNETIC FIELD SO THAT THERE IS NO FIELD INSIDE THE PLASMOID. 5. WHEN PLASMOIDS WITH POOR CONDUCTIVITY PASS THROUGH THE SYSTEM, A SHIFT IN PHASE OCCURS BETWEEN THE MAGNETIC FIELD AND THE INDUCED CURRENT. IN THIS CASE THE MAGNETIC FIELD PENETRATES THE PLASMOID. 6.

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131782

ABSTRACT/EXTRACT--PASMIDS WITH POOR CONDUCTIVITY UNDERGO A STRONG RETARDATION IN THE SYSTEM WHICH IS PROPORTIONAL TO THE PHASE SHIFT BETWEEN THE MAGNETIC FIELD AND THE INDUCED CURRENT. PRELIMINARY ANALYSIS SHOWS THAT THESE RESULTS ARE IN GOOD AGREEMENT WITH EXPERIMENTAL DATA OF THE AUTHORS BUT A MORE COMPLETE COMPARISON WILL REQUIRE MORE DETAILED EXPERIMENTS. THIS WORK IS CURRENTLY BEING CONDUCTED AND THE RESULTS WILL BE PUBLISHED.

UNCLASSIFIED

USSR

UDC 533.9.07

KALMYKOV, A. A., TERESHIN, V. I., CHEBOTAREV, V. V., KHIZHNYAK, N. A. and
LYSENKO, O. YE.

"Calculation of Plasmoid Motion in an Axially Symmetric, Spatially Periodic,
Alternating Magnetic Field"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol. 40, No. 3, Mar 70, pp 466-474

Abstract: The motion of a plasmoid in a magnetic field produced by a system of coils with mutually opposing currents is considered. The analysis is conducted within the framework of the integral model of a small bunch, considering the effects of dissipation and the gas kinetic pressure. The paper is an extension of experimental work in which stabilization and focusing of a plasma moving in a spatially periodic, alternating, axially symmetric magnetic field was first observed. The equations of motion were integrated on a computer for different parameters of the plasmoid. The following conclusions were drawn from the computations: 1. The initial velocity of the plasmoid is the basic parameter affecting the passage of plasmoids through the system. 2. For large initial velocities there exists an interval of values of the ratio N/N_0 under which passage of the plasmoid through the system is observed. As the initial velocity increases,

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KALMYKOV, A. A., et al, Zhurnal tekhnicheskoy fiziki, Vol. 40, No. 3, Mar 70, pp 466-474

the N/B_0^2 interval broadens. 3. Upon reflection of the plasmoids the plasma is captured in the magnetic cell with subsequent emission through the magnetic slit. 4. When bunches with good conductivity pass through the system, currents are induced in them which fully compensate the applied magnetic field so that there is no field inside the plasmoid. 5. When plasmoids with poor conductivity pass through the system, a shift in phase occurs between the magnetic field and the induced current. In this case the magnetic field penetrates the plasmoid. 6. Plasmoids with poor conductivity undergo a strong retardation in the system which is proportional to the phase shift between the magnetic field and the induced current. Preliminary analysis shows that these results are in good agreement with experimental data of the authors but a more complete comparison will require more detailed experiments. This work is currently being conducted and the results will be published. The interest of B. G. Safronov in this work is acknowledged.

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I/2 013

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--ACCURATE DETERMINATION OF THE DENSITY OF WEAK SOLUTIONS AT VARIOUS TEMPERATURES -U-

AUTHOR--(05)--TERESHKEVICH, M.O., GARUS, L.I., DLUGACH, R.YE., KUPRIK, A.V., VOLKOVA, S.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970 43(1) 167-70

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLUID DENSITY MEASUREMENT, TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0300

STEP NO--UR/0080/70/043/001/0167/0170

CIRC ACCESSION NO--AP0113230

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113230

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

ABSTRACT. A FLOTATION METHOD IS DESCRIBED FOR RAPID DETN. OF D. WITH AN ACCURACY OF 10 NEGATIVE PRIME5 G-CM PRIME3. THE D. OF SEVERAL HOLLOW QUARTZ FLOATS OF 10-12 MM LENGTH AND 1-2 MM DIAM. WAS CALIBRATED BY DETN. OF THE TEMP. AT WHICH THEY WOULD JUST FLOAT IN H SUB2 O. THE FLOATS WERE USED TO DET. THE D. OF AQ. SOLNS. OF K SUB2 CR SUB2 O SUB7 IN THE CONC. RANGE 0.1 MINUS 0.2 G-L. AND TEMP. RANGE 10-35DEGREES. FACILITY: DNEPROPETROVSK. GDS. UNIV., DNEPROPETROVSK, USSR.

UNCLASSIFIED

USSR

UDC 621.771.073.001.5

POLUKHIN, P. I., NIKOLAYEV, V. A., POLUKHIN, V. P., TERESHKO, A. K., and
YEFIMENKO, S. P.

"An Analysis of Operating Stresses in the Contact Zones of Four-High Rolling
Mill Rolls"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya"
Publishing House, No 64, 1970, pp 68-72.

Translation: Data are given on the size and nature of the distribution of
residual stresses in rolls 500 mm in diameter. Summary operating stresses
in the rolling process are analyzed in dependence on the technological
features: tension; ratio of internal friction; slippage. Four illustrations,
three bibliographic entries.

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USSR

UDC 669.24:548.4

POPOV, L. YE., TERESHKO, I. V., GORENKO, L. K., KONEVA, N. A., KOZLOV, E. V.,
and KOVALEVSKAYA, T. A., Siberian Physicotechnical Institute imeni V. D.
Kuznetsov and Tomsk Engineering Construction Institute

"Dislocation Structure of Ni₃Al at Different Stages of Deformation"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 409-
418

Abstract: This study was conducted to study the change in the nature of dislocation structure in intermetallide Ni₃Al with increasing degree of deformation. Alloys with nickel and 22.9 and 24.0 at.% Al were investigated to which deformations of 1-12% were applied. At small degrees of deformation (1-2%) interlaces of dislocations were extended along slip traces and the average distance between slip traces was 8300 A. The number of interlaces and dislocation density increased with increased deformation. Plastic deformation of Ni₃Al results in the generation of three types of dislocations two of which are inherently located in octahedral planes and one -- cubic planes. In the deformed alloy numerous wide stacking faults are observed when alloy composition is close to stoichiometric and the energy of the stacking faults amounts to 29 erg/cm² for the alloy with 24.0 at.% Al. At high degrees 1/2

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POPOV, L. YE., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73,
pp 409-418

of deformation, dislocation interlacings are noted which form a cellular
structure. 9 figures, 22 bibliographic references.

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USSR

UDC: 8.74

DOMRACHEV, V. M., KAYGORODTSEV, G. I., TERESHKO, Ye. P.

"Methods of Checking Information in Automatic Control Systems"

V sb. Vopr. tekhn. i inform. obespecheniya ASU (Problems of Hardware and Software for Automatic Control Systems--collection of works), Novosibirsk, 1971, pp 3-12 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V499)

[No abstract]

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- 45 -

USSR

UDC 681.3.007

ABEZGAUZ, M. I., GOLANT, Yu. A., TERESHKO, E. P., Engineers, and GRINBERG, A. S., Candidate of Technical Sciences

"Method of Representing Information in Automated Control Systems of Discrete Production"

Moscow, Pribory i Sistemy Upravleniya, No 7, July 1971, pp 10-12

Abstract: The article examines the organization of the structure of document arrays in automated control systems which is based on a single concept of the production situation -- a conceptual model. The suggested version for representing information is based on the following principles: utilization of a specific model of object operation, application of the "information resources" concept along with the "material resources" concept, interpretation of the process of operational selection of the controlling actions, selection of groups of interacting events, examination of data utilization by the personnel, selection of the staff, compilation of a set of algorithms, placement of code diagrams in documents and standardization of operational documents for all administrative workers with an individual composition of code diagrams. The composition of the code diagrams depends on the set of
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USSR

ABEZGAUZ, M. I., et al., *Pribory i Sistemy Upravleniya*, No 7, July 1971, pp 10-12

interrelated events of the sphere of the individual administrative worker and the number of elementary controlled events reflected by the specific set of documents. The workers are periodically supplied with the standard document forms, including a specification-key with a complete set and structure of code diagrams and other information. The advantages of this method include the possibility of organizing information required by the particular worker and control of information resources, establishing prerequisites for the formulation of a single conceptual model, accelerating the process of rapidly selecting the necessary data from a set of documents, and the possibility of a formal description and quantitative evaluation of the perception of data by the personnel.

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USSR

UDC 669.14.018.45.621.438

TERESHKOVICH, A. S., Engineer, RUNOVA, A. YE., Candidate of Technical Sciences,
ZHAKOVSKAYA, I. S., GONSEROVSKAYA, T. S., Engineers, Central Scientific Research
Institute of Machine Building Technology, Leningrad Metal Plant

"Heat-Resistant Steel TsZh13 for Cast Parts of Gas Turbines"

Teploenergetika, No 5, 1970, pp 23-25

Abstract: On the basis of the investigation of a series of experimental variants of alloys for cast parts of gas turbines, the composition of steel 3Kh16N22V6B (TsZh13) was selected as the optimal one from the point of view of surface properties and weldability: 0.25-0.30% C, 15-17% Cr, 21-23% Ni, 5.5-6.5% W, 0.8-1.2% Nb. Details on the production and application of the steel are presented. The steel is recommended for the production of profile castings of the guiding units of gas turbines and other similar subassemblies with a working temperature of up to 750° C.

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Radar

USSR

UDC: 621.391

TERFUGOV, A. F., TOLSTUNOV, V. A.

"Concerning the Uncertainty Function of Random Signals"

Kiev, IVUZ: Radioelektronika, Vol 15, No 3, Mar 72, pp 343-349

Abstract: A new approach is proposed for extending the concept of the uncertainty function to the case of random signals. Let the probing signal $S(t)$ be a realization of a random process which is stored in a radar station and then utilized in reception. Let θ be the parameters and $\hat{\theta}$ be the estimates of the parameters of this signal. If $p(\hat{\theta}/\theta)$ is the probability density function for estimates of the unknown parameters, then for signal reception in normal white noise we have

$$p(\hat{\theta}/\theta) = C e^{q g(\hat{\theta}, \theta)}$$

where $g(\hat{\theta}, \theta)$ is the uncertainty function, q is the signal-to-noise ratio, and C is a normalization constant. It is shown that the expression

$$g(\hat{\theta}, \theta) = \frac{1}{q} \ln \int_{-\infty}^{\infty} e^{q g(\hat{\theta}, \theta; S)} p(S) dS$$

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TERPUGOV, A. F., TOLSTUNOV, V. A., IVUZ: Radioelektronika, Vol 15, 1972, pp 343-349

should be used as the uncertainty function for random signals in the general case. If the range and speed of the target are the unknown parameters,

$$g(\tau, \Omega) = \frac{1}{q} \ln \int_{-\infty}^{\infty} e^{\frac{q}{T^2} \left| \int_0^{T-\tau} S(t) S^*(t+\tau) e^{j\Omega t} dt \right|^2} p(S) dS.$$

In the case where the autocorrelation function drops abruptly to zero with an increase in the argument, the approximate formula

$$g(\tau, \Omega) = \frac{1}{T^2} \left[\bar{u}^2 + \bar{v}^2 + \sigma_u^2 + \sigma_v^2 + \frac{2q}{T^2} (\bar{v}\sigma_u + r\sigma_u \bar{u})^2 \right]$$

can be used as the uncertainty function, where

$$u + jv = \int_0^{T-\tau} S(t) S^*(t+\tau) e^{j\Omega t} dt.$$

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UNCLASSIFIED
PROCESSING DATE--23OCT70
TITLE--SYNTHESIS OF ALPHA, OMEGA, BIS(ACYLOXY)POLYORGANOSILOXANES -U-
AUTHOR--(03)-MELIKYAN, M.O., TERGAZAROVA, D.A., VARTANYAN, M.M.
COUNTRY OF INFO--USSR
SOURCE--ARM. KHIM. ZH. 1970, 23(1), 74-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, POLYSILOXANE, CARBOXYLIC ACID, ANHYDRIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/1483
STEP NO--UR/0426/70/023/001/0074/0077
CIRC ACCESSION NO--AP0116920
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116920

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AC(SIETRO) SUB3 AC(WHERE R EQUALS ME OR PR) AND R CO SUB2(SIET SUB2O)SUB3 COR' (WHERE R' EQUALS ME, ET, PR, BU, OR AMYL) WERE PREPD. BY TREATING HEXAALKYLCYCLOTRISILOXANES WITH EQUIMOLAR AMTS. OF THE APPROPRIATE CARBOXYLIC ACID ANHYDRIDE. THE REACTION PROCEEDED WITHOUT CATALYST AT 250DEGREES, WITH ZNCL SUB2 AT 100DEGREES, OR WITH HCLD SUB4 AT ROOM TEMP., IN 14-33, 28-63.5, AND 21.5-30.1PERCENT YIELDS, RESP. FACILITY: INST. OBHCH. NEORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC: 621.375.029.67

BARCHUKOV, A. I., KONEV, Yu. B., PROKHOROV, A. M., TERIN, V. S.

"A 10.6 Micron Laser Amplifier With Periodic Structure of the Amplified Beam"

Moscow, Radiotekhnika i Elektronika, Vol. 16, No 6, Jun 71, pp 996-1004

Abstract: An experimental study is made of a single-mode CO₂ laser amplifier based on a 90-meter quasioptical mirror transmission line. An estimate is made of the effect which errors in alignment of the line correctors and amplitude-phase distortions have on beam degradation. Basic design data and characteristics are presented for the laser. The output power is more than 500 watts. The study showed that the proposed design could be competitive with the telescopic amplifier described by P. Miles and W. Lotus (IEEE J. Quantum Electronics, 1968, QE-4, 11, 811). The principal advantage of the gas laser studied in this work is the fact that the phase correctors in the line are simpler devices than the telescopes in the Miles-Lotus laser. These correctors provide periodic focusing of the beam, thus reducing broadening due to non-linearity of amplification. Calculations show that cells no more than 20-25 cm in diameter should be used to simplify matching between the line and the optical laser, shifting the matching itself to the laser. The total experimentally measured losses in amplification were too high to allow any appreciable increase in output power.

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USSR

UDC 621.391.2.018.756

"TERINA, G.I."

"Pulse Signals Propagation In Media With Absorption And Dispersion"

Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 611-613

Abstract: Propagation of a pulse signal in a uniform medium with absorption and dispersion is considered. The results of computations for concrete parameters of the signal and medium are presented, which made it possible to detect the characteristic features of the propagation. The propagation in a uniform isotropic ionospheric plasma of a pulse signal with a certain Gaussian envelope was studied. The author thanks L.A. Vaynshteyn for consideration of the work and helpful comments. 2 fig. 3 ref. Received by editors, 23 July 1971.

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USSR

UDC 517.53

TER-ISRAYELIAN, L. A., Institute of Mathematics and Mechanics, Academy of Sciences Armenian SSR

"Uniform and Tangential Approximations of Functions Holomorphic in an Angle by Meromorphic Functions With an Evaluation of Their Increase"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR -- Matematika, Vol 6, No 1, 1971, pp 67-80

Abstract: The article considers the problem of uniform approximation of functions holomorphic in an angle by meromorphic functions with evaluations of their increase. In the case of approximation in an angle by entire functions the increase of the approximating function is much greater than that of the functions being approximated and, by virtue of Phragmen-Lindelof type theorems, strongly depends on the aperture of the angle of approximation. In the case of approximation by meromorphic functions, however, their increase (in terms of the increase of a characteristic function) can be limited to the increase of the function holomorphic in an angle which is being approximated. In addition, in the case of approximation by meromorphic functions the problem of tangential approximation can easily be reduced to the problem of uniform approximation. The results of the article have applications in the theory

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USSR

TER-ISRAYELYAN, L. A., Izvestiya Akademii Nauk Armyanskoy SSR -- Matematika, Vol 6, No 1, 1971, pp 67-80

of the distribution of values of meromorphic functions. The author thanks his scientific mentor N. U. ARAKELYAN for formulating the problem and his assistance in its solution.

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- 30 -

1/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THE SIGNIFICANCE OF BODY REACTIVITY IN FORMATION OF ADHESIONS IN
EXPERIMENTAL TALCUM ADMINISTRATION INTO THE ABDOMINAL CAVITY -U-
AUTHOR--(03)--MINASYAN, A.M., TERKASPAROVA, M.R., ARUTYUNYAN, L.O.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIA, 1970, NR 2, PP
48-50

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADHESION, ANIMAL PHYSIOLOGY, INHIBITION, TRYPSIN, EXPERIMENTAL
SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0646

STEP NO--UR/0481/70/000/002/0048/0050

CIRC ACCESSION NO--AP0108857

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0108857

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADHESIONS FORM IN THE SENSITIZED ANIMALS TWICE OFTENER THAN IN THE CONTROL GROUP. IN DESENSITIZED ANIMALS ADHESIONS WERE SEEN IN ONLY ONE THIRD OF CASES. ADMINISTRATION OF LIDASE AND TRYPSIN TO SENSITIZED ANIMALS PREVENTS FORMATION OF ADHESIONS. FACILITY: KAFEDRA GOSPITAL'NOY KHIRURGII, KAFEDRA PATOLOGICHESKOY ANATOMII AND KAFEDRA PATOLOGICHESKOY FIZIOLOGII YEREVANSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

72 022 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--INCREASE IN THE STABILITY OF THE GRATE BARS OF SINTERING MACHINES
 -U-
 AUTHOR--(05)-FELDMAN, B.A., NEIGFBAUER, G.O., CALEMIN, I.M., KVANDV, V.A.,
 TERLIKOVSKIY, V.I.
 COUNTRY OF INFO--USSR
 SOURCE--METALLURG (MOSCOW) 1970, 15(1), 6-8.
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
 TOPIC TAGS--SINTERING FURNACE, MATERIAL FAILURE, CAST IRON, HIGH CARBON
 STEEL, CHROMIUM STEEL/(U)CSH18 36 CAST IRON
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1989/1934 STEP NO--UR/0130/70/025/001/0006/0008
 ARC ACCESSION NO--AP0108263
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 G22

ARC ACCESSION NO--AP0103263

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNTIL RECENTLY THE KARAGANDINSK METALLURGICAL PLANT USED BARS FOR SINTERING MACHINES MADE FROM GSH18-36 GRAY CAST IRON WITH A LIFE OF 4 MONTHS AND A CONSUMPTION OF 400 G-TON OF SINTER. VARIOUS ALLOYS WITH DIFFERENT CR AND FE CONCNS. WERE TRIED. BEST WAS BB ALLOY CONTG.: C 1.10, CR 19.07, SI 2.00PERCENT. THE NEW BARS LAST 1.5-2 YR.

UNCLASSIFIED

Nuclear Science and Technology

UDC: 621.039.58,68:539.6

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USSR

DIPOBES, I. K., KRYAZEV, V. A., MOISEYEV, A. A., MOSKALEV, YU. I., SIVILISEV,
YU. V., TEVEROVSKIY, YE. N., TERMAN, A. V., and SHANOV, V. P.

"Radiation Safety Standards (NRB-69)"

Moscow, Atomnaya energiya, Vol. 28, No 6, Jun 70, pp 463-467

Abstract: In August 1969 the Ministry of Health of the USSR approved the Radiation Safety Standards (NRB-69) developed by the National Commission on Radiation Protection. Recommendations of the International Commission of Radiological Protection served as the basis for the new standards. These standards set the basic permissible levels for ionizing radiation along with the permissible admission of radioactive isotopes into an organism. This includes three categories of people: Category A including service personnel, Category B including specific individuals in the population who live in areas where the permissible radiation doses may have been exceeded and where radiation conditions are checked, and Category C which includes the entire population with respect to estimating a genetically significant radiation dosage. The new standards are mandatory for the enterprises and establishments of all ministries and agencies using, applying, processing, transporting, storing, and burying radioactive substances and ionizing radiation sources. A short summary is given of the scientific basis which served as the framework for the new standards. The new standards are differentiated from the old. Tables are

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USSR

DIBOBES, I. K., et al., Atomnaya energiya, Vol 28, No 6, Jun 70, pp 463-467

given showing permissible somatic and genetic doses. Permissible surface contamination levels are also given.

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1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DEVELOPMENT OF APPROACHES TO RADIOLOGICAL PROTECTION -U-
AUTHOR--(04)-LETAVET, A.A., DIBOBES, I.K., TEVEROVSKIY, YE.N., TERMAN, A.V.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, AKADEMIYA NAUK SSSR ATOMNAYA ENERGIYA, VOL 28, NO 3, MAR
70, PP 225-231
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RADIOLOGY, RADIATION PROTECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1386

STEP NO--UR/0089/70/028/003/0225/0231

CIRC ACCESSION NO--AP0128786

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272 016

CIRC ACCESSION NO--A0128786
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. A REVIEW IS MADE OF THE APPROACHES TO RADIOLOGICAL SAFETY USED BY THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION (ICRP) FROM ITS INCEPTION IN 1928 TO THE PRESENT. THE REVIEW IS BASED ENTIRELY ON THE RECOMMENDATIONS AND PUBLICATIONS OF I.C.R.P. AND DOES NOT CONTAIN ANY NEW MATERIAL. THE AUTHORS STATE THAT THE NATIONAL COMMISSION ON RADIOLOGICAL SAFETY OF THE MINISTRY OF HEALTH USSR IS CONSTANTLY REVIEWING RADIOLOGICAL SAFETY STANDARDS AND ENDEAVORING TO BRING SOVIET PRACTICE INTO CONFORMITY WITH THE RECOMMENDATIONS OF I.C.R.P. AND WITH THE STANDARDS OF THE INTERNATIONAL ATOMIC ENERGY AGENCY. THE REVISED USSR STANDARDS ON RADIOLOGICAL PROTECTION ARE SCHEDULED FOR PUBLICATION IN 1970.

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LETAVET, A. A., DIBOBES, I. K. TEVEROVSKIY, YE. N., and TERMAN, A. V.

UDC 621.039.58

"Development of Approaches to Radiological Protection"

Moscow, Akademiya Nauk SSSR, Atomnaya Energiya, Vol 28, No 3, Mar 70, pp 225-231

Abstract: A review is made of the approaches to radiological safety used by the International Commission on Radiological Protection (ICRP) from its inception in 1928 to the present. The review is based entirely on the recommendations and publications of I.C.R.P. and does not contain any new material. The authors state that the National Commission on Radiological Protection of the Ministry of Health USSR is constantly reviewing radiological safety standards and endeavoring to bring Soviet practice into conformity with the recommendations of I.C.R.P. and with the standards of the International Atomic Energy Agency. The revised USSR standards on radiological protection are scheduled for publication in 1970. Orig. art. has: 10 references.

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UDC: 621.375.7

USSR

DAKHNOVICH, A. A., RUBAN, A. S., TER-MARTIROSYAN, L. T., YANCHENKO, Yu. F.

"Development of Parametric Microwave Amplifiers on a Nonlinear Dielectric"

Izv. Leningr. elektrotekhn. in-ta (News of Leningrad Electrical Engineering Institute), 1972, vyp. 101, pp 33-40 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D283 [résumé])

Translation: There has recently been a considerable increase of interest in nonlinear dielectrics as applied to parametric amplifiers in the SHF range. The prospects for paramps on a nonlinear dielectric are associated with a number of their advantages over paramps on semiconductors: intrinsically higher reliability, greater dynamic range, looser requirements for stability of the pumping level, etc. The development of such amplifiers involves a number of specifics stemming from the particular properties of ferroelectric materials. A particularly important role in this regard is played by the problem of ensuring effectiveness of heat removal from the nonlinear capacitor heated by the pumping oscillations. The paper gives the results of an experimental study of certain amplifiers with elements of VK7 ferroceramic and crystalline strontium titanate. An amplification of 20 dB is achieved in the continuous mode in a one-loop amplifier on
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DAKHOVICH, A. A. et al., Izv. Leningr. elektrotekhn. in-ta, 1972, vyp. 101,
pp 33-40

crystalline strontium titanate with pumping on 2 GHz and cooling with
liquid nitrogen. Nine illustrations, bibliography of twenty titles.

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UDC: 621.375.7.029.6

USSR

VENDIK, O. G., DAKHNOVICH, A. A., RUBAN, A. S., TER-MARTIROSYAN, L. T.,
YANCHENKO, Yu. F.

"A Cooled Parametric Amplifier on Strontium Titanate"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1981-1983

Abstract: The paper gives the results of an experimental study of a two-circuit regenerative mavar for reflection with a planar nonlinear capacitor based on a strontium titanate thin film. The current-voltage characteristic of the capacitor is given. The signal frequency in the amplifier was 1.78 GHz, and the pumping frequency was 5 GHz. The amplifier was made in the coaxial strip version. The nonlinear capacitor was connected in a break in the central conductor of the strip line. As a distinguishing feature of the design, the energy from the pumping oscillator and the signal are sent to the same coaxial input. Separation is by a filter. Tests were done in a cryostat at 77 kelvins. The coaxial Y-circulator was located outside the cryostat. Losses in the input circuits including the circulator amounted to 1.0 dB; losses in the output circuits were 3 dB. At an amplification factor of 15 dB, the band of the proposed mavar was 12 MHz. The

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VENDIK, O. G. et al., Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1981-1983

pumping power consumption was no more than 500 mW. The calculated noise temperature was 200 K, and measurements gave 320 K. The authors thank V. V. Smirnyy for furnishing the crystal specimens.

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1/2 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--DETERMINATION OF THE COMPARATIVE STABILITY OF CITRATE, OXALATE, AND TARTRATE COMPLEXES OF VANADIUM BY AN ION EXCHANGE METHOD -U-

AUTHOR--(02)-GAYBAKYAN, D.S., TERMENDZYAN, Z.Z.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(1), 22-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--VANADIUM COMPLEX, CITRIC ACID, OXALATE, TARTARIC ACID, ION EXCHANGE RESIN/(U)KU2 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1455

STEP NO--UR/0426/70/023/001/0022/0026

CIRC ACCESSION NO--AP0116892

UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 007
CIRC ACCESSION NO--AP0116892
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OVER 90PERCENT OF THE V, PRESENT
IN THE AMT. OF 1 MG-25 ML OF 0.0001-0.005N HCL WAS ADSORBED BY STRONGLY
ACID CATIONIC ION EXCHANGER KU-2 IN THE H FORM. OVER 70PERCENT OF THE V
BOUND WITH LIGANDS IN 0.001M SOLNS. OF OXALIC, CITRIC, AND TARTARIC
ACIDS WAS ADSORBED BY KU-2 UNDER STATIC CONDITIONS. OXALIC ACID SOLNS.
(0.01M) CAN ELUTE 80.4PERCENT OF THE V ADSORBED ON KU-2, WHILE CITRIC
AND TARTARIC ACIDS OF THE SAME CONCEN. WERE INEFFECTIVE ELUENTS.
FACILITY: EREVAN. GOS. UNIV., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC 537.531

AZIZBEKYAN, L. A., and TERMINASOV, Yu. S.

"Study of Dynamic and High-Velocity Deformation of Polycrystalline Iron by the Method of X-Ray Small-Angle Scattering"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR; Fizika, Vol 7, No 2, 1972, pp 139-145

Abstract: The authors made a comparative study of the state of the crystal structure of metals subjected to deformation under various types of stress (impact, high-velocity action in comparison with the static type of load), as well as the principal characteristics of the substructure of the material studied. Polycrystalline iron foil 150 microns thick, containing 0.03-0.04 percent carbon, was used for the study. Specimens were annealed in a vacuum furnace at 950°C for half an hour, then subjected to static, impact, and high-velocity tension at room temperature. The method of X-ray small-angle scattering was used to evaluate the mean angle of misorientation of the blocks of the mosaic. The influence of the thermal effect on the development of the elements of the fine crystal structure is considered, as well as the relationship between variations in substructure characteristics and the mechanism for the realization of plastic deformation.

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Acc. Nr: AP0043676

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 551-557

EFFICIENCY OF CURRENT HEATING IN A DENSE PLASMA
OF A STRONG CURRENT GAS DISCHARGE

Manzyuk, N. A.; Suprunenko, V. A.;
Sukhomlin, Ye. A.; Ternopol, A. M.

The physical efficiency of current heating of a dense plasma in a strong current gas discharge stabilized by a strong magnetic field is considered. The heating efficiency is of the order of 60%. Current heating is the result of successive development of a number of streaming instabilities and takes place as long as the current flows in the active region of the discharge. The value of the plasma thermal energy density previously obtained ($nkT = 3 \cdot 10^{18}$ eV/cm³) is confirmed.

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19770080

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UDC 539.126

TERNOV, I. M., KHALILOV, V. R., ZHURAVLEV, A. F., and CHIZHOV, G. A., Moscow State University imeni M. V. Lomonosov

"On the Effect of a Strong Radiation Field on an Electron Moving in a Plane Electromagnetic Wave"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 1, 1973, pp 7-17

Abstract: Let there be a charged particle (electron) which is simultaneously acted on by the field of a monochromatic plane electromagnetic wave (first wave) and a second wave of arbitrary spectral composition (external radiation field). The first wave is considered to be more intense, and hence the motion of the electron is mainly due to interaction with it. The article considers the action of the second wave on the electron, as well as the question of variations in the mean energy of the electron during its interaction with the radiation field. Conditions are found whereby the acceleration of the electron by the external field compensates for intrinsic electronic energy losses.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--QUANTUM THEORY OF ELECTRON MOTION IN A CYCLIC RESONANCE ACCELERATOR
-U-
AUTHOR--(03)-BAGROV, V.G., SOKOLOV, A.A., TERNOV, I.M.
COUNTRY OF INFO--USSR
SOURCE--TOMSK, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: FIZIKA; APRIL 1970;
PP 12-22
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS
TOPIC TAGS--EDDY CURRENT, ELECTROMAGNETIC FIELD, RELATIVISTIC ELECTRON,
ELECTRON MOTION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1288 STEP NO--UR/0139/70/000/000/0012/0022
CIRC ACCESSION NO--AT0131743
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AT0131743
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KLEIN GORDON EQUATION IS USED
IN THE STUDY OF THE MOTION OF A RELATIVISTIC ELECTRON IN A FOCUSSED,
CONSTANT MAGNETIC FIELD IN THE PRESENCE OF A STILL HIGHER FREQUENCY EDDY
ELECTROMAGNETIC FIELD COMPENSATING THE RADIATION ENERGY LOSS. THE
SOLUTIONS OBTAINED CAN FIND APPLICATION IN THE THEORY OF ELECTRON
STORAGE RINGS, WHERE QUANTUM FLUCTUATIONS ARE ESPECIALLY NOTICEABLE.
THE ARTICLE INCLUDES 54 EQUATIONS.

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USSR

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BAGROV, V. G.; SOKOLOV, A. A.; TERNOV, I. M. (Moscow State University)

"Quantum Theory of Electron Motion in a Cyclic Resonance Accelerator"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy: Fizika; April 1970, pp 12-22

ABSTRACT: The Klein-Gordon equation is used in the study of the motion of a relativistic electron in a focussing, constant magnetic field in the presence of a still higher-frequency eddy electromagnetic field compensating the radiation energy loss. The solutions obtained can find application in the theory of electron storage rings, where quantum fluctuations are especially noticeable. The article includes 54 equations. There are 10 bibliographic references.

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1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--THE FORMATION OF A COMPLEX OF GONADOTROPHIN WITH GAMMA GLOBULIN
SERUM FRACTION OF PLACENTAL BLOOD -U-
AUTHOR--(03)-SPERANSKIY, V.V., TERNOVOY, A.P., STRIGIN, V.A.
COUNTRY OF INFO--USSR
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,
NR 6, PP 43-45
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GAMMA GLOBULIN, BLOOD SERUM, PLACENTA, CHEMICAL SEPARATION,
CHROMATOGRAPHY, GONADOTROPIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0095

STEP NO--UR/0219/70/049/006/0043/0045

CIRC ACCESSION NO--AP0131294

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131294

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAMMA GLOBULIN, ISOLATED FROM THE SERUM OF PLACENTAL BLOOD BY MEANS OF THE COLD ALCOHOL TECHNIQUE, ION EXCHANGE AND DISTRIBUTION CHROMATOGRAPHY ON COLUMNS, POSSESSED IN ASHEIM ZONEX TEST ON IMMATURE MALE RATS GONADOTROPIC (FOLLICULOSTIMULATING) ACTIVITY. THE MOST ACTIVE PROVED TO BE GAMMA GLOBULIN OBTAINED ON A DEAE CELLULOSE COLUMN AND WITH THE AID OF COLD ALCOHOL METHOD, THEN FOLLOWED THAT OBTAINED BY MEANS OF COLUMN GEL FILTRATION WITH SEPHADEX G,100 AND, FINALLY, WITH DEAE SEPHADEX A 50. COMMERCIAL GAMMA GLOBULIN IN VITRO FORMED A COMPLEX WITH CHORIOGONIN, WHICH COULD NOT BE ISOLATED IN REPEATED COLUMN CHROMATOGRAPHY WITH GEL SEPHADEX G 200.
FACILITY: I. I. MECHNIKOV INSTITUTE OF VACCINES AND SERA, UFA.

UNCLASSIFIED

Acc. Nr: **AP0043935**

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 2, pp 18-21

MORPHOLOGICAL CHANGES IN GUINEA PIGS
IN ENTERAL IMMUNIZATION WITH PLAGUE EV VACCINE

V. I. Ternovoy, S. I. Zaplatina, A. I. Khokhlova, G. F. Rozhkova

The authors studied the structural changes in the organism of guinea pigs enterally immunized with plague EV vaccine in a dose of 250 million and 20 milliard microbial cells. Immunomorphological changes in the form of proliferation of lymphoidal and reticular tissues with formation of epithelioido-cellular granulomas, macrophagic reaction and hyperplasia of pyroninophilic elements developed in the mesenteric lymph nodes. Changes in the spleen and remote lymph nodes were insignificant. Productive mesenterial lymphadenitis with granulomatosis resolved by the 18th day from the time of immunization of guinea pigs, even when massive doses were used.

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ISUPOV, F. G., and TERNOVAYA, L. P., Ufa Scientific Research Institute of Vaccines and Sera imeni I. I. Mechnikov

"Dynamics of Antibody Titers to Nucleoprotein Antigen in Persons Repeatedly Vaccinated With Live Influenza Vaccine"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 492

Translation: A series of tests with sera from persons repeatedly vaccinated with live vaccines containing both nucleoprotein and hemagglutinating antigens of types A and B influenza viruses revealed that although the average titers to all four antigens increased with increasing number of inoculations, there was no correlation between the concentration of antibodies against hemagglutinating antigens and the concentration of antibodies against nucleoprotein antigens. On the basis of these findings it is recommended that both antigens be used simultaneously to evaluate the immunogenic properties of live influenza vaccines and to assess the results of seroconversion in human beings who have recovered from influenza.

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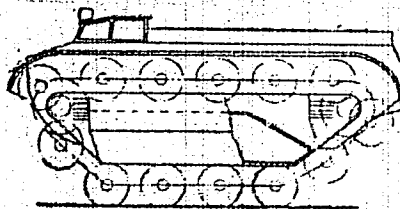
UDC: 621.1.011/.012

VOL'SKIY, S. G., TERNOVSKIY, B. I., GERASIMOV, N. I.

"An Amphibian Body"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 331941, Division B, filed 13 Jan 69, published 14 Mar 72, p 52

Translation: This Author's Certificate introduces an amphibian body with races for a pneumoroller traction unit. As a distinguishing feature of the patent, the dirt track thrown up by the rollers is improved by beveling the side and rear (stern) surfaces of the races.



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1/2 026
 UNCLASSIFIED
 PROCESSING DATE--27NOV70
 TITLE--EFFECTIVE RESISTANCE OF AN IMPERFECT SUPERCONDUCTOR OF THE SECOND
 KIND IN AN OSCILLATING MAGNETIC FIELD -U-
 AUTHOR--(05)-ANDRIANOV, V.V., ZENKEVICH, V.B., KURGUZOV, V.V., SYTCHEV,
 V.V., TERNOVSKIY, F.F.
 COUNTRY OF INFO--USSR
 SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
 NR 5, PP 1523-1531
 DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS
 TOPIC TAGS--SUPERCONDUCTOR, OSCILLATION, MAGNETIC FIELD EFFECT, DIRECT
 CURRENT

CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3002/0006
 STEP NO--UR/0056/70/058/005/1523/1531
 CIRC ACCESSION NO--AP0127656
 UNCLASSIFIED

2/2 026

CTRC ACCESSION NO--AP0127656

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT IS INVESTIGATED OF AN EXTERNAL OSCILLATING MAGNETIC FIELD ON THE DIRECT CURRENT FLOWING IN AN IMPERFECT SUPERCONDUCTOR OF THE SECOND KIND. IT IS FOUND THAT WHEN THE VARIABLE COMPONENT OF THE EXTERNAL FIELD AMPLITUDE EXCEEDS A CERTAIN THRESHOLD VALUE AN EFFECTIVE DIRECT CURRENT RESISTANCE ARISES. THE DEPENDENCE OF THIS QUANTITY ON OSCILLATING FIELD FREQUENCY, AMPLITUDE OF VARIABLE COMPONENT, MAGNITUDE OF CONSTANT COMPONENT AND VALUE OF DIRECT CURRENT FLOWING IN THE SUPERCONDUCTOR IS DETERMINED. THE DEPENDENCE OF THE THRESHOLD AMPLITUDE OF THE EXTERNAL FIELD ON CURRENT AND FIELD STRENGTH IS INVESTIGATED. A THEORY IS PROPOSED WHICH EXPLAINS THE EXPERIMENTAL RESULTS. FACILITY: INSTITUT VYSOKIKH TEMPERATUR, AKADEMII NAUK SSSR.

UNCLASSIFIED

USSR

UDC: 622.011.43

TERNOVSKIY, I. N.

"Investigation of the Deformability of a Block Medium on Physical Models"

Sb. nauchn. tr. Perm. politekhn. in-t (Collected Scientific Works. Perm' Polytechnical Institute), No 72, pp 50-58 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V703)

Translation: In order to determine the conditions under which a cracked rock base may be treated as a continuous medium to which the equations of elasticity theory are applicable, an experimental determination is made of the minimum ratio of the size of an experimental punch to the size of an individual block of the rock (the criterion of quasicontinuity) at which the modulus of overall deformation is practically independent of an increase in this ratio within required limits of accuracy. The study was done under conditions of plane deformation on a model base of gypsum-limestone blocks of rectangular shape loaded by rigid metal punches of various sizes. Curves for sinking of the punches as a function of loading are plotted from the results of static tests. The modulus of deformation of the base with regard to the influence coefficient of the shape of the

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TERNOVSKIY, I. N., Sb. nauchn. tr. Perm. politekhn. in-t, No 72, pp 50-58

punch was calculated on the basis of these curves for a constant load level. It is shown that the curve for the modulus of deformation of the base as a function of the size of the punch becomes very flat when the width of the stamp is more than ten times the size of an elementary block of rock. This ratio is recommended as a criterion of continuity when conducting punch tests. A graph is given for evaluating the error of results in the case of various ratios of sizes of punch and elementary blocks of rock separated by cracks. L. R. Stavnitser.

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1/2 005 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--SULFUR DIOXIDE BY COMBUSTION OF SULFUR CONTAINING SUBSTANCES IN
FLUIDIZED BEDS -U-
AUTHOR--~~FERNOVSKAYA~~, A.N., SHPUNT, S.YA., SHVARTSSHTEIN, YA.V., MALETS,
A.M., KORENBERG, YA.G.
COUNTRY OF INFO--USSR
SOURCE--GER. 1,467,096
DATE PUBLISHED--26MAR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SULFUR OXIDE, FLUIDIZED BED, CHEMICAL PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/1863 STEP NO--GY/0000/70/000/000/0000/0000
CIRC ACCESSION NO--AA0108197
ZZZZZZZZZZZ UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0108197

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROCESS IS DESCRIBED FOR PRODUCING SO SUB₂ FROM ELEMENTAL S OR S₂ CONTG. MATERIALS UTILIZING A DOUBLE FLUIDIZED BED ARRANGEMENT WHEREBY BURNING TAKES PLACE IN THE LOWER BED WITH THE TEMP. REACHING 700-1000DEGREES FOLLOWED BY COOLING OF THE GASES IN THE UPPER BED TO 350-450DEGREES. WHEN S IS USED, THE LOWER BED CONSISTS OF AIR FLUIDIZED INERT MATERIAL (E.G., QUARTZ SAND, CHAMOTTE); WHEN S₂ CONTG. MATERIAL (E.G., PYRITES) IS USED, THE MATERIAL ITSELF CONSTITUTES THE FLUIDIZED MEDIUM. THE UPPER BED CONSISTS OF HEAT ABSORBING MATERIALS.

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UNCLASSIFIED

USSR

UDC: 550.834

TIMOSHIN, Yu. V., TIMOSHIN, B. V., TERPELYAK, A. A.

"A Device for Processing Data of Area Seismic Observations"

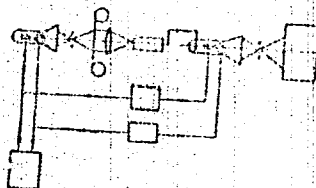
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 11, Apr 72, Author's Certificate No 333510, Division G, filed 8 Oct 70, published 21 Mar 72, p 183

Translation: This Author's Certificate introduces a device for processing data of area seismic observations presented in the form of seismokinofilms. The device contains a data reproduction unit with cathode ray tube, optical system, information carrier and transport mechanisms. The device also incorporates a computer and signal storage unit with image plotter. As a distinguishing feature of the patent, speed is increased by installing a photomultiplier at the focus of the objective lens located behind the information carrier. The output of the photomultiplier is connected to the modulator of the CRT in the storage unit. The CRT is connected to a frame scanning oscillator in the unit for reproducing the seismic signals.

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USSR

TIMOSHIN, Yu. V. et al., USSR Author's Certificate No 333510



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USSR

UDC 621.382.333.34

TERPIGOR'YEV, V. V., FEDORKOV, B. G.

"A Device for Automatic Measurement of the Loss Resistance of Tunnel Diodes"

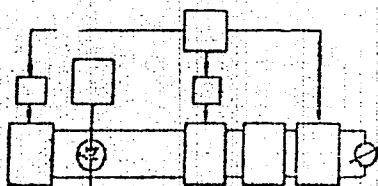
Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288155, class 21, filed 1 Sep 69, published 3 Dec 70, p 85

Translation: This Author's Certificate introduces a device for automatic measurement of the loss resistance of tunnel diodes. The device contains a sinusoidal current generator and a DC bias source. As a distinguishing feature of the patent, precision is improved and the measurement process is automated by adding an amplifier with gain control, connecting the DC bias source and amplifier through electronic switches to a synchronizer, and connecting a high-frequency filter-detector and a synchronous detector in series with the amplifier. The detectors convert high-frequency voltage to DC voltage which is proportional to the loss resistance of the tunnel diode being measured.

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USSR

TERPIGOR'YEV, V. V., FEDORKOV, B. G., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288155, class 21, filed 1 Sep 69, published 3 Dec 70, p 85



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USSR

UDC: 517.53

TERFIGOREVA, V. M.

"Extremal Problems in Certain Subclasses of Bounded Analytic Functions"

Lit. Matem. Sb. [Lithuanian Mathematics Collection], Vol. 10, No. 1, 1970, pp 171-187, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract No 8B168, by Ye. Solomentsev).

Translation: The author studies extremal problems of a general form for functions $f(z)$ of class A_m^1 , holomorphic in a unit circle, defined by the inequality

$$\int_0^{2\pi} m[\ln^+ |f(re^{i\theta})|] d\theta \leq 1, \quad 0 < r < 1.$$

Here $m(u)$ is an increasing convex function over $\{0, \infty\}$ such that $\lim_{u \rightarrow 0} m(u)/u = 0$, $\lim_{u \rightarrow \infty} m(u)/u = \infty$. The form of the extremal function in A_m^1 and in its subclass A_n^0 consisting of functions $f(z) \in A_m^1$ which do not vanish is studied. A similar investigation is performed for functions of the class P_m^0 , consisting of the logarithms of functions from A_m^0 .

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1/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--MIGRATION THEORY FOR VIBRATIONAL EXCITATION ENERGY IN WATER -U-
AUTHOR--TERPILCVSKIY, D.N.
COUNTRY OF INFO--USSR
SOURCE--OPT. SPEKTROSK. 1970, 28(4), 705-11
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--VIBRATION, EXCITATION ENERGY, WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1487 STEP NO--UR/0051/70/028/004/0705/0711
CIRC ACCESSION NO--AP0123390
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123390

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBABILITIES FOR ENERGY EXCHANGE BETWEEN THE INNER VIBRATIONS ν_{SIB1} (I EQUALS 1,2,3) OF H SUB2 O MOL. IN THE LIQ. STATE WERE CALCD. THE INTERACTIONS WHICH DET. THE EXCHANGE RATE ARE THE H BONDS AND THE ELECTROSTATIC DIPOLE DIPOLE INTERACTIONS. THE OBTAINED EXCHANGE PROBABILITIES WERE TEMP. INDEPENDENT. THE DIFFUSION COEFFS., D_{SIB1} , AND THE RANGES, L_{SIB1} , OF THE VIBRATIONAL EXCITATIONS ν_{SIB1} WERE ESTD. ASSUMING A DIFFUSION MODEL FOR THE MIGRATION OF THE VIBRATIONAL ENERGY IN WATER. THE L_{SIB1} WERE OF THE ORDER OF 10 INTERMOL. DISTANCES, DECREASING WITH INCREASING TEMP. THE ROLE OF THE MIGRATION OF THE VIBRATIONAL ENERGY IS CONSIDERED FOR THE CASE WHERE THE ν_{SIB1} REPRESENT A HEAT RESERVOIR OF A RELAXATION PROCESS.

UNCLASSIFIED

USSR

UDC 621.762

OGNEV, R. K., TER-POGOSYAN, E. D., KOLOMOYETS, G. G. PEREVYAZKO, A. I.,
ESTRAKH, L. M., and ANOKHIN, V. M.

"Powder Metallurgy Filters Made of Titanium Scraps"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya
Publishing House, Vol 6, 1970, pp 97-99

Translation: The effect of the technological parameters of manufacture and properties of the initial titanium powder on filter productivity are studied. It is discovered that it is expedient to compact filters at pressures up to two tons/cm² and to sinter them at temperatures not exceeding 1,100°C. Filter productivity is determined during filtration of liquids, and the dependence of productivity on a drop in pressure to one atmosphere and on the size and shape of grains of the initial powder is established. It is determined that the water carrying capacity of filters manufactured from hydride powder is 3-5 times greater than similar ones made of electrolytic powder. Two illustrations and two bibliographic entries.

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USSR

UDC 621.762

OGNEV, R. K., KOLOMOYETS, G. G., TER-POGOSYAN, E. D., ESTRAKH, L. M., ANOKHIN, V. M., and PEREVYAZKO, A. I.

"The Effect of Technological Parameters on the Qualities of Construction Articles Obtained by the Method of Compacting Titanium Powders"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 94-97

Translation: The effect of the features of initial powders and the technological parameters in manufacturing construction articles on their mechanical properties is considered. When identical compacting pressures, the density of articles made of electrolytic powder is greater by 4-7% than for similar articles made of hydride powder, and this gap decreases during the process of heat treatment. Increasing the sintering temperature of the powder metallurgy titanium leads to an increase in tensile strength and elongation per unit length. Where heat treatment is at a temperature of 1,300°C, the tensile strength is equal to 55-65 gigacalories/mm² and the elongation per unit length reaches 11%. Two illustrations, one table, and three bibliographic entries.

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USSR

UDC: 519.2:621.391

TERPUGOV, A. F., KHARITONENKO, A. A.

"Determining the Moment of Arrival of Optical Radar Signals With a Photoelectric Receiver. II"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 170-179 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V278)

Translation: See abstract 9V277 for part I. The second part deals with estimating the moment of arrival of an optical radar signal on the basis of the function of indeterminacy and the method of maximum likelihood in the case where the signal has a fairly steep front. From the authors' abstract.

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USSR:

UDC: 519.2:621.391

DOLININ, N. A., TERPUGOV, A. F.

"On Certain Suboptimum Schemes for Detecting Poisson Signals"

Tr. Sib. fiz.-tekh. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 190-199 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V281)

Translation: The authors consider an operator of optimum and quasi-optimum detection of a Poisson stream with intensity $\rho\mu(t)$ ($\mu(t)$ is an unknown function, ρ is an unknown constant) against a background of a stationary Poisson stream of intensity λ . As usual, it is proposed that the ρ -maximum value of the plausibility relation be compared with the threshold. In view of the transcendental nature of the resultant equation, it is proposed that an estimate of ρ be sought by linearization, which is premissible at large λT (T is the observation interval). An approximate study is made of the quality of the proposed processing operator. I. Bol'shakov.

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USSR

UDC: 519.2:621.391

TERPUGOV, A. F., KHARITONENKO, A. A.

"Determining the Moment of Arrival of Optical Radar Signals With a Photoelectric Receiver. I"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 157-169 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V277)

Translation: Against a background of a Poisson stream of events of constant intensity there may appear an optical radar signal generated by a Poisson stream of variable intensity $\rho u(t)$, where $u(t)$ is a given function of time determined by the shape of the signal, and ρ is an unknown constant with known a priori distribution. A system of equations is derived for evaluating the moment of arrival of the signal by the method of maximum likelihood, and the properties of this system of equations are studied. From the authors' resumé.

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USSR

UDC: 519.2:621.391

KOLMAKOVA, S. A., TERPUGOV, A. F.

"Optimum Linear Systems for Determining the Time of Appearance of Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 179-189 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V280)

Translation: Against a background of a Poisson stream of events of constant intensity, a pulse signal may appear which generates a Poisson stream of variable intensity $\rho\mu(t)$, where $\mu(t)$ is a given function of time determined by the shape of the signal, and ρ is an unknown constant with known a priori distribution. It is required to estimate the time of arrival of the useful signal. It is assumed that the signal-to-noise ratio is fairly large. The transient response of a filter which minimizes the variance of the estimate is sought for a coherent signal and for a completely incoherent signal in the class of linear transformations. V. Brikker.

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USSR

UDC: 519.2:621.391

KOLMAKOVA, S. A., TERPUGOV, A. F.

"Optimum Linear Systems for Determining the Time of Appearance of Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp. 179-189 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V280)

Translation: Against a background of a Poisson stream of events of constant intensity, a pulse signal may appear which generates a Poisson stream of variable intensity $\rho u(t)$, where $u(t)$ is a given function of time determined by the shape of the signal, and ρ is an unknown constant with known a priori distribution. It is required to estimate the time of arrival of the useful signal. It is assumed that the signal-to-noise ratio is fairly large. The transient response of a filter which minimizes the variance of the estimate is sought for a coherent signal and for a completely incoherent signal in the class of linear transformations.
V. Briker.

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USSR

UDC: 621.391.84:621.391.883.2

LAVLINSKIY, N. P., TERPUGOV, A. F.

"On a Suboptimum Filter for Detection of Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 200-210 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A35)

Translation: The following problem is considered: against a background of Poisson flow of events of constant intensity λ there may appear a signal which gives a Poisson flow of events of variable intensity $\rho\mu(t)$, where $\mu(t)$ depends on signal shape and is assumed as given, while ρ is a random quantity with probability density $p(\rho)$. A characteristic is found for a linear filter which guarantees a minimum probability of signal skip error (in the class of linear systems) for the case of a fixed probability of false alarm. The characteristics of the resultant suboptimum filter are determined for a number of special cases of $\mu(t)$ and $p(\rho)$. Expressions of the probability of target skipping are found for these special cases. An estimate of the optimality of the given filter is found. Resumé.

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USSR

UDC: 621.391.81

DOLININ, N. A., TERPUGOV, A. F.

"Theta-Square Circuit for Reception of Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 211-221 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A70)

Translation: The authors consider a circuit for reception of fluctuating Poisson signals based on computing the logarithm of the probability ratio and comparing it with some predetermined threshold. The circuit is designed for radio devices which contain photovoltaic cells. A comparison of this circuit with a detection circuit for signals conforming to Bose-Einstein statistics shows that the proposed circuit is close to the optimum with respect to the probability of target skipping. Two illustrations, bibliography of eight titles. N. S.

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USSR

UDC: 621.391.81

DOLININ, N. A., TERPUGOV, A. F.

"On Some Suboptimum Circuits for Detecting Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 190-199 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A71)

Translation: The authors discuss algorithms for detecting Poisson signals against a background of Poisson interferences. These algorithms are based on maximum probability or on the method of least squares. It is shown that there is little difference in the effectiveness of either method. Four illustrations, bibliography of two titles. N. S.

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USSR

UDC: 621.391.81

KOLMAKOVA, S. A., TERPUGOV, A. F.

"Optimum Linear Systems for Determining the Moment of Appearance of Poisson Signals"

Tr. Sib. fiz.-tekh. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 179-189 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A69)

Translation: The authors solve the problem of constructing a linear system in which variance is minimized for the estimate of the time of arrival of a useful signal of the type of a Poisson flow of events of variable intensity against a background of a Poisson flow of events of constant intensity. It is assumed that the signal-to-noise ratio is fairly high. Cases of coherent and completely incoherent signals are considered. The effectiveness of optimum and matched signals is compared. Two illustrations, bibliography of one title. N. S.

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USSR

UDC: 621.391

RADYUK, L. Ye and TERPUGOV, A. F.

"Optimal Energy Distribution in a Multi-Channel System Signal Search"

Kiev, Izvestiya VUZ--Radioelektronika, Vol 14, No 1, 1971, pp 89-93

Abstract: The analysis of this paper relates to a radar system in which the problem of signal search is equivalent to the search for a target in a given sector which can be accelerated by controlling the energy of the probing pulses in accordance with the results of observations. The purpose of the paper is to find an optimal expression for this energy control, and to estimate the possible gain thus achieved. Considered is a system in which continuous observation of the channels is characterized by two quantities: the false alarm probability, and the average time elapsing between the appearance of the signal and its detection. The optimal condition is that this average time be a minimum.

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TECHNICAL TRANSLATION

Aug / ESTC-IT-23-2015-72

27 Aug 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

RUSSIAN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIEM

AUTHOR: I. A. DERUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
INENI I.G. SCHEGHERKO

Translated for ESTC by ACST

NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statement contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information.

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From Page -

USSR

TERPUGOV, N. V.

UDC: 621.375.4

"Computing the Input Circuits of Limited Sensitivity Amplifiers
Using Bipolar Transistors"

Moscow, Radiotekhnika, No 10, 1972, pp 58-63

Abstract: The author views the computation of input circuits matched for noise as reducing to the determination of the circuit parameters providing an optimal signal/noise ratio. Two cases are considered: the use of matching transformers in the input circuit for amplifying the signal spectrum in a narrow frequency range, and the use of the transformers for amplifying a broad frequency range, both with bipolar transistors as the amplifying elements. In the design of the narrow-band system, where noise parameters within the pass band may be considered constant, the results obtained are valid for units of hertz to hundreds of megahertz; in the design of the broad-band system, the noise parameters are approximated and the results are valid from the infrasonic to the video frequencies. The initial given data for the computations are the internal resistance of the signal source, and the equivalent noise parameters of the transistor, with the former a simple $1/2$.

USSR

TERPUGOV, N. V., Radiotekhnika, No 10, 1972, pp 58-63

resistance or a complex impedance. A specific example of the computation is given together with the experimental results of checks on the computation. It is found that the use of the transformer as a matching element increases the amplifier sensitivity by reducing the noise level.

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U.S.S.R

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 ± 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, ①

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: 621.385.6

KAMINSKIY, F. D., KASHIRIN, A. P., LELIOVSKIY, A. F., MATROGOV, Ye. I.,
RYABININ, V. A., TERRA, K. R.

"An Electronic SHF Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,
No 32, 1970, Soviet Patent No 270093, Class 21, field 17 Jul 67, pp 215-216

Abstract: This Author's Certificate introduces: 1. An electronic SHF device (such as a triode) containing an electron-optical system which is part of the vacuum input and half-wave short-circuited output (anode) resonators and which is made in the form of individual cells, each consisting of a cathode and grid operating into a common anode. As a distinguishing feature of the patent, the reliability is improved and the output power of the device is increased by making vacuum-tight coupling apertures for energy output in one of the walls of the output resonator located at a high-frequency voltage node symmetric with the axis of the device. 2. A modification of this device in which the distinguishing feature is that control of the width of the frequency passband is provided by installing a rotating disc at the energy output point on the axis of the device with apertures identical in size and shape to the coupling apertures, and in the same position relative to the axis of the device.

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USSR

UDC 539.3

TERROVERE, V. R., (Perm'), Perm' Polytechnical Institute

"The Equivalent Support of a Circular Aperture in a Shell of Revolution by a Short Shell"

Kiev, Prikladnaya Mekhanika, Vol 7, No 8, 1971, pp 30-35

Abstract: The article deals with a convex shell of revolution of constant thickness with a central aperture under the influence of the symmetric load and an antisymmetric load. Within the framework of linear theory, an investigation is made of the reinforcement of the aperture of the short shell of revolution of constant thickness. Under the assumption that both shells have identical elastic constants and that the stress-deformed state can be broken down into the basic state and the edge effect, parameters of equivalent reinforcement are sought, which completely eliminate the concentration of circumferential stresses before the aperture. As an example is considered a spherical shell with a central aperture, reinforced by a rigid rib of cylindrical or toroidal shape. 3 figures, one table, 5 references.

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TER-SHAKOV, A. A.

FORMATION OF RADIOACTIVE PARTICLES IN NUCLEAR EXPLOSIONS

JPRS 60185
2 October 1973

Selected articles from the Russian-language journal Trudy Instituta
Eksperimental'noy Meteorologii, No. 21, 1971, Moscow.

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Calculation of Effects of Fractionation in Atmospheric Nuclear Explosions (Yu. A. Izrael')	9
On the Formation of Secondary Aerosols in the Atmosphere During a Ventilated Underground Nuclear Explosion (V. N. Petrov, A. A. Ter-Shakov)	15
Investigation of the Distribution of Highly Active Particles According to Dispositions in the Troposphere in September- December 1967 (Ya. I. Garkunov, et al.)	18

[1 - USSR - N]

014
 UNCLASSIFIED
 TITLE--ORGANOBORON COMPOUNDS. 197. REACTIONS OF TRIALLYBORON WITH
 ALPHA, BETA, UNSATURATED ALDEHYDES -U- PROCESSING DATE--13NOV70
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ABSTRACT. AN EQUIMOLAR MIXT. OF BICH SUB2
 CH:CH SUB2) SUB3 AND RCHO IN ET SUB2 D HELD 0.5-1.5 HR GAVE 65-73PERCENT
 RCH(OH)CH SUB2 CH"CH SUB2 (R SHOWN): CH SUB2:CH, B SUB15 40-10DEGREES, N
 PRIME20 SUBD 1.4472; MECH"CH, B SUB15 61-2.5DEGREES, 1.4540; PHCH:CH, B
 SUBOTIMES025 65-7DEGREES, 1.5650; ME SUB2 C:CHCH SUB2 CH SUB2 CME:CH, B
 SUBOTIMES4 102DEGREES, 1.4800; 2,6,6,TRIMETHYL,2,CYCLOHEXENYL (II), B
 SUB2 103-4DEGREES, 1.4950; AND 2,6,6,TRIMETHYL,2,CYCLOHEXENYL (II), B
 SUB2 62-4DEGREES, 1.4880. THIS REACTION WITH ALPHA CYCLOCITRAL IN
 REFLUXING C SUB6 H SUB6 3 HR, FOLLOWED BY TREATMENT WITH AQ. HOCH SUB2
 CH SUB2 NH SUB2 GAVE 19PERCENT
 TRIS(4,(2,6,6,TRIMETHYL,2,CYCLOHEXEN,1,YL)BUTEN,1,YL) BORATE B
 SUBOTIMES02 222-4DEGREES, 1.5020, AND 28PERCENT II. BETA CYCLOCITRAL IN
 A SIMILAR REACTION AT ROOM TEMP. 1 DAY GAVE
 TRIS(4,(2,6,6,TRIMETHYL,1,CYCLOHEXENYL)BUTEN,1,YL) BORATE, B SUBOTIMES03
 235-6DEGREES, 1.5030, ALONG WITH SOME 17PERCENT I. ACROLEIN AND BICH
 SUB2 NEGATIVE,CH:CH SUB2) SUB3 IN ET SUB2 O 1 DAY GAVE 83PERCENT (CH
 SUB2:CHCH(CH SUB2 CH"CH SUB2)O) SUB28CH SUB2 CH:CH SUB2, B SUB4
 87-9DEGREES, 1.4530.
 USSR. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO,

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"The Role of Avian Ticks *Argas persicus* and *Ornithodoros coniceps* in Infecting Birds. Experimental Transmission of Infection to Chicks"

Moscow, *Voprosy Virusologii*, No 6, 1972, pp 712-713

Abstract: The possibility that avian parasites *A. persicus* and *O. coniceps* may act as ornithosis reservoirs and transmitters was studied by infecting the ticks with the pathogen and 4 months later allowing them to feed on chicks. The latter manifested disease symptoms in 8-10 days. Organ suspensions from them were lethal to mice on the first passage and produced typical ornithosis agent inclusions in chick embryo fibroblast cells. An infectious titer was maintained in ticks for not less than 6 months with insignificant reduction after 4 months. Thus these ticks are implicated in ornithosis transmission and in maintaining infection foci.

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