

AA0030060

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 11/69

238015 TIME RELAY is a pulse counter, assembled from two dekatrons (1,2), and a position change-over switch, also a dekatron (19). The cathode outputs of the latter are connected to AND-gates (3,4,5,6) and cathode resistors in the common HINKIS-bar through switch (20) which can connect the cathode outputs in parallel or in series. A capacitor is inserted between AND-gate output and input of reset amplifier. The negative pole of full-wave rectifier (13) is joined to the output of a starting circuit which includes ohmic resistor (12), silicon stabilatron (11) and germanium diode (10).
 22.10.65 as 1034261/26-24. N.V. PODOLA et alia. E.O. PATON INST. OF ELECTRIC WELDING (4.7.69) Bul 9/20.2.69 Class 21g. Int.Cl. H 01 h.

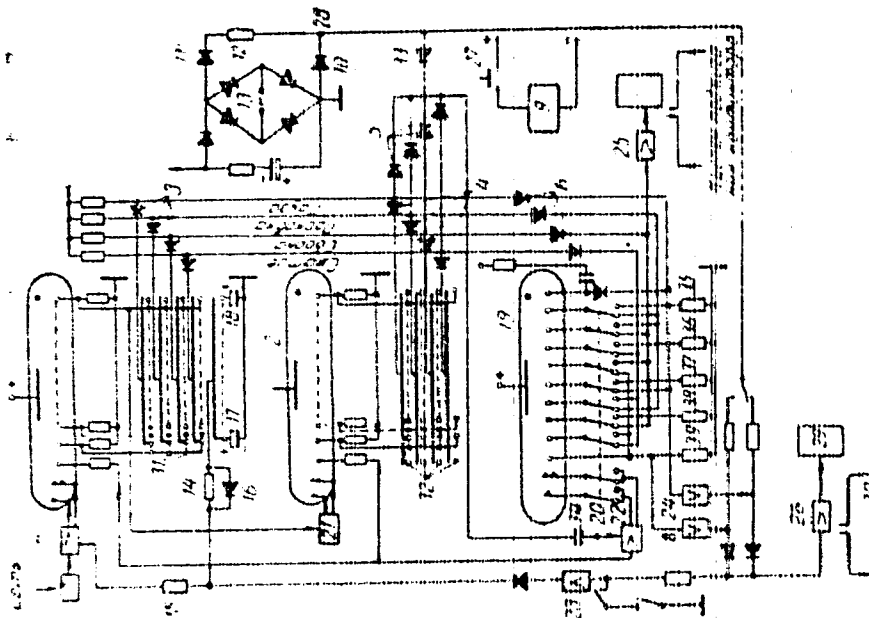
AUTHORS: N.V. Podola, V.Ya. Sazonov, Yu. A. Masalov
 FACILITY: Institut Elektrosvarki Im. Ye.D. Patona

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19681832

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19681833

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1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RECORDING OF ULTRAWEAK LUMINOUS FLUXES IN THE 200-850 MMU REGION
-U-
AUTHOR--(03)-PERTSEV, A.N., PODOLNYY, E.I., SELYANINOV, YU.YE.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(3), 523-7
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--LUMINESCENCE SPECTRUM, OPTIC SPECTROMETER, PHOTOMULTIPLIER
TUBE, PULSE ANALYZER, RECEIVER SENSITIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1491 STEP NO--UR/0368/70/012/003/0523/0527
CIRC ACCESSION NO--AP0118478

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2/2 029

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHODS ARE DISCUSSED OF MEASURING ULTRAWEAK LUMINOUS FLUXES BY USING PHOTOMULTIPLIERS; A MIN. NO. OF PHOTOELECTRONS (N) DETECTABLE BY THE INDIVIDUAL TECHNIQUE ARE QUANT. ESTD. THE METHOD OF DISCRETE RECORDING OF PHOTONS WITH DIFFERENTIAL PULSE HEIGHT DISCRIMINATIONS IS BY FAR THE MOST EFFECTIVE TECHNIQUE TO MEASURE ULTRAWEAK LUMINOUS FLUXES, N BEING GIVEN BY THE RELATION $N \text{ EQUALS } (2N \text{ SUBT-T}) \text{ PRIMEONEHALF}$ WHEN N SUBT DENOTES AV. NO. OF THERMOELECTRONS FROM PHOTOCATHODE-SEC AND T TIME OR RECORDING. A MODERNIZED VARIANT OF THE TECHNIQUE IS DESCRIBED AND ITS FUNDAMENTAL OPERATING CHARACTERISTICS ARE PRESENTED. THE ELECTRONIC DEVICE TOGETHER WITH AN OPTICAL SPECTROMETER PROVED TO BE EFFICIENT FOR STUDYING BIO, PHOTO, AND RADIOLUMINESCENCE IN THE 200-850 M MU SPECTRAL REGION.

UNCLASSIFIED

USSR

UDC 629.7.036.3:533.679.2

GIREVSKIY, A. S., KOLESNIKOV, A. V., PODOL'NIY, I. N., and SHOL'YANINOVA, A. K.

"Aerodynamic Characteristics of Flat Nonstalling Diffusers"

Moscow, Promyshlennaya Aerodynamika--Sbornik (Industrial Aerodynamics--Collection of Works), Mashinostroyeniye, No 30, 1973, pp 5-25 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 10, 1973, Abstract No 10.34.56. Resume)

Translation: Results are presented of computer calculations of the aerodynamic characteristics of the initial and principal sectors of a series of diffusers with straight walls for a broad range of angles of aperture (from 0° to 20°) and Reynolds numbers (from 10^4 to 10^7), and a parameter characterizing the initial nonuniformity of the velocity profile within the input cross section of the diffuser. 20 figures. 8 references.

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1/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--PROTECTION OF ELECTROLYTIC CADMIUM POWDER FROM OXIDATION DURING
WASHING AND DRYING -U-
AUTHOR--(02)-ZAVGORODNYAYA, YE.F., PODOLSKAYA, N.V.
COUNTRY OF INFO--USSR
SOURCE--ZASHCH. METAL. 1970, 6(1), 105-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CADMIUM, METAL POWDER, ELECTROLYTIC POWDER METAL, OXIDATION,
CORROSION PROTECTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1980/1026 STEP NO--UR/0365/70/006/001/0105/0108
CIRC ACCESSION NO--AP0049219

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APOC49219

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A WASHING OPERATION WITH DISTD. WATER CAUSED 24PERCENT OXIDN., WHICH WAS ONLY SLIGHTLY IMPROVED BY USING SOAP SOLN. (20-3PERCENT OXIDN.). A SERIES OF 9 SURFACTANTS REDUCED OXIDN. TO 13-17PERCENT, AND "YANTAR" DETERGENT REDUCED OXIDN. TO 12PERCENT. SOME SUCCESS WAS OBTAINED WITH NA SUB2 S OR (NH SUB4) SUB2 SO SUB4, 15 AND 11PERCENT, RESP. BEST RESULTS EMERGED WITH EITHER ETOH OR K SUB2 CR SUB2 O SUB7, 7PERCENT; OR WITH A CONSECUTIVE TREATMENT, 3PERCENT. AFTER WASHING WITH ALC., AN OPTIMUM AIR DRYING TEMP. OF 60DEGREES-20 MIN PRODUCED 7PERCENT OXIDN. OTHER TEMPS. AND TIMES OF DRYING WERE 40DEGREES-40 MIN, 80DEGREES-12 MIN, AND 100DEGREES-7 MIN WITH CORRESPONDING OXIDNS. OF 11PERCENT, 12PERCENT, 16PERCENT, RESP. VACUUM DRYING AT 20DEGREES REDUCED THE AIR DRYING TIME FROM 8 TO 4 HR, AND THE OXIDN. FROM 9PERCENT TO 3PERCENT.

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USSR

UDC 612.129:612.452.018+612.115.35]-04:[612.825.8+612.821:3]-
053:7

KUDRYASHOV, B. A., PODOL'SKAYA, O. V., and LYAPIHA, L. A., Laboratory of the Physiology and Biochemistry of Blood Coagulation, Biology and Soil Faculty, Moscow State University

"Formation of Noradrenalin-Heparin and Adrenalin-Heparin Complexes in the Blood of Young People Under Emotional and Intellectual Stress"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No4, 1972, pp 385-390

Abstract: The dynamics of adrenalin-heparin (ADH) and noradrenalin-heparin (NDH) complexes and free adrenalin and noradrenalin were traced over 1 school year in different groups of students experiencing different levels of emotional and mental stress. At the end of the winter session, students taking examinations had high ADH levels in their blood. Students that returned to normal studies had no ADH but higher levels of NDH. On the other hand, students preparing for spring examinations had no ADH or NDH but higher levels of free adrenalin and noradrenalin by the spring examination period, possibly due to inadequate levels of heparin. Thromboelastograms of the blood of such students indicated heightened tolerance of plasma to heparin and inhibition of the anti-coagulation system. It is concluded that prolonged emotional and mental stress

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KUDRYASHOV, B. A., et al., Voprosy Meditsinskoy Khimii, Vol. 17, No 4, 1972,
pp 385-390

causes blood hypercoagulation, which disrupts complex formation between
adrenalin and noradrenalin, and heparin, which in turn impairs the metabolism
of these biogenic amines.

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AA0040761- PODOLSKAYA YE. VUR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70-

241094 CHROMATOGRAPH for gas impurities analysis, consisting of the enrichment column unit; measuring unit with a recording instrument; thermal conduction detector; recording potentiometer and a power pack with a control unit. The enrichment column unit comprises an electric motor with a drive electric heater; chromatographic column; a liquid nitrogen tank. This unit serves to enrich and separate the analysed impurities. The measurement unit records the isolated impurities, and the potentiometer records the analysis results.

Gas from the tested cylinder (10) flows through a reducing valve (11), input adjusting valve (12) and rotameter (13) to the detector comparator cell. The gas pressure is controlled by a pressure gauge at the reducing valve. Then the gas flows to the chromatographic column and from there to the detector working chamber and through the outlet control valve (14) escapes into the air. A gas meter can be placed after the outlet valve. The control valve (15) is used for blowing out. The

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residual pressure is controlled by the pressure gauge (16). All gas pipes are metal capillary tubes. Some of them are flexible.

The chromatographic column is in form of a coiled copper tube filled with a sorbent, e.g. with molecular sieves 13X. The column can be moved from a liquid nitrogen bath to a heater and back again. Thus a variable temperature field from -196 to 100°C moves along the sorbent layer.

2.1.64 as 873985/26-25. GENKIN, Yu. M. et al. EXPERIMENTAL FACTORY OF THE INST. OF NATURAL GAS, (12.8.69.) Bul 13/1.4.69. Class 421. Int. CH.G. Oln.

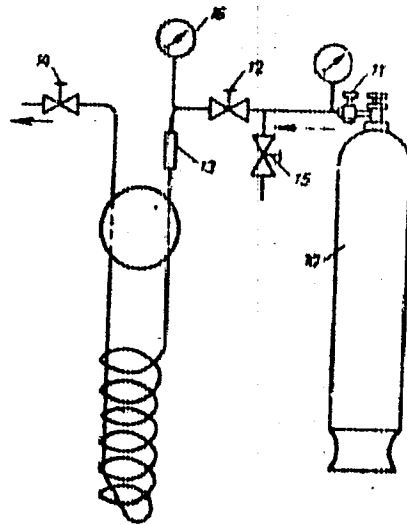
AUTHORS: Genkin, Yu. M.; Shevelev, B. P.; Sidorov, A. P.; Pedol'skaya, Ye. V.; Maksimov, P. K.; and Estrin, V. K.

Opytnyy Zavod Vsesoyuznogo Nauchno - Issledovatel'skogo
Instituta Prirodnogo Gaza

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UR 9022

AUTHOR-- PODOL, SKIY, A.

TITLE-- *VIKHRI* MADE OF GLASS

NEWSPAPER-- SOVETSKAYA ROSSIYA, FEBRUARY 10, 1970, P 2, COL 8

ABSTRACT-- THE NOVGOROD GLASS FIBER PLANT HAS INITIATED THE PRODUCTION OF GLASS-REINFORCED PLASTIC ITEMS FROM SCRAP PRODUCED IN THE MANUFACTURE OF ITS PRIME PRODUCT. ONE OF SUCH ITEMS IS THE CASING FOR THE OUTBOARD MOTORS "VIKHR". THE PLANT ALSO STARTED TO MANUFACTURE A NEW TYPE OF GLASS FABRIC 40 MICRONS THICK. PREVIOUS TO THAT IT PRODUCED FABRIC 60 MICRONS THICK.

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USSR

UDC: 621.317.39: 543.275.3.08

TURUBAROV, V.I., PODOL'SKIY, A.A., KALAKUTSKIY, L.I.,
LOGVINOV, L.M., POPOV, B.I., RUMYANTSEV, V.Y. and
VORONOV, A.F.

"High-Sensitivity Device for Continuous Measurement of Dust Concentration in Biosphere"

Sb. Fiz. metody i vopr. metrol. biomed. izmereniy (Symposium on Physics Methods and Biomedical Metrology Problems) Moscow, 1972, pp 288-289 (from Referativnyy Zhurnal-Metrologiya i Izmeritel'naya Tekhnika, No 8, 1972, Abstract No. 8.32.1007 by V.S.K.)

Translation: The design and operating principle are described of a continuous-action, electronic, induction dustmeter, developed by the Leningrad Aviation Instrument Building Institute jointly with the Kuybyshev Aviation Institute. The dust concentration measurement method is based on the relation between the size of aerosol particles and their charges received in the corona discharge field. This type

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TURUBAROV, V. I., et al., Sb. Fiz. metody i vopr. metrol. biomed. izmereniy, 1972, pp 288-289

dustmeter measures the surface concentration, therefore the change in dispersion concentration does not cause errors in dust concentration count. The dustmeter can be also calibrated by the weighing method with constant dispersion concentration and variation of weight concentration. Several modifications of electronic dustmeters characterized by sensitivity and range have been developed. The technical characteristics of EIP-3 dustmeter are: sensitivity, 10^{-2} mg/m³; weight, 5 kg; power consumption, 10 w; dynamic concentration range, -10^3 ; overall dimensions, 280 x 190 x 80 mm. Test results of electronic induction dustmeters are presented.

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USSR
CHEMISTRY
Aerosols

USSR

UDC 541.182.2/.3

PODOL'SKIY, A. A., KALAKUTSKIY, L. I., Kuibyshev Aeronautics Institute

"Effect of Particle Size on the Errors in Measurement of Aerosol Particle Size Distribution by Electroprecipitation Methods"

Moscow, Kolloidnyi Zhurnal, Vol 35, No 6, November-December 1973, pp 1188-1190

Abstract: The dependence on the semi-axis ratio of the dimensionless precipitation coordinate of charged conducting particles ellipsoidal in shape (flattened and elongated, with equal surfaces or equal volumes) moving lamina-ly in a plane condenser was calculated. This coordinate depended on the semi-axis ratio only for flattened ellipsoids with equal surfaces. The error in the precipitation coordinate was no more than 10% of the absolute value. The results indicated that the ratios obtained can be used for determining the electroprecipitation capability of Fractional powders.

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USSR
Aerosols

USSR

UCC 541:182.2/.3:537.228

PODOL'SKIY, A. A., TURUBAROV, V. I., and POMINOV, YE. I., Kuybyshev Aviation
Institute

"Calculation of the Velocity and the Orientation Time of Aerosol Particles in
an Electric Field"

Moscow, Kolloidnyy Zhurnal, Vol 35, Vyp 1, 1973, pp 63-68

Abstract: Solutions were obtained for a series of physical problems relating to the charge, flocculation, and electric precipitation of aerosol particles. This was accomplished by analyzing the motion of nonspherical particles during their orientation in a high-voltage electrostatic field and determining the velocity and orientation time as a function of the field strength and particle parameters. At high field voltages the orientation time is significantly shorter than the time required to charge the particle; therefore, the former may be neglected in investigations dealing with the charging of nonspherical particles. Equations and graphs show the influence of particle parameters on its behavior.

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USSR

UDC 621.396.62.01

PODOL'SKIY, A. A., ABRAMOV, G. V., and YEVSEYEVA, Z. N.

"Directional Characteristic of a Linear Group of Antennas of Rectangular Shape in the Case of Wide-Band Reception"

Tr. Kuybyshev. aviats. in-ta (Works of the Kuybyshev Aviation Institute), 1970, vyp. 44, pp 27-34 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B1)

Translation: The problem is solved by substituting for the actual antenna a series circuit comprised of an ideal antenna of the same geometric configuration but having frequency selectivity, together with a band filter whose amplitude-frequency characteristic coincides with that of the actual antenna and the entire reception channel. Calculations carried out for practical examples show that the width of the main lobe of the directional pattern does not change with an increase in the width of the passband, but an overall smoothing of the directional pattern takes place together with a reduction in the spatial selectivity of the antenna. Five illustrations, bibliography of three titles. N. S.

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USSR

UDC: 621.396.62.01

PODOL'SKIY, A. A.

"Determining the Radiation Pattern of a Rectangular Piston Antenna in Wide-Band Reception"

Tr. Kuybyshev. aviats. in-t (Works of the Kuybyshev Aviation Institute), 1970, vyp. 44, pp 18-26 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B65)

Translation: An expression is derived for the radiation pattern of a rectangular piston antenna and computational formulas are given for cases where the amplitude-frequency characteristic of the receiving system has either a Gaussian or rectangular form. The effect of passband width on the shape of the radiation pattern is evaluated. Five illustrations, bibliography of three titles. N. S.

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USSR

UDC 681.888.212

ABRAMOV, G. V., PODOL'SKIY, A. A.

"The Problem of a Spatial Selective Antenna for a Sonar with Broad-Band Reception"

Tr. Leningr. in-t aviats. priborost. (Works of Leningrad Institute of Aviation Instrument Construction), Issue 64, pp 141-147 (from RZh-Electronika i yeye primeniye, No 3, Mar 70, Abstract No 3A405)

Translation: A method of evaluating a spatial selective broad-band antenna is proposed and the results of the calculations for antennas of two forms under conditions of the effect of broad-band noise are given. 2 ill. 1 ref. L.T.

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Antennas

USSR

UDC: 514.232

ABRAMOV, G. V., ~~PODOL'SKIY, A. A.~~, Kuybyshev Aviation Institute imeni Academician S. P. Korolev

"Determining the Characteristic of Directivity of an Antenna in Reception of Random Signals"

Moscow, Akusticheskiy Zhurnal, Vol 18, No 2, Apr-Jun 72, pp 161-167

Abstract: A method is proposed for calculating the characteristic of directivity of an antenna in reception of random signals. Expressions are found for characteristics of directivity of a rectangular and a circular piston, as well as the line base of directional piston receivers for various amplitude frequency response characteristics of the reception channel. Curves are given which show the characteristic of directivity as a function of the width of the passband. The authors thank Z. N. Yevseyeva for assistance with the computations.

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Forming

USSR

UDC 621.791.948

VERETNIK, L. D., PODOL'SKIY, B. A., Kharkov; and SHAPIRO, I. S., Moscow

"Plasma-Arc Cutting of Aluminum Casting Heads"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 70, pp 64-65

Abstract: The amount of labor expended in separating aluminum casting heads can be reduced considerably by plasma-arc cutting. Special equipment of the OPR-6 type was used with the RPR-6 manual plasma-arc cutter to produce casting heads of complex configuration. A sample is shown in a photograph. Details of the process are given. A special coating was developed to keep the surface of the head from adhering to the poured metal. A table is given which gives the gas (argon and hydrogen) flow rates for the arc and the current required for cutting various thicknesses of the aluminum heads.

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USSR

UDC 629.074.4

PODOL'SKIY, D. M., Kiev

"Certain Three-Dimensional Problems in Calculating Bearing Systems of Multistory Buildings"

Podol'sk, Stroitel'naya mekhanika i raschet sooruzheniy, No. 5, 1971, pp 57-62

Abstract: Problems of selecting unknowns, determining structural rigidity and the geometrical properties of the basic system and of accounting for shift deformations in branches of a three-dimensional computational model of a building, a cantilever composite thin-walled rod, are discussed. The theory of composite rods of A. R. Rzhanitsyn is applied in which the resolving system of equations is written in the form of a canonical linear system which gives a solution in closed form for real roots of the characteristic equation. A general method is given for obtaining the basic differential equations in a form suitable for integration, such as canonical linear systems which are solved relative to the derivatives.

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USSR

UDC: 669.15'26'24'28'3-194:669'14.018.821

PETROVA, Y. S., FROLOV, A. V., BAIKOV, V. P., FILIMONOVA, L. A., BELOUS, V. Ya., NIKISHOV, A. S., BONDAREV, V. V., PODOL'SKIY, M. L.

"Stainless Steel"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334273, Division C, filed 2 Sep 60, published 30 Mar 72, p 104

Translation: This Author's Certificate introduces: 1. A stainless steel which contains carbon, chromium, nickel, molybdenum, copper and iron. As a distinguishing feature of the patent, mechanical properties are improved by taking the components in the following proportions in percent: carbon--0.03-0.1; chromium--10.05-11.9; nickel--3.3-4.0; molybdenum--2.3-3.0; copper--1.0-2.0; manganese--less than 0.6; silicon--less than 0.6; the remainder iron; and 2. a modification of this steel distinguished by the fact that the chromium:nickel ratio is 2.8-3.8.

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USSR

UDC 532.516

PODOL'SKIY, M. Ye.

"On a Three-Dimensional Problem Concerning the Motion of a Viscous Fluid"

V sb. Teplo- i massopereenos. T. 1 (Heat and Mass Transfer. Vol. 1 -- Collection of Works), Minsk, 1972, pp 192-200 (from *SZh-Mekhanika*, No 8, Aug 72, Abstract No 8B718)

Translation: The steady-state flow of a viscous fluid in a niche which is freely in contact with the surrounding fluid over the surfaces $x = 0$ and $x = c$ and is covered by a plate over the plane $y = 0$ is discussed. The plate moves in the direction of the x -axis with velocity U . The motion of the fluid in the niche induced by the plate is investigated. The following form is applied in the solution

$$\frac{\partial V}{\partial t} + R \left[u \frac{\partial V}{\partial x} + v \frac{\partial V}{\partial y} + w \frac{\partial V}{\partial z} \right] = \text{grad } p + \Delta V \quad (1)$$

$$\epsilon \frac{\partial p}{\partial t} + \text{div } V = 0, \quad \epsilon > 0$$

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PODCL'SKIY, M. Ye., Teplo- i massoperenos. T. 1, Minsk, 1972, pp 182-200

ϵ is an iteration parameter. Equations (1) are solved under boundary conditions

$$\begin{aligned} u=v=w=0 \text{ при } x=0, x=a, y=b \\ u=1, v=0, w=0 \text{ при } y=0 \end{aligned} \quad (2)$$

$$\left. \frac{\partial w}{\partial z} \right|_{z=0} = \left. \frac{\partial w}{\partial z} \right|_{z=c} = 0; \quad p=u=v=0 \text{ при } z=0, z=c$$

for $z = 0, z = c$. Problems (1) and (2) are solved by using an implicit nonsymmetrical method and the fractional step method. Computational results are given for the case $R = 0, R = 100$. The basic features of this problem caused by its three-dimensional character appear in the existence of very intense longitudinal flows. A. A. Marlow.

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USSR

UDC 669.168:669.162.2

RYABCHIKOV, I. V., GARYAYEV, S. G., PODOL'SKIY, T. V., ALEKSANDROV, A. P.,
and ZAKHARCHENKO, E. V.

"Silicothermal Method for Obtaining Ferrosilicocalcium and Magnesium Alloys
Based on It"

Moscow, Stal', No 2, Feb 71, pp 134-136

Abstract: This paper describes experiments performed in making alloys of ferrosilicocalcium and magnesium by the silicothermal method, which has the advantages of permitting the mechanization and automation of alloying processes in closed furnaces. The experiments were performed in an electric furnace of 1200 kVA power and a closed furnace of the SKB-6063 type at voltages of 60-85 and 89 volts respectively, and a current of 6.5 and 13 kA. The furnace charge was 65-75% ferrosilicates, lime, calcined dolomite, baryte ore, silicoaluminum production slag, and fluorspar. The experimental alloys showed that the concentration of magnesium and calcium in the melt depends primarily on the proportion of the charge components, the order in which they are loaded into the furnace, the electrical specifications, and the amount of electrical energy consumed per ton of charge.
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USSR

RYABCHIKOV, I. V., et al, Stal', No 2, Feb 71, pp 134-136

A diagram showing a device for introducing the magnesium into the molten metal is given.

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USSR

PODOL'SKIY, V. A.

"Methodological Aspects of the Theme "The Poisson Distribution"

Tr. Mosk. In-ta Radiotekhn., Elektron. i Avtomatiki [Works of Moscow Institute of Radio Engineering, Electronics and Automation], No 52, 1971, pp 113-117 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V19).

NO ABSTRACT.

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USSR

UDC: 624.072.2:534.12

PODOL'SKIY, V. G. (Khar'kov)

"Internal Stresses in a System With Dry Friction Under a Pulse Load"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 2 (80), 1972, pp 16-18

Abstract: The author studies the vibrations of a uniform, single span beam of rectangular cross section set on fixed, rough surface supports. The support plane is located at the level of the beam's lower face, with dry friction forces acting against the horizontal shifting of its points of support. The highest value for the horizontal reaction of the support, coinciding with the friction force value during the motion of F, is determined by a static load. The results show that the dissipation of energy conditioned by dry friction has a weak effect on the maximum stress value. This can be explained by investigating the attenuation of the low- and high-frequency component of motion. The results show that an increase of the linear internal friction in a material results in a similar increase in the attenuation of all the harmonics. Under these conditions the magnitude of the first extremal value of the fundamental harmonic decreases very slightly if the real characteristics of the inelastic strength of structural materials are considered. Nevertheless, at the moment of the first extremum of the fundamental harmonic, the amplitudes of the higher harmonics decrease along with the maximal internal stress values. Maximal internal stresses are affected very slightly by pulse loading as

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USSR

PODOL'SKIY, V. G., *Stroitel'naya Mekhanika i Raschet Sooruzheniy*, No 2 (80), 1972,
pp 16-18

the result of the relatively weak effect of dry friction on the attenuation of the
high-frequency components of motion. Original article: two figures, three formulas,
and six bibliographic entries.

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PODOLYAN, L. A.

GENERIC VEGETABLES AT SOVIET ANTARCTIC STATIONS
JPRS 55933
9 May 72

Article by L.A. Podolyan and L.V. Fedorenko, Arctic and Antarctic Scientific Research Institute, Leningrad, Antarctica, published in Antarctic Research Journal, No. 2, 1971, signed in press 3 June 1970, pp 77-79.

On the development of a vegetation consisting of a considerable number of species... The majority of species... in polar regions... on Antarctic... from the vicinity of... in the... and... and... to a... the... (1) 5, 7, 10). It... in... (2).

...of... the... of... at the... and... in... (2).

...at the... of... (2).

...in... (2).

...in... (2).

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UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--SMALL SIZE OF PULMONARY HEART -U-

AUTHOR--(03)-MEDVEDEV, YE.S., PODOLYAN, L.M., YUNKEL, R.S.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV. 1970, VOL 42, NR 3, PP 55-58

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AUTOPSY, HEART DISEASE, LUNG, RESPIRATORY INSUFFICIENCY,
HYPERTROPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1986/0823

STEP NO--UR/0504/70/042/003/0055/0058

CIRC ACCESSION NO--AP0102785

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0102785

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS MEASURED TELECENTROGRAPHICALLY THE HEARTS IN 70 PATIENTS WITH CARDIO PULMONARY INSUFFICIENCY AND STUDIED AUTOPSY MATERIAL OF 60 CADAVERS OF CHRONIC NONSPECIFIC DISEASES OF THE LUNGS IN DIFFERENT DEGREES OF CARDIO PULMONARY INSUFFICIENCY. A GROUP OF PATIENTS WITH MITRAL STENOSIS WAS USED AS CONTROL AND AUTOPSY MATERIAL STUDIED. THE SIZE OF THE HEART IN PATIENTS WITH CARDIO PULMONARY INSUFFICIENCY PROVED TO BE MUCH SMALLER THAN THAT IN PATIENTS WITH MITRAL STENOSIS. THE REVEALED HYPERTROPHY OF THE VENTRICULAR WALLS, ESPECIALLY OF THE RIGHT ONE, THOUGH REVEALED IN A DECOMPENSATED PULMONARY HEART PLAYS BUT INSIGNIFICANT ROLE IN THE FORMATION OF THE SIZE OF THE HEART. A SMALL HEART IN PULMONARY EMPHYSEMA IS EXPLAINED BY A REDUCED BLOOD SUPPLY TO THE HEART AND A DROP IN DIASTOLIC FILLING OF THE CAVITIES DUE TO A DECREASED SUCTION OF THE BLOOD FROM THE MAJOR VEINS BY THE CHEST, A FALL OF THE VENOUS TONE, DECELERATION OF THE PERIPHERAL VENOUS CIRCULATION AND OVERFILLING OF THE PERIPHERAL DEPOT WITH THE VENOUS BLOOD.

UNCLASSIFIED

USSR

UML 616.843.6

PODOLYAN, YE. N., Military Medical Academy Ineni S. M. Kirlov, Leningrad

"Diurnal Fluctuations in Man's Visual Acuity"

Leningrad, Fiziologicheskii Zhurnal SSSR, Vol 58, No 4, 1972, pp 517-518

Abstract: Repeated visual acuity tests were performed at six preset hours per day on normal male subjects aged 25-33. After a 45-min adaptation to darkness, from a distance of 5 m, the subject observed a screen on which a broken ring was projected while the intensity of illumination was being increased from 0 to 1 lux. The subject stated the location of the break in the ring as soon as he was able to discern it. The averages of 150 determinations revealed that man's visual acuity is highest at hour 20 and lowest at hour 4. Thus, the illumination intensity required was 0.166 lux at 20:00, 0.236 lux at 24:00, 0.245 lux at 4:00, 0.243 lux at 8:00, 0.239 lux at 12:00, and 0.185 lux at 16:00. Although diurnal periodicity is a well known phenomenon in man and animals, the mechanism of the fluctuations in visual acuity remains to be elucidated.

USSR

UDC 575.111.576.858

SOLYANIK, R. G., PODOPLEKIN, V. D., and FEDOROV, YU. V., Tomsk Scientific Research Institute of Vaccines and Sera, Tomsk

"Experimental Modifiability of the Virus of Venezuelan Equine Encephalomyelitis. II. Characteristics of Mutants Obtained by the Action of Nitrous Acid"

Moscow, Genetika, Vol 7, No 7, Jul 71, pp 109-113

Abstract: The mutability of the virus of Venezuelan equine encephalomyelitis under the effect of HNO_2 was studied. The extracellular virus was treated for 5 min with 4N HNO_2 . The mutagen induced formation of strains with an altered pathogenicity, but no change in the size of negative plaques only. The relation between pathogenicity and the size of negative plaques that had been established in earlier work was retained (cf. Solyanik et al, Genetika, 7, No 5, p 130, 1971). Eleven of the 52 strains isolated on treatment with HNO_2 showed reduced virulence. Nine of the 11 strains were unstable to culturing on chicken embryo cells, reverting to their initial pathogenicity after four passages. Two of the modified strains (A-30 and A-31) were non-pathogenic to mice, guinea pigs, and rabbits on subcutaneous infection, while exhibiting pronounced antigenic and immunogenic properties. They were stable

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USSR

SOLYANIK, R. G., et al., Genetika, Vol 7, No 7, Jul 71, pp 109-113

on heating at 50°C for 30 min, but were inactivated on being kept for 10 min at 60°C. Strains A-30 and A-31 are being studied from the standpoint of possible application as vaccines.

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- 20 -

USSR

UDC: 576.858

SOLYANIK, R. G., PODOPLEKIN, V. D., and FEDOROV, YU. V., Tomsk Scientific
Research Institute of Vaccines and Sera

"Experimental Mutability of Venezuelan Equine Encephalomyelitis Virus. I.
Properties of Mutants Induced by Alkylating Compounds"

Moscow, Genetika, Vol 7, No 5, 1971, pp 130-137

Abstract: The mutability of various properties of Venezuelan equine encephalo-
virus was investigated experimentally. Mutations were induced by three
alkylating compounds: formaldehyde, nitrosomethylurea, and ethylenimine,

Nitrosomethylurea possesses the greatest mutagenic activity (frequency of
mutations induced -- 42.5%), while the activity of the two other mutagens is
essentially identical (formaldehyde -- 33.6%, and ethylenimine -- 33.3%).
Formaldehyde has the widest spectrum of mutations, inducing changes not only
in pathogenic properties but also in formation of small plaques (1mm or
less in diameter). Changes in the pathogenic properties of Venezuelan
equine encephalomyelitis virus are associated with modifications of certain
other properties of this microbe, which can be utilized for evaluating the
attenuation of the cultured variants.

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USSR

UDC 576.851.48.097.2

PODOPLELOV, I. I., BOCHKO, G. M., and SHCHIPKOV, V. P., Scientific Research
Laboratory of Experimental Immunobiology, Academy of Medical Sciences USSR

"Heterogeneous E. coli Antigens That Cross-React With Human A, B, and O
Antigens"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, No 11,
Nov 71, pp 61-63

Abstract: By using the reaction of adsorption of monospecific antibodies, the presence of heterogeneous antigens of the type of human A, B, and O(H) iso-antigens in 27 strains of E. coli comprising the most common serum types of enteropathogenic microorganisms of this species was investigated. Six strains contained heterogeneous antigens of this type. In one strain of the serum type O86, antigens similar to A and B antigens were present, while three strains of the same serotype contained B antigen only and one strain of the serum type O-128 contained O(H) antigen. Strain K-12 200 PS showed the presence of a small amount of B antigen. A relationship between the pathogenicity of E. coli to persons of definite blood groups and the presence of heterogeneous antigens in the microorganisms of this species may be assumed.

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Microbiology

USSR

UDC: 614.717-084.48

PODOPRIGORA, G. I. and IMTEZAROV, M. M., Laboratory of Experimental Biological Models, Academy of Medical Sciences USSR

"Use of Ultrafine-Fiber Filter Cloth to Purify the Air of Bacterial Contamination"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 130-131

Translation: Various filter materials, intended to purify the air of microbial contamination, are widely used in various areas of experimental investigations and in the practical work of bacteriological laboratories. The requirements for the quality and properties of filter materials are especially high in gnotobiotic technology in order to assure sterile conditions for microbe-free animals (Luckey, 1968). Standard filters (FF-50; Fiberglas Company, Toledo, Ohio, Nr P. M. 004 1/2) are very widespread in apparatus for microbe-free raising of animals. However, the short supply of that material has led us to seek Soviet analogues which would meet all the requirements of gnotobiotic technology. The principal requirements are high efficiency of purification of the air entering the isolator from microorganisms and resistance to the effect of relatively high temperatures during the sterilization of the filter itself. Autoclaving
1/3

USSR

PODOPRIGORA, G. I and INTIZAROV, M. M., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 130-131

at 123°C or treatment with dry steam at 160°C for 2 hours is used for complete sterilization of the filters (Wescott and Cordner, 1962). The Petryanov filter cloth used previously by us (FPP and FPA) does not completely meet those requirements, as the former is not at all resistant to heat treatment and the latter, although it withstands treatment with dry steam, changes when treated with steam in an autoclave. Ultrafine-fiber (UFV) filter, which we have used as filter material, has completely met all the above-indicated requirements. It preserved its properties after repeated autoclaving and treatment with dry steam.

The following investigation was conducted to test the filtering capacity of UFV cloth. An installation was set up consisting of a Bunsen flask with a medium of liquid thioglycolate, the wide opening of the flask was covered with a layer of UFV filter cloth 2 cm thick and one layer of gauze, and the narrow opening was covered with an 0.5 cm layer of the UFV, the walls of the flask and the filter cloth were hermetically sealed with a heat resistant adhesive tape, that system was autoclaved at 121°C for 20 minutes, and then in the wide opening of the flask covered by the UFV was inserted an elastic connecting pipe connected to a FEN blower with switched off heating, the flask and blower were

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USSR

PODOPRIGORA, G. I. and INTIZAROV, M. M., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 130-131

switched on for 3 days. After blowing air through for 3 days the motor was switched off but the incubation in the thermostat continued for 10-12 more days and after that the results were read.

No growth of any microorganisms capable of being cultivated in a liquid thioglycolate medium was detected. This result permits considering UTV cloth of Soviet origin with fiber 0.5-1 micron in diameter, produced by the experimental plant of the All-Union Scientific Research Institute of Glass Plastics and Fibers, to be an effective filtering material for purposes of gnotobiology and other technological tasks where the purification of air of bacterial contamination is required.

3/3

Oscillators and Modulators

USSR

UDC: 621.372.061:538.56

PODOPRIGORA, M. M.

"Investigation of the Behavior of the Roots of the Characteristic Equation of a Quartz-Controlled Self-Excited Oscillator Based on a Tunnel Diode With Π -Shaped Matching Network"

V sb. Raschetny radiotekhn. skhem i proyektir. radioapparatury (Calculations of Radio Circuits and Design of Radio Equipment--collection of works), Omsk, 1970, pp 200-205 (from RZh-Radiotekhnika, No 6, Jun '71, Abstract No 6A111)

Translation: The author investigates certain problems in the nonlinear theory of a quartz-controlled self-excited oscillator based on a tunnel diode with Π -shaped low-frequency filter as a matching network. Conditions are determined under which the self-excited oscillator will operate on the resonance frequencies of quartz. One illustration, bibliography of two titles. N. S.

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1/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--EFFICACY OF DITHIAZONINE TREATMENT OF PATIENTS WITH STRONGYLOIDOSIS

AUTHOR--(02)-PCDOROZHNYI, P.G., BOCHKOVSKAYA, S.A.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 110-112

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STRONGYLOIDIASIS, KIDNEY FUNCTION, DRUG TREATMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1883

STEP NO--UR/0504/70/062/006/0110/0112

CIRC ACCESSION NO--AP0129242

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--190CT70

CIRC ACCESSION NO--AP0129242

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED THE EFFICACY OF DITHIAZONINE TREATMENT OF PATIENTS WITH STRONGYLOIDOSIS. A TOTAL OF 75 PATIENTS AT THE AGE OF 20-65 YEARS (31 WOMEN AND 44 MEN) WERE UNDER OBSERVATION. PRIOR TO TREATMENT DISORDERS OF PROTEIN FORMATION, PROTEIN, CARBOHYDRATE, ANTITOXIC AND PIGMENTARY FUNCTION OF THE LIVER WERE FOUND IN SOME PATIENTS. DITHIAZONINE WAS DESCRIBED IN A DOSE OF 0.1 G 2-3 TIMES A DAY DURING A PERIOD OF 7-10 DAYS. THERAPY PROVED EFFECTIVE IN ALL THE PATIENTS AFTER THE COURSE OF TREATMENT. ALONGSIDE IMPROVEMENT OF THE GENERAL CONDITION OF THE PATIENTS THE RENAL FUNCTIONS DISTURBED BEFORE TREATMENT BECAME NORMALIZED. A CONCLUSION IS THAT DITHIAZONINE TREATMENT OF PATIENTS WITH STRONGYLOIDOSIS IS HIGHLY EFFECTIVE. NO SIDE EFFECTS EXCEPT ONE CASE, WERE OBSERVED.

FACILITY: KAFEDRA TERAPII, SPETSIALIZATSII I USOVERSHENSTVOVANIYA VRACHEY L'VOVSKOGO MEDINSTITUTA I TERAPEVTICHESKOVE OTDELENIYE L'VOVSKOY TSENTRAL'NOY DOROZHNOY BOL'NITSY.

UNCLASSIFIED

Acc. Nr: MP0102638

Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 3, pp 123-125

**BLOOD SERUM SULFHYDRYL GROUPS IN PATIENTS
WITH DIFFUSE TOXIC GOITER**

P. G. Podorozhnyy and V. P. Vygnuskiy (Lvov)

Blood serum sulfhydryl groups have been determined by amperometric titration in 95 patients with diffuse toxic goiter and in 25 healthy subjects. Results showed a sharp increase of sulfhydryl groups in these patients.

The data received may not only be of practical value but may also have a theoretical interest in relation to investigation of some pathogenetic sides of diffuse toxic goiter.

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19860652

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1/2 026
 TITLE--TETRAD FORMULATION OF THE MOTION OF AN ELASTIC BODY IN S.T.O.
 SPECIAL THEORY OF RELATIVITY -U-
 AUTHOR--POLLSENLY, S.A.
 COUNTRY OF INFO--USSR
 SOURCE--IZV. VUZ FIZ. (USSR), NO. 4, P. 45-51 (1970)
 DATE PUBLISHED-----70
 SUBJECT AREAS--PHYSICS
 TOPIC TAGS--ELASTIC WAVE, SPECIAL RELATIVITY THEORY, SOLID KINEMATICS,
 TENSOR, TENSOR ANALYSIS, STRAIN
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY FICHE NO----FD70/005029/C10 STEP NO--UR/0139/10/000/004/0045/0051
 NO--AP0141707 UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0141707
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT. TETRAD FORMALISM (EISENHART, 1948)
IS USED TO CONSTRUCT THE FOUR DIMENSIONAL COVARIANT KINEMATICS OF AN
ELASTIC MEDIUM. THE STRAIN TENSOR IS DETERMINED AS A GENERALIZATION OF
THE CLASSICAL ALMANSI, GREEN, AND CAUCHY TENSORS. THE KINETIC EQUATIONS
CONNECTING THE STRESS PROPAGATION TENSOR WITH THE RATE OF CHANGE OF
STRAIN TENSOR, ARE DERIVED.

UNCLASSIFIED

1/2 012

UNCLASSIFIED

PROCESSING DATE--11SEP79

TITLE--NONSPINNERET FORMATION OF FIBERS FROM POLYMER MELTS -U-

AUTHOR--PEREPELKIN, K.YE., PODOSENOV, V.V., KONKIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (1), 11-13

P

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYPROPYLENE FIBER, POLYSTYRENE RESIN, MOLECULAR WEIGHT, TEXTILE INDUSTRY MACHINERY/(U)MOPLN FBOO1 POLYPROPYLENE FIBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/1817

STEP NO--UR/01B3/70/000/001/0011/0013

CIRC ACCESSION NO--AP0100391

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--115970

CIRC ACCESSION NO--AP0100391

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, THE FORMATION OF POLYPROPYLENE (I) (NOLEN FR-001 OF MOL. WT. 110,000) AND ATACTIC POLYSTYRENE (II) (OF MOL. WT. 80,000) FIBERS MEANS OF A DIAPHRAGM PLACED ON I AND II MELTS WAS STUDIED AT VARIOUS TEMPS. MAX. FORMATION RATES AT 200, 230, AND 250 DEGREES WERE 650, 1000, AND 3,000 M-MIN, RESP. THE DIAM. OF I AND II FIBERS WAS INVERSELY PROPORTIONAL TO THE FORMATION RATE. BINARY FIBERS, HAVING A II CASING AND A I, SILICONE OIL, WOOD'S METAL, OR N NUCLEUS WERE PREPD. BY A SPECIALLY DESIGNED APP. A CROSS SECTIONAL DIAGRAM OF THE APP. AND ITS MODE OF OPERATION WERE PRESENTED. THE FORMATION RATES, CONSUMPTION OF THE INJECTED COMPONENT, AND THE INNER AND OUTER DIAMS. OF THE BINARY FIBERS WERE TABULATED FOR EACH FIBER SYSTEM.

UNCLASSIFIED

USSR

UDC 576.851.31.097.22:615.33

PODOSINNIKOVA, L. S., DOMARADSKY, I. V., LIBINZON, A. YH., LENEDEVA, S. A.,
and BOGDANOVA, M. I., Rostov-on-Don Antiplague Institute

"Multiple Resistance of El Tor Cholera Vibrios to Antibiotics"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973,
pp 9-13

Abstract: Fresh isolates of El Tor vibrios from patients with cholera were tested for resistance to a number of antibiotics, and several strains were found to show multiple resistance. Resistance was found to decrease on in vitro passage and, since it is known that the El Tor vibrios readily take up resistance transfer factors from intestinal bacteria, studies were undertaken to pass the putative resistance factor from the vibrios to Pasteurella pestis strains EV and 556/106, and to cure the vibrios with acriflavine. Exposure of the vibrios to 0.1-5 $\mu\text{g/ml}$ of acriflavine in Marten's broth for 18-20 hrs at 37°C resulted in loss or decrease of resistance. Exconjugate P. pestis cells were found to acquire resistance to tetracycline, levomycetin, and streptomycin from the resistant vibrios; the resistance factor was transferred with a frequency of 2×10^{-4} to 2×10^{-5} . In summary, the results showed that one strain of El Tor vibrios was cured by acriflavine and transferred resistance to
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USSR

PODOSINNIKOVA, L. S., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 9-13

P. pestis, four other strains transferred resistance to *P. pestis* but exposure to acriflavine only decreased their antibiotic resistance, and one strain, which was resistant to tetracycline, oxytetracycline, penicillin, and ampicillin, did not transfer resistance to *P. pestis* but was cured of resistance to tetracycline and oxytetracycline by acriflavine. The data suggest the extrachromosomal nature of the resistance factor. The failure of one strain to transfer the plasmid to *P. pestis* may have been due to the latter's inability to accept the plasmid, or the factor could have been defective or integrated into the chromosome.

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1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECT OF INORGANIC ADDITIVES ON THE RATE OF BARIUM NITRATE
CRYSTALLIZATION FROM AQUEOUS SOLUTIONS. III -U-
AUTHOR-(02)-PODOZERSKAYA, YE.A., KHAMSKIY, YE.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM (LENINGRAD) 1970, 43(4), 736-42
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--BARIUM COMPOUND, NITRATE, CRYSTALLIZATION, AQUEOUS SOLUTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0428 STEP NO--UR/0080/70/043/004/0736/0745
CIRC ACCESSION NO--AP0126181

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126181

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RATES OF BA(ND SUB1) SUB2 CRYSTN. FROM AQ. SOLNS. CONTG. 0.5-20PERCENT NI(ND SUB3) SUB2 OR 0.1-2PERCENT OF FE(ND SUB3) SUB3 (WITH 0-0.78PERCENT HNO SUB3) OR 0.1-2PERCENT OF LIND SUB3 WERE MEASURED AT 0-30DEGREES FOR VARIOUS CONCNS. OF BA(ND SUB3) SUB2. THE ADDN. OF A SALT WITH A COMMON ANION INCREASES THE RATE OF CRYSTN. PRESUMABLY, THE BEGINNING OF CRYSTN. IS DELAYED DUE TO THE CHEMISORPTION OF ADDITIVES ON THE FACES OF CRYSTAL NUCLEI.

UNCLASSIFIED

Converters

USSR

UDC: 621.376.56

GRISHANKOV, B. T., PODPAL'KO, L. F., SHTEYERMAN, L. H.

"Peculiarities in the Use of Exponential Converters in the Microsecond Range"

Tr. VNI Zh.-d. transp. (Works of the All-Union Scientific Research Institute of Railway Transportation), 1970, vyp. M12, pp 13-18 (from RZh-Radio-
tekhnika, No 12, Dec 70, Abstract No 12D367)

Translation: The authors discuss the singularities of using pulse bridge elements in circuits which operate in the range from a few microseconds to tens of microseconds. The delay of bridge pulse elements is considered from the standpoint of the time duration precision required. Three illustrations, three tables, bibliography of four titles. Resumé.

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USSR

UDC: 621.391.837.32:681.64.083.84

NOZDRIN, V. V., PAN'SHIN, I. A., PODPALYY, Ye. A., STEPANOV, B. M., FAERIKOV, V. A., All-Union Scientific Research Institute of Opticophysical Measurements

"A Method of Increasing Contrast in Recording Optical Images on Strip-Domain Magnetic Tape"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 18, No 3, May/June 73, pp 217-218

Abstract: A method is described for increasing image contrast in thermal video recording on strip-domain magnetic tape. Before recording, the magnetic structure of the tape is oriented by an alternating magnetic field with amplitude exceeding the saturation field applied in the plane of the tape. The recording (domain-rotation) field is then applied perpendicular to the orientation of the initial domains. The film is heated by 0.03 μ s neodymium laser pulses. As a result, the domain structure is rotated through an angle proportional to the density of the irradiation energy. Contrast at low intensity is increased by an order of magnitude over conventional recording methods.

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172 033 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CONSERVATISM OF THE BOUNDARIES AND TEMPERATURE EFFECTS IN FILMS
WITH BANDED DOMAINS WHEN RECORDING AN OPTICAL IMAGE ON THESE -U-
AUTHOR-(03)-PANSIN, I.A., PODPALYY, YE.A., FABRIKOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 439-441

DATE PUBLISHED----FEB 70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--FERROMAGNETIC FILM, MAGNETIC DOMAIN STRUCTURE, GRAIN BOUNDARY,
OPTIC IMAGE, MAGNETIC MOMENT, THERMAL EFFECT, MAGNETIC RECORDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1823

STEP NO--UR/0126/T0/029/002/0439/0441

CIRC ACCESSION NO--APR19701

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129191

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL EFFECTS ASSOCIATED WITH THE CONSERVATISM OF THE GRAIN BOUNDARIES IN MAGNETIC FILMS WITH BANDED DOMAINS USED TO RECORD OPTICAL IMAGES ARE DISCUSSED THEORETICALLY AND IN THE LIGHT OF PRACTICAL EXPERIENCE. THE MAGNETIC MOMENTS IN THESE FILMS ARE SUBJECT TO SEVERE 'FRICTIONAL' FORCES AND MAY ACCORDINGLY TAKE UP NON EQUILIBRIUM POSITIONS, SUBSEQUENTLY EXPRESSED IN THE FORM OF THERMAL EFFECTS. THE PRACTICAL IMPORTANCE OF THESE AND ANALOGOUS FEATURES IN IMAGE RECORDING ARE CONSIDERED.

UNCLASSIFIED

USSR

UDC 615.832.9.015.45:612.26

PODRABINEK, P. A., Istomkinskaya Hospital, Noginsk

"An Analysis of Some Shifts in the Oxygen Balance During Hypothermia"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 15, No 4, Jul/Aug 71, pp 20-24

Abstract: On the basis of Van Hoff's isobar, the correlation existing between the hemoglobin oxygenation equilibrium constant and the temperature of the medium was determined, and an equation representing a balance between the body's oxygen demand and supply at various temperatures was derived. It is essential to visualize the body of a warm-blooded animal as composed of a core able to maintain constant temperature for a longer period and a covering in which temperature changes more rapidly. During hypothermia, this body goes through three stages. In the first or homeothermic stage, both core and covering maintain constant temperature by increasing tissue metabolism for as long as blood flow is adequate to deliver the necessary amount of oxygen. In the second or heterothermic stage, in which blood flow is diminished, metabolism and temperature in the covering decrease, while the core still maintains constant temperature and a high metabolism by extracting more oxygen from each unit volume of

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USSR

PODRABINEK, P. A., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 15, No 4, Jul/Aug 71, pp 20-24

blood flow. In the third or poikilothermic stage, in which even a high oxygen extraction ratio fails to yield enough oxygen at an adequate partial pressure, metabolism and temperature in the core decrease. Reduction in metabolism protects tissue from injury due to oxygen starvation. The pathology which does develop during the poikilothermic stage of hypothermia is due to a disruption of enzymatic systems, with some enzymes inhibited and others stimulated by the fall in temperature. Evidence suggests that after repeated hypothermia, the homoiothermic body learns to produce isoenzymes operating in synchrony at low temperatures.

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- 60 -

Acc. Nr: **AP0052100**

Ref. Code: **UR0396**

PRIMARY SOURCE: Patologicheskaya Fiziologiya i
Eksperimental'naya Terapiya, 1970, Vol 14,
Nr 1, pp 21-29

**HYPOXIA IN THE LIGHT OF CONCEPTIONS ON THE OXYGEN CAPILLARY-TISSUE
BALANCE**

P. A. Podrabinek

An equation of oxygen capillary-tissue balance was formulated expressing the equality of O₂ furnished to the tissues and utilized by them, through the principal hemodynamic factors, the extent of O₂ saturation of hemoglobin and the intensity of oxygen uptake by the tissues. The equation shows the ways of preservation of oxygen balance in the body by regulation of hemodynamic factors, metabolism and by the shape of Hb oxygenation curve; it conforms to the principal physiological regularities, from it follows Fick's formula (on dependence of the minute blood volume on the intensity of O₂ absorption by the organism). Serving as a theoretical basis of hypoxia, the equation substantiates its classification and explains the cause of various changes of hemodynamic factors. The author suggests a method of graphic recording of oxygen capillary-tissue balance, offering a possibility of assessing quantitatively the extent of hypoxia, establishing the changes of the curve of Hb oxygenation during hypoxia, and explaining the character of these changes in conformity with the factual data.

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REEL/FRAME
13820638

44 2

USSR

UDC 612.273.2:612.261

P
PODRABINEK, P. A., Istonkin Hospitalm Noginsk

"Hypoxia in the Light of the Concept of Capillary-Tissue Oxygen Balance"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1970, pp 21-29

Abstract: An equation was derived showing the capillary-tissue oxygen balance from an analysis of blood flow through the capillaires. The equation relates the amount of oxygen delivered to and utilized by the tissues to several indices of the oxygen status (oxygen capacity of the blood, capillary diameter, rate of blood flow, degree of oxygen saturation of hemoglobin). The equation is consistent with some well-known physiological phenomena, specifically, the relationship between the oxygen supply and the metabolic rate. The equation can serve as a theoretical basis for classifying the various types of hypoxia, and can help to explain the changes that take place in the hemodynamic factors. A suggested method for graphic analysis of the capillary-tissue oxygen balance makes it possible to determine the degree of hypoxia and account for changes in the shape of the hemoglobin oxygenation curve.

1/1

Physiology

USSR

PODRAZHANSKIY, A., and STEFANOV, G., Engineers at the Laboratory for Under-water Research Techniques of the Institute of Oceanology, Academy of Sciences USSR

"Four Thousand Hours Under Water"

Moscow, Leninskoye Znamya, 23 Jun 72, p 4

Translation: With the passage of time the traditional methods of studying the world ocean from the surface have become an obstacle to the discovery of its secrets, especially to what takes place under water. Oceanologists must directly observe the biological, chemical, and physical processes taking place in water strata and on the ocean floor. Fundamentally new techniques were needed.

In fact, the diver aquanaut must pay for dozens of minutes of work in the depth with tiresome hours of decompression. The rate of his rise to the surface is severely restricted by the slow process of elimination of inert gases of the respiratory mixture (nitrogen, helium, or hydrogen) from the organism. Under the effect of the increased pressure, inert gas dissolves in the blood up to a certain limit (this is called the saturation effect).
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PODRAZHANSKIY, A., and STEFANOV, G., Leninskoye Znamya, 23 Jun 72, p 4

A too rapid rise is fraught with serious danger for the aquanaut, i.e., decompression or caisson sickness. Inert gas will begin to be released in the form of bubbles -- emboli -- capable of occluding blood vessels.

The clear idea of the causes of "blood boiling" and of the essence of the saturation effect led scientists to the idea of an underwater laboratory house. Pressure inside such an installation is equal to external pressure.

The development of the design of the underwater house was entrusted to scientists and engineers at the Laboratory for Underwater Research Techniques of the Institute of Oceanology imeni P. Shirshov, Academy of Sciences USSR. The installation of this facility was completed in the southern department of this institute, i.e., on the shore of the Black Sea near the resort city of Gelendzhik in March 1968.

The first year of operation of the underwater house, which was named Chernomor, became the year of its technical improvement. Four testing and five scientific crews discovered shortcomings in the laboratory's devices. Fall and winter were spent in strenuous work. Chernomor-2 is its result.

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USSR

PODRAZHANSKIY, A., and STEFANOV, G., Leninskoye Znamya, 23 Jun 72, p 4

The design solutions for re-equipping the underwater laboratory were based on the principles of its maximum autonomy both during submersion-surfacing and operation.

The onboard stocks of respiratory mixture components (75 cubic meters of oxygen and 150 cubic meters of nitrogen) and of compressed air for technical purposes (240 cubic meters) make Chernomor-2 (installed at a depth of 25 to 30 meters) independent of provision ships and coastal services for 15 days; in addition, the emergency reserve of electric power (84 kWh) is sufficient for an average of 7 days.

The strong frame of the underwater house is a cylinder placed on a support, i.e., a keelblock. On the right and left boards and under the upper deck there are two groups of water ballast tanks. Their volume and successful arrangement provide good buoyancy and stability for Chernomor-1.

The laboratory's autonomy is also evident from the fact that its placement on the bottom and rise to the surface require no equipment. The crew handles these operations. It controls the flooding and blowing of water ballast tanks.

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USSR

PODRAZHANSKIY, A., and STEFANOV, G., Leninskoye Znanya, 23 Jun 72, p 4

Aquanauts have to live and work in a room with a usable capacity of only about 16 square meters. A great deal of time was spent planning the internal compartments. It was not a simple task to make an 8-meter long cylinder with a diameter of 2.9 meters convenient both for work and rest. The internal room is conditionally divided into three compartments: diving, living, and sanitary compartments.

A deck-mounted airlock for entry into the submerged laboratory, a divers passageway, an installation hatch, a desk for controlling and monitoring the airlock's pneumatic systems, and shelving for storing diving gear were installed in the diving compartment. A telephone was also installed.

The living compartment is divided into sleeping and laboratory zones. In the sleeping zone there are four beds (in two tiers on the right and left sides) and lockers and a closet are located near the end bulkhead.

Finally, the sanitary compartment is equipped with a cold- and hot-water shower and a toilet.

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PODRAZHANSKIY, A., and STEFANOV, G., Leninskoye Znamya, 23 Jun 72, p 4

Chernomor successfully passed the test of 4 years of operation. Ten testing (from 1 to 4 days) and nine scientific crews (from 7 to 52 days) spent about 4,000 hours in the laboratory.

Investigation of shelf dynamics were the main aim of the geologists. Aquanauts engaged in the preparation of test grounds. They hammered in benchmarks, i.e., metal bars with divisions which make it possible to judge the soil alluviation level, layed out marked material, i.e., luminophore-stained rubble and sand, and installed suspension traps. During the last 52-day experiment the researchers obtained vast amounts of data.

Whereas geologists and biologists mastered primarily the surface of the floor, hydroopticians studied all the water strata, i.e., from the floor to the surface. A hydrophysical mast with illumination, swell, and wind speed sensors was installed at a distance of 30 meters from Chernomor-2. The following tasks was set: to obtain experimental data on the relationship between the characteristics of surface swell and the light conditions of the depths.

The medical and physiological program consisted of measuring the volume of pulmonary ventilation, the aquanauts' body temperature, and the bioelectrical

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PODRAZHANSKIY, A., and STEFANOV, G., Leninskoye Znamya, 23 Jun 72, p 4

activity of the heart, brain, and muscles. A great deal of attention was paid to biochemical blood analysis.

The Institute of Oceanology developed a long-term scientific program for a planned mastering of the continental shelf. Its first stage is the study of depths up to 30-40 meters, in other words, the off-shore zone where waves are formed. The designing of a new underwater laboratory, Chernomor-3, has already begun. It is designed for a depth of 100 meters. A very wide range of problems has been set for physiologists in connection with the changeover to great depths and the use of helium and oxygen respiratory mixtures. Work on the installation of a coastal hyperbaric complex has begun in the institute's southern department. Submersion to a depth of more than 350 meters is to be simulated in its chambers.

Man is embarking on the mastering of ocean wealth, primarily of the continental shelf which extends up to depths of 200 to 300 meters.

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Physiology

USSR

NIKOLAYEV, V., Underwater Experiments Laboratory; PODRAZHANSKIY, A., Research Techniques Laboratory, Oceanological Institute, Academy of Sciences USSR

"Chernomor-71": An Account of How Soviet Explorers Lived and Worked for 52 Days on the Bed of the Black Sea"

Moscow, Izvestiya, 12 Nov 71, p 4

Translation: The "Kapitan Chumakov" slowly approaches two large roadstead buoys. More, 15 meters beneath us, lies the "Chernomor-2" underwater laboratory. The boys are ready. Aleksey Nasonov has already set about his duties as the crew's diving specialist and is looking his aquanaut colleagues over from head to toe. Everything is in order. The "Chumakov" has gently touched the mooring buoy, and a ladder is immediately let down over the side.

Igor Sudarkin -- the crew's commander and resident engineer -- descends the ladder followed by Oleg Prokopov (he will perform hydro-optical research on the seabed). Now all three are in the

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

water alongside the communications buoy. Igor looks round at the shore, then he raises his head and sees a seagull, it circles over the buoy, which it evidently already considers its "own" property.

"Goodbye! See you in two months! Well, let's go lads," Igor orders. All three wave their hands. "Good luck! Don't get bored! Go out for a stroll more often," people shout to them from the "Chumakov," and they disappear beneath the water.

Three black figures leaving a trail of bubbles behind them descend lower and lower, and the first of the squanauts -- Igor Sudarkin -- is already disappearing into the diving trunk. A minute later the portholes light up.

"The hatch is open and the crew are in the laboratory," the dynamic loudspeaker of the hydro-acoustic receiver rings out on

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

board the "Chumakov." The first entry appears in the "Chernomor's" log and in the log of the shore command point: 1 August 1971, 1930 hrs. Crew occupies underwater laboratory."

...While the crew is settling in at the underwater abode, the authors of these lines make a tour of the "Chernomor's" "personal plot" on the bed of Golubaya Bay. We slowly skirt round the holders for the laboratory's oxygen and nitrogen cylinders and descend lower, to the bed. The semidarkness thickens, but the black snake of the cable coming from the house stands out sharply against the gray, monotonous carpet of the seabed. It leads us along after it, and some thirty meters further we encounter a hydrophysical mast hung with illumination, turbulence, and current sensors. We rise unhurriedly, the bubbles float alongside us while the sensors remain down below, like birds perched in a tree. The sensors transmit all their "sensations," which are transformed into precise electrical signals, to the "Chernomor," where Prokopov will have to record them. His task

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

is to obtain data with whose aid it will be possible to find an interconnection between turbulence on the surface and the light conditions in the depths.

The surface is now a few meters above us. The aquanauts will also have to look in here during the experiments, when it is necessary to shift the sensors or clean the optical equipment. They cannot rise any higher, for up higher the bends lie in wait for them. They are no threat to us because we have spent too little time in the water and, casting a final glance at the world of half-tints and silence, we dart toward the surface. The setting sun illuminates the top of the mast which protrudes above the water, the anemometers on it, which are revolving silently, the roadstead buoys, and the "Chumakov." They are already waiting for us. The seagull continues circling over us. We shall go away presently, and it will again perch on "its" buoy. Until morning no one will disturb it. The work has begun...

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

The impending isolation of the small collective on the bed of Golubaya Bay evoked much reflection among the leaders of the experiment. Everyone knows each other well, and they became accustomed to each other's ways back on shore, but what would happen down there? For it is well known that for people who remain isolated for a long period in a small group a colleague's orderliness sometimes begins to seem like pettifoggery, and conviviality like importunity. A person who by nature is taciturn becomes bound up in himself, or, on the contrary, unnaturally talkative, while an energetic person will become fidgety. And it is difficult here to say whether he had actually become small-minded or whether this only seems to be the case to the person who accuses him of this. Racing ahead, let us say that the experimental staff and, most important, the crew, coped well with the problem of psychological compatibility.

A week after the "Chernomor" was occupied, a fourth member of the crew entered the house, Ruben Kosyan, a geomorphologist. Oleg Prokopov noted this event in the log thus:

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

"I consider the selection of the crew to be correct. The methodology for settling in too. Two or three crew members create a stable psychological atmosphere in the underwater laboratory over 5 or 6 days. The subsequent settling in by one person at a time makes the new crew members accept the stable atmosphere that has already taken shape as being natural, and in these cases the psychological acclimatization process passes more rapidly."

It is interesting to follow how Kosyan accustomed himself to the crew. This did not take place immediately. Extract from Kosyan's diary:

"12 August. Sudarkin is a sensible, knowledgeable resident engineer, but I do not consider his appointment as crew commander successful. I should like to see someone else in his place."

"18 August. My assessment of the professional and psychological qualities of the crew members has altered somewhat. I am pleased

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

to note that in a number of situations Sudarkin has shown himself to be a businesslike, energetic commander. I have long liked him for his purely human qualities."

"28 August. The professional qualities of Nasonov and Sudarkin are quite above criticism, both cope with their duties in such a way that I believe it impossible to fulfill them better. ...I am pleased that I have found myself in the same crew as they."

The others too did not find that Ruben immediately "fitted in." From the outset he adopted an incorrect tone. Extract from Prokopov's diary:

"8 August. My attitude to the crew members is amicable with the exception of Kosyan. Toward him I experience a wariness, his actions and words are not always and in everything to my liking."

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USSR

NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

"17 August. After several admonishments, Ruben has greatly altered his conduct for the better."

"22 August. All the aquanauts have been well picked from the viewpoint of their professional qualities and psychological compatability...."

The crew's health is in the hands of the medical welfare group led by V. Grinevich, a physician and specialist in physiology. The aquanauts live in a confined space at a temperature of 27-28 degrees Centigrade and with elevated humidity. All this creates favorable conditions for the development of microflora and microfauna within the "Chernomor." The danger arose that one of the "guests" might bring pathogenic bacteria into the house, and therefore every visitor underwent a preliminary medical examination with obligatory microbiological analyses.

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

...Evening. The aquanauts are relaxing. They meet the guests affably and help them to take off their aqualungs. In the passageway Sudarkin and Prokopov are sparring together in boxing gloves, not very adroitly, but with enthusiasm, to the accompaniment of music relayed from the command point. One of the visitors cannot contain himself and also puts on boxing gloves. He gave the following comment on the improvised match:

"In my student days I fought with masters of sport, but the three rounds in the 'Chernomor' proved perhaps the most difficult in my life -- there is nothing one can do here without acclimatization."

Sudarkin's father had arrived, and Grinevich allowed Igor to go to the surface for four minutes. And so Igor, accompanied by two maintenance divers, appears in the light of day. Sudarkin Snr is waiting for him on the "Chumakov." Igor climbs onto the deck incessantly repeating: "What tremendous colors, what a scent! No, you cannot imagine how beautiful it is here!!!"

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USSR

NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

"Igor, one minute left," one of the entourage reminds him, and then Sudarkin Jnr suddenly recollects something and approaches his father. A minute later Igor is already disappearing under the water without having had time to say what he ought to have said. That day he wrote in his diary: "I miss my wife, daughter, and relatives. The scents and the colors of the dry land. The green grass and the sun. I would like to take a drive through a forest on a motorcycle..."

The second month of the crew's stay under water began. There were only three aquanauts again -- Prokopov had fallen ill and had been evacuated from the "Chernomor." He went through the first "stages" of decompression in the laboratory's transfer airlock and was then taken to the pressure chamber on the shore. But the "Chernomor" with the remaining crew members plunged back to the seabed. Oleg recovered after a few days and continued his work in the support group.

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

On 3 September Nikolay Denisov was seen into the house. He entered the "Chernomor" to carry out a biological program. The following day Denisov began his collection of specimens and the preparation of experimental areas. As a rule, he and Igor worked as a pair. In the morning after breakfast they swim out to work. Moving along the leading part of a rope, they emerge at rock sectors of the seabed. The areas had been chosen earlier, and runners had been laid to them in advance. Kolya scans the sector and begins taking samples of plant and animal organisms from it.

...Today we make a descent to the seabed with some presents -- in our hands are a bottle of dry wine and some long containers. The "Chernomor's" familiar outlines cannot immediately be made out. First of all the light from the portholes appears, and then the laboratory itself. A large white arrow on its side indicates the diving trunk. One behind the other, we dive down under the house to come up inside it. The gallant males let Svetlana Chaplygin -- a woman biologist from Vladivostok -- go through first.

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

We have all been invited to a banquet which will take place at a depth of 15 meters on the occasion of the crew's having spent 1,000 hours in the house.

We are met, our aqualungs are taken off us, and everyone is given a towel. Lenya Bratkov is already bustling about the containers. He opens one of them and takes out steaming skewers of shashlyk. A few minutes ago he himself had taken them from a brazier on the "Chumakov's" deck and wrapped them in greasproof paper, and now they were steaming down here. The cries of delight from the crew must surely have reached the surface.

We raise our glasses (V. Grinevich recommends dry wine to the aquanauts for enhancing vigor) and drink a first and last toast to everything at once: to underwater research, to the world's "longest" experiment, to those at sea, and, of course, to all those many people who are supporting this experiment on the surface and on the shore.

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USSR

NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

The time flies by unnoticed until the sound of a buzzer, interrupting the merry-making, summons the duty officer to the desk. Denisov picks up the receiver and announces to those present:

"I'm very sorry, but your time is up and it is time for you to leave!"

On 15 September one of the authors of these lines joined the crew -- he was to complete the program of hydro-optical research begun by O. Prokopov. The crew proposed ending the experiment in about 10 days. However, circumstances considerably altered this plan. Although Ruben Kosyan wanted the fall storms very much (for then he would be able to obtain unique material on the shifting of sediment on the seabed), no one expected the following:

Extract from Denisov's diary:

"20 September. 0300 hrs. I became engrossed in my reading until late. When I had dozed off almost completely, the pitching and

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

tossing intensified, and a chemical-absorber cartridge rolled out of its holder. I had to get up and help Ruben to secure it. By morning everyone was engaged in this.

"0700 hrs. My shift at the desk has begun. It soon became difficult to sit in the chair. I had to bind it with rubber ropes, and soon myself too, to the desk.

"1200 hrs. Because of a cable breaking, the supply of electricity from the shore has ceased: the laboratory has switched to the batteries it carries on board."

The storm gathered strength. The communications cable broke. A motorboat, the "Kanon," left the shore -- it was necessary to restore contact through the communications buoy and to bring the crew out from the house. From the shore we saw the "Kanon" now vanish with the mast and then reappear on the crest of a wave. Divers with masks and black suits were standing on the deck, grasping the ropes.

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NIKOLAYEV, V., Izvestiya, 12 Nov 71, p 4

When the boys left the laboratory, they were quickly seated in the motorboat, and it raced to the pressure chamber building with them. Some 10 minutes after leaving the house, the crew was already at a 30-meter "depth" in the decompression chamber....

And so, the main tasks of the "Chernomor-71" experiment have been successfully fulfilled. The crew lived and worked on the seabed for 52 days -- this is the world's second longest underwater stay. The crew has gathered unique scientific material.

15/15

USSR

UDC 621.3.032.266

KHVOROV, M.I., STEPANOV, YU.D., PODRECHNEVA, N.V., SENATOV, O.I.

"Experimental Investigation Of Interaction Of Spiral Electron Flow With Electromagnetic Waves In Two-Dimensional Periodic Delay System"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 5, pp 3-9 (from RZh-Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10A25)

Translation: An investigation is conducted of an experimental model of the interaction of spiral electron flows with waves in a two-dimensional periodic delay system. It is shown as a result of the experiments that attainment of synchronism of the electron flow with the electromagnetic waves depends on the values of both the azimuthal and the axial components of the speed of the electron flow. It is established that synchronism with direct and counter waves is attained with substantially equal values of the azimuthal component of the speed of the flow. It is disclosed that with specific relationships of the parameters of the delay system and the electron stream the synchronism voltage does not depend on the frequency. 4 ref. Summary.

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USSR

UDC 681.525.65:525

PLOTNIKOV, V. M., PODRESHETNIKOV, V. A.

"Pneumatic Relay"

USSR Author's Certificate No 287402, Filed 14/12/67, Published 27/01/71,
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A78 P).

Translation: A pneumatic relay is suggested which contains a multiple-membrane unit with a shaft, the axial channel of which is connected to the power supply through a chamber formed by membranes, and a valve group with a common plate and two concentric seats, one of which can be moved. In order to expand the functional capabilities of the relay, it contains a second valve group, located symmetrically with respect to the first group on the other end of the multiple-membrane unit. In one version of the relay, the axial channel of the shaft of the multiple-membrane unit is connected to the power supply through a chamber consisting of membranes with equal effective areas.
2 figures.

1/1

AA0047073

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Soviet Inventions Illustrated, Section II Electrical, Derwent,

241037 GRADATION AND TEST STAND FOR GAS FLOWMETER
 avoids the drawbacks of known instruments
 namely large energy consumption and complicated
 cooling. The diagram shows the double-loop conduit
 1, with which are associated blower 2, external
 compressor 3 providing gas under controlled pressure
 through receiver 11 and control valve 10. Exhaust
 cock 9 assists in maintaining circuit pressure. 5
 and 6 are calibration and test flow meters through
 which 2 provides flow at a given static pressure.
 7 and 8 are control manometer and thermometer.
 Heat-exchanger 13 is provided to adjust for
 constant gas temperature in the conduit; the various
 control valves can be set to obtain constant pressure
 irrespective of the steady-state temperature.
 25.2.66 as 1058905/18-10.L.I.YUNIK & V.A. PODKOROTNEV,
 "GAZPROMOBORAVTOMATIKA" DES. BUREAU (22.8.69.) Bull 13/
 1.4.69. Class 42e. Int.Cl.G 01f.

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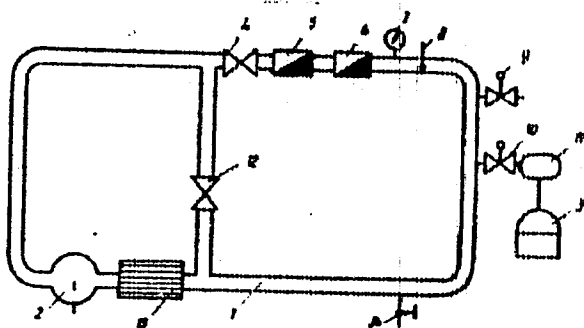
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AA0047073

AUTHORS: Yunik, L. I.; Podreshetnikov, V. A.

Spetsial'noye Konstruktorskoye Byuro "Gazpriboravtomatika"



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19790539

USSR

UDC 911.3.616.988.43

PODRESOVA, Ye. A., and YEPIFANOV, G. F.

"The Viability of Foot-and-Mouth Disease Virus on Environmental Objects"

V sb. Virusn. bolezni s.-kh. zhivotnykh. Ch. 2. (Virus Diseases of Farm Animals -- collection of works. Part 2), Moscow, 1970, pp 194-195 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.74)

Translation: Results of study of foot-and-mouth disease virus in pastures and farm buildings at different seasons of the year are presented.

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USSR

UDC 619.983.43

PODREZOVA, YE. A., Candidate of Veterinary Sciences

"Resistance of Foot and Mouth Disease Virus to the Environment"

Novosibirsk, Sibirskiy Vestnik Sel'skokhozyaystvennoy Nauki, No 2, 1972,
pp 70-71

Abstract: It had been demonstrated that 15% of all foot and mouth disease foci in Omskaya Oblast arise each year due to survival of viruses in previously infected locations, and that viruses can survive for long periods in the environment with a maximum of 262 days inside buildings during the winter-spring-summer period. Therefore the viability and properties of O, A, and A-22 viruses introduced into various feeds and manure piles were studied in 1970-1971. Samples introduced into last-year's straw stacks in April maintained virulence for 6 days (internal stack temperature 40-60°C), for 34 days (observation time) in dry straw stacks in June (24°C), at least 33 days in stacks of recently mown hay in August (20-24°C), for up to 204 days in hay stacks when introduced in October (complement-fixing properties persisted up to 232 days), for 52 days in combined feed in June-July (building temperature 12-20°C, 76-88% relative humidity) and 70 days in August-October (2-5°C), for 196 days when introduced into combined feed in October (inactivates after 1/2

USSR

PODREZOVA, YE. A., Sibirskiy Vestnik Sel'skokhozyaystvennoy Nauki, No 2, 1972, pp 70-71

196-224 days), and 107 days when introduced into fresh manure piles in December (internal temperature 0-5°C). In the last case virulence was reduced on the 131st and 146th days but the virus still affected test animals. Thus foot and mouth disease virus has significant resistance to the natural environment and can survive for long periods of time in pastures, stock shelters, feed, and manure, particularly in the cold Siberian climate, and cause repeated outbreaks of the disease at the same farms.

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USSR

PODRUDKOV, A.

"Municipal Sanitation Through the Eyes of a Health Officer"

Moscow, Zhilishchnoye i Kommunal'noye Khozyaystvo, No 6, 1971, p 14

Abstract: Although considerable progress has been made in cleaning up and beautifying some cities, settlements, and villages in the Russian Federation, the general situation in most places is still very unsatisfactory. Garbage and rubbish are collected irregularly, unauthorized dumps are numerous, and many people are unaware of the need for cleanliness and its relationship to disease. The health authorities are charged with laxness in enforcing the existing sanitary regulations and in failing to educate the people on the importance of the problem. Among the specific factors cited for the unsatisfactory state of affairs are the lack of garbage trucks and suitable containers and poor organization of trash disposal.

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USSR

UDC: 539.1.074.55

PODSEKIN, A. K., SOLOV'YEV, S. P., KHARCHENKO, V. A.

"Making PN-Junctions by the Method of Radiation Doping in a Nuclear Reactor"

Moscow, Atomnaya Energiya, Vol 31, No 5, Nov 71, pp 521-522

Abstract: A method is proposed for low-temperature synthesis of PN-junctions in semiconductor crystals by exposure in a nuclear reactor to initiate the necessary nuclear reactions which lead to formation of the required impurity atoms. For practical reasons, the proposed method is most readily applied to silicon-30, resulting in N-silicon doped with phosphorus-31. The semiconductor can be produced with a given resistivity. The paper is devoted to a theoretical analysis of the optimum conditions for producing a PN-junction by the proposed method. In principle, the method should be applicable to synthesis of more complicated junctions such as PNP, PIN, and the like. One figure, one table, bibliography of eight titles.

1/1

USSR

BASOV, N. G., DANILYCHEV, V. A., KERIMOV, O. M., PODSOSONNY, A. S.,
Physics Institute imeni P. N. Lebedev, Academy of Sciences of the USSR

"Population Inversion in the Active Medium of an Electroionization CO₂
Laser for a Pressure of the Working Mixture of Up to 20 Atmospheres"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol
17, No 3, 5 Feb 73, pp 147-150

Abstract: The authors study the variation, with time, of the inverse population in the active medium of an electroionization CO₂ laser. It is experimentally shown that increasing the pressure of the working mixture up to 20 atmospheres does not lead to any qualitative changes in the processes of excitation and relaxation of laser levels. The authors thank N. A. Penin and V. A. Kurbatov for furnishing a receiver with a resolution of $3 \cdot 10^{-9}$ sec.

1/1

USSR

UDC: 539.373:621.643.411

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

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

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

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

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USSR

OSADCHUK, V. A. and PODSTRIGACH, Ya. S. (L'vov)

"Determination of the Stressed State in a Closed Cylindrical Shell and an Infinite Plate With Cracks"

Moscow, Mekhanika Tverdogo Tela, No 3, May-June 1973, pp 69-78

Abstract: A method is proposed for reducing the problem of the stressed state in a closed shell with a crack to the solution of a system of integral equations for a case where the crack is situated along the generatrix. A detailed investigation is made of an integral equation for an infinite plate with a system of parallel, periodically situated cracks. The solution of the equation is constructed in the form of an expansion on the basis of parameter $\lambda = \text{th}(\pi a/2 \ell)$, where ℓ is the half-distance between the cracks, a is their half-length. A numerical analysis of the critical load is conducted. 1 figure. 8 references.

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PODSTRIGACH, Ya. S.

Lasers

TECHNICAL TRANSLATION

AC/71 11000-33-11-72

ENGLISH TITLE: On the Influence of the Strain State on the Character of Rupture of Transparent Polymers by a Laser Beam

RUSSIAN TITLE: O Vliyaniy Napryazhennoy Sostoyaniya na Kharakter Rupturnogo Protsessa v Poluprozrachnykh Luchevykh Lazere

AUTHOR: G. V. Pivovarov, Ya. S. Podstrigach, V. M. Zhigorenko

SOURCE: Fiziko-khimicheskaya Mekhanika Materiyalov, No. 4, 1981, 3, 1989

Translated for FSTC by Leo Kanner Associates, Redwood City, Calif.

NOTICE

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USSR

GRIGOLYUK, E. I., BURAK, Ya. I., PODSTRIGACH, Ya. S.

"The Statement and Solution of One Class of Extreme Problems of Thermoelasticity for Envelopes of Rotation"

Teoriya Plastin i Obolochek [Theory of Plates and Envelopes -- Collection of Works], Moscow, Nauka Press, 1971, pp 66-73, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V158 by the author's).

Translation: The optimal temperature fields are defined in envelopes of rotation which, within fixed limitations on temperature field and stress-strain state, provide a comparatively low level of thermal stresses. Using the methods of the calculus of variations, the statement and solution of these problems can be reduced to analysis of non-classical problems on the conditional extreme, when the limitations on permissible functions (heating conditions) are fixed not for the entire area of the envelope, but for a system of non-intersecting subareas and contours. In this case, the condition of the minimum integral measure of the thermoelastic state -- a functional of the elastic energy of the envelope -- is used as an integral condition of optimality.

The Euler equations produced, together with the solution equations and boundary conditions, make up a complete set of equations for determination

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GRIGOLYUK, E. I., BURAK, Ya. I., PODSTRIGACH, Ya. S., Teoriya Plastin i Obolochek, Moscow, Nauka Press, 1971, pp 66-73.

of the extreme temperature fields and the corresponding thermal-elastic state of the envelope. Supplementary equations are produced for the characteristic particular forms of extreme problems for direct determination of the extreme temperature fields. 7 Biblio. Refs.

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USSR

UDC: 539.377

PODSTRIGACH, Ya. S., SHVETS, R. N., and PAVLINA, V. S.

"Quasistatic Thermo-diffusion Problem for Deformed Solid Bodies"

Kiev, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 11-16

Abstract: The basic relations between stresses, deflections, temperatures and concentrations of dissolved substance are given by the equations of state (1.1) to (1.5).

The dynamic effects can be neglected provided the external loads are applied slowly.

Using the entropy rise as an independent variable the equation of state are put in the form (1.7) to (1.11). The boundary conditions are given by equations (1.13) and (1.14).

Equations (2.) to (2.5) apply to a two-dimensional problem.

In the case of a solid cylinder subject to a cyclic axial load the solution is given by equations (3.1) to (3.5).

Graphs of stresses and temperature versus nondimensional frequency of the applied force are shown on Fig. 1 and 2.

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USSR

UDC 539.3

PELEKH, B. L., PODSTRIGACH, Ya. S., SIRENKO, I. G.

"Some General Problems of the Theory of Thermal Elasticity of Transversely Isotropic Envelopes"

Mekhanika Tverdogo Tela, No 6, 1971, pp 81-88.

ABSTRACT: The basic equations of the non-coupled, quasistatic problem of thermal elasticity of transversely isotropic envelopes are produced on the basis of less rigid hypotheses than the classical assumptions, namely: it is assumed that the perpendicular is rotated during the process of deformation by a certain angle, without being curved and without changing its length (shear model). A number of theoretical statements are developed for this version: a variation statement of the problem is formulated, a system of resolving equations in forces and moments is produced, complex conversion of the basic equations is introduced, a theorem of uniqueness of the solution of the boundary problems is proven, etc. Some aspects of the application of the precise approaches to the construction of thermal elasticity equations for plates and shells have been studied in earlier works, in which the resolving equations are produced in generalized displacements. However, it has been found possible to construct a theory of thermal elasticity of shells for the shear model just mentioned of equal quality to the classical theory based on the hypotheses of Kirkhoff and Love.

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