1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECTIVENESS OF AMMONIUM NITRATE AND UREA ON PREURAL SOILS -U-

AUTHOR--PEGUSHIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(3), 185-6

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREAL CROP, AGRICULTURE CROP, NITROGEN FERTILIZER, AMMONIUM NITRATE, UREA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0195 STEP NO--UR/0394/70/008/003/0185/0186

CIRC ACCESSION NO--AP0130954

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0130954
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POTATOES, RYE, BARLEY, BROME GRASS, INDIAN CORN, AND TIMOTHY WERE PLANTED IN PODZOLIC AND IN DARK GRAY SOILS. THE PH, TOTAL ABSORBED BASE HUMUS, P SUB2 O SUB5, K SUB2 O, TOTAL N, ETC., OF THE SOIL ARE PRESENTED. THE CROPS WERE FERTILIZED WITH EITHER NH SUB4 NO SUB3 OR UREA AND THE N CONTENT WAS DETD. AT VARIOUS TIMES IN THE PLANT AND SEEDS. WITH RESPECT TO FOOD AND FEED VALUE, BOTH NH SUB4 NO SUB3 AND UREA FURNISH EQUIV. RESULTS.
FACILITY: PERM. SKHI, PERM, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DEHYDRATION OF CYCLOPENTANECARBINOL,1, PRIMEL3 C -U-

AUTHOR-(05)-LOVTSOVA, A.N., REUTOV, O.A., LIPPMAA, E., PEHK, T., SHATKINA, T.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 726

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DEHYDRATION, CYCLOPENTANE, CARBON ISOTOPE, METHYLENE, CYCLOHEXENE, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1885 STEP NO--UR/0062/70/000/003/0726/0726

CIRC ACCESSION NO--AP0123673

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123673

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEHYDRATION OF CYCLOPENTYLCARBINOL TAGGED WITH PRIME13 C AT THE METHYLENE GROUP, BY HEATING TO 340DEGREES WITH H SUB3 BO SUB3, GAVE MIXED OLEFINS CONTG. 70PERCENT CYCLOHEXENE, 14PERCENT 1,METHYLCYCLOPENTENE, 12PERCENT METHYLENE CYCLOPENTANE AND 4PERCENT UNIDENTIFIED MATERIAL. THE CYCLOHEXENE COMPONENT CARRIED THE TAGGED ATOM TO THE EXTENT OF 8PERCENT IN THE 4, AND 5,POSITIONS, INDICATING THAT THE INITIALLY FORMED CYCLOHEXENE IS ISOMERIZED TO SOME 30-5PERCENT. THE DEHYDRATION MECHANISM IS DISCUSSED. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr. AP0105535 Abstracting Service: CHEMICAL ABST. Ref. Code UR0370

125823p Coefficient of the extraction of an impurity during zone melting. Konovalov, E. E.; Peizulaev, Sh. I.; Minashina, L. Ya. (USSR). *Izv. Akad. Nauk SSSR, Metal.* 1970, (1), 48–50 (Russ). The extn. coeff. is detd. as a function of the crystn. rate, of the equil. distribution coeff., of the no. of zones, and of the mixing conditions of the melt in the zone. The results are plotted in several graphs, enabling detn. of the efficiency of the process.
Z. Klimova

EB

REEL/FRAME
19880550

USSR

UDC 621.315.592

PEKA, G.P., KARKANIN, YU.I. [Kiev State University imeni K.T. Shevchenko]

"Instability Of Recombination Radiation In Semidielectric Gallium Arsenide"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 741-747

Abstract: This work is concerned with observation under the conditions of a strong field of the low-frequency instability of impurity recombination radiation which accompanies instability of the photocurrent in high-resistance GaAs doped with Cr. The change of the radiation intensity in fields less than critical is investigated and the peculiarities of photocurrent instability during inherent and impurity excitation is also studied. The measurements were conducted on single crystal specimens of GaAs<Cr> with a resistivity in darkness of $\sim 10^8$ ohm.cm. Production data from GIREDMET [State Scientific-Research And Planning Institute Of the Rare Metals Industry] showed that the concentration of chrome in the crystals amounted to $\sim 10^{17}$ cm^{-3}. Crystals were investigated, doped with Cr and Te, also chrome and a noncontrolled donor. Luminescence was excited by a steady light from the region of fundamental absorption ($\lambda_{ax} \leq 0.6$ micrometer). 3 fig. 11 ref. Received by editors, 22 July 1971.

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USSR

VOL'KENSHTEIN, F. F., PEKA, G. P., MALAKHOV, V. V., Institute of Physical Chemistry, USSR Academy of Sciences, Moscow

UDC 541.128

"Effect of Adsorption on Luminescence of Semiconductors. I. Recombination Luminescence"

Moscow, Russian, Kinetika i kataliz, vol 14, No 4, Jun-Aug 73, pp 1052-1057

Abstract: Chemisorbed particles may affect the recombination luminescence of semiconductors by causing a change on the surface or they may act as surface centers of recombination. These effects were studied with CdS monocrystals, the adsorbates being water vapor, air, oxygen, and ozone. Changes in the luminescence intensity due to an external electric field and to adsorption and changes in conductivity due to adsorption were measured. All the adsorbates studied caused a decrease in the photoconductivity of the CdS crystals and quenching of the luminescence. No new spectral bands were recorded. With the same photoconductivity change, luminescence quenching due to adsorption was either the same as or greater than that due to the transverse electric field. The adsorption effect was greater in the red (0.76-0.78 μm) than in the infra-red (1.03 μm).

USSR

UDC 541.128

VOL'KENSHTEYN, F. F., PEKA, G. P., and MALAKHOV, V. V., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow and Kiev State University imeni T. G. Shevchenko

"The Effect of Adsorption on the Luminescence of Semiconductors. II. Exciton Luminescence"

Moscow, Kinetika i Kataliz, Vol 14, No 5, Sep/Oct 73, pp 1269-1273

Abstract: Theoretical and experimental study was carried out on the effect of adsorption on exciton luminescence of semiconductors, which results from the annihilation of light-generated excitones on non-ionized admixture centers inside the crystals. The measurements were carried out in the infrared range of luminescence of Cu_2O (λ_{max} = 0.96 mμ). It was established that adsorption of water and oxygen on Cu_2O leads to considerable extinction of the luminescence. The conclusion was reached that the principal mechanism of the adsorption effect on exciton luminescence of Cu_2O is the increased rate of surface annihilation of excitones resulting from the appearance of nonradiating annihilation centers of the adsorption type origin.

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USSR

UDC 621.315.59

PEKA, G. P., KARKHANIN, YU. I.

"Energy Spectrum of Deep Levels and the Mechanism of Radiation Recombination in GaAs (Cr)"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 305-310

Abstract: A study was made of photoluminescence and photoconductivity of GaAS (Cr) for a given level of alloying the crystals with chromium in a broad spectral range and in the temperature range from 77 to 300° K. In GaAs(Cr) there are two deep recombination levels with the energy positions 0.6 and ~0.8 electron volts from the c-band. Radiation recombination in GaAs(Cr) determining the ~0.8 electron volt band takes place in complex centers of the donor-acceptor pair type including chromium. The investigated recombination channel is determining for the electron lifetime and the stationary photocurrent in the investigated crystals.

The mechanism of radiation in the 0.5-0.65 electron volt range is discussed. The luminescence bands with peaks at 0.55 and 0.60 electron volts are connected with electron capture in the excited and ground states of the same center. The dependence of the position of the maximum radiation (~0.8 electron volts) and the activation energy of the temperature quenching on the

USSR

PEKA, G. P., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 305-310

nature of the donor in the GaAs(Cr) and the nature of the temperature dependence of the photocurrent confirm the conclusion that radiation recombination in GaAs(Cr) takes place via complex centers of the donor-acceptor pair type.

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USSR

UDC: 669.243.45

SHAMRO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. F., GOLGER, S. P., BONDARENKO, B. I., and PEKACH, V. F.

"Reduction Kinetics of Commercial Nickel Oxide in a Fluidized Bed Using Gas Mixtures as Reducing Agents"

Moscow, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

Abstract: Results of laboratory studies are presented on the reduction of sintered nickel oxide in a fluidized bed. The experiments were conducted in quartz reactors, 35-38 mm in diameter, with external electric heating. The degree of reduction of the material was measured by weight differences between the initial and reduced samples. Allowances were made for weight losses related to natural analysis of visual observations of the quality of fluidization and data on the beginning of conglomeration of the material, providing an optimum value of fluidization of $w_{fl} = 2$. The experimental.

USSR

SHAMRO, E. A., et al, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

results on reducing nickel oxide with hydrogen-carbon monoxide (H_2:CO=1:1) and hydrogen-methane (H_2:CH_4=2:1) mixtures have shown that the reduction capacity of hydrogen-carbon monoxide mixtures depends largely on hydrogen content since hydrogen is chemically more active. In the hydrogen-methane mixture both are fairly active reducing agents. Figures in the original article demonstrate the dependence of the degree of reduction on reduction duration with converted gas at various temperatures and the dependence of the degree of gas utilization on the duration of reduction with hydrogen at various temperatures. The gas utilization efficiency is a linear function of the height of the layer of material being reduced. It was found that the gas utilization efficiency in reduction with converted gas is higher than that with hydrogen.

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Nickel

USSR

UDC 669.24.492

BONDARENKO, B. I., PEKACH, V. F., SHAMPO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. F., and GOLGER, S. P.

"Fluidization of Industrial Nickel Powder"

Moscow, Tsvetnyye Metally, No 5, May 70, p 24

Abstract: The results of an experimental determination of the fluidization onset rate of nickel powder containing 5-6% Cu and 3% Fe, with 2010 kg/l bulk density and apparent weight of 5.36 kg/l, for various powder fractions are presented in tabular form, together with data on Reynolds (Re) and Fedorov numbers calculated for each test condition. An equation for determining the first critical rate of fluidization onset is derived on the basis of experimental data.

Graphite

USSR

UDC 661.666.2.002.3:539.431.1

VIRGIL'YEV, YU. S., KUROLENKIN, YE. I., MAKARCHENKO, V. G., and PEKAL'N, T. K., Moscow

"Dependence of the Strength Properties of Graphite On the Processing Temperature"

Kiev, Problemy Prochnosti, No 11, Nov 73, pp 43-46

Abstract: The article deals with the change of some strength properties of three carbon materials in relation to the processing temperature. The first two tested materials, GMZ and KPG, are based on KNPS petroleum coke. GMZ was baked at 1300°C, and KPG was unbaked. The third material, ER, is a composition of natural graphite with semicoke. The charge compositions of the first two materials are similar with respect to coarseness, but the structural features of KPG, owing to the use of unbaked coke, predetermined its higher strength characteristics in comparison to GMZ. A study was made of the temperature relationships, in the region of processing temperatures of 1300-3000° C, of the strength characteristics: compression strength, the modulus of elasticity, and the hardness of carbon materials, and the relationship of these characteristics to the crystalline structure. Decreased values of the indicated parameters were noted as the processing temperatures rose. A relationship was established between the strength and the diameter of the

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USSR

VIRGIL'YEV, YU. S., et al., Problemy Prochnosti, No 11, Nov 73, pp 43-46

region of coherent dispersion within the processing-temperature interval of 2000-3000°C, and an evaluation was made of the effect of the internal unit surface of the pores on the strength at temperatures below 2000°C. Three figures, two tables, sixteen references.

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USSR

UDC: 546.48'221:537.611.33

BULAKH, B.M., PEKAR', G.S., Institute of Semiconductors, Lengingrad, Academy of Sciences USSR

"Influence of Heat Treatment on Photoelectric Parameters of CdS single crystals"

Moscow, Neorganicheskiye Materialy, Vol 6, No 3, 1970, pp 553-555

Abstract: The influence of growth conditions and heat treatment of large CdS crystals gorwn by crystallization from the gas phase on their specific resistance and photosensitivity was studied. The crystals were grown in a device with a vertically moving furnace, which allows more even temperature fields to be produced and facilitates centering of the ampule relative to the furnace. The crystals were roasted under various conditions, including vacuum roasting, roasting under sulfur vapor pressure in a closed volume, roasting in an inert atmosphere with controlled sulful vapor pressure, roasting in a stream of inert gas, and roasting in CdS powder in a flowing inert atmosphere under sulfur vapor pressure. The crystals produced had ρ_t= 0.1-10 ohm-cm. The effects of the various roasting conditions on parameters of the crystals are discussed.

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1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF HEAT TREATMENT ON PHOTOELECTRIC PARAMETERS OF CADMIUM SULFIDE SINGLE CRYSTALS -U-

AUTHOR-(02)-BULAKH, B.M., PEKAR, G.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 553-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CADMIUM SULFIDE, SINGLE CRYSTAL, SULFUR, RESISTIVITY, PHOTOELECTRIC PROPERTY, THERMAL EFFECT, VACUUM ANNEALING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0899 STEP NO--UR/0363/70/006/003/0553/0555

CIRC ACCESSION NO--AP0118068

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118068

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF GROWTH CONDITIONS AND THERMAL TREATMENT OF COARSE CDS CRYSTALS GROWN BY CRYSTN. FROM THE GAS PHASE ON THEIR ELEC. RESISTIVITY AND PHOTOSENSITIVITY WAS STUDIED. THE CDS SINGLE CRYSTALS GROWN WERE 18-20 MM IN DIAM. AND 50-60 MM IN LENGTH. THE CRYSTALS WERE ANNEALED UNDER VARIOUS CONDITIONS: IN VACUUM, UNDER S VAPOR PRESSURE IN A CLOSED VOL., AND IN AN INERT ATM. AT CONTROLLED PRESSURE OF THE S VAPOR. THE CDS CRYSTALS GROWN HAD AN ELEC. RESISTIVITY OF 0.1-10 OHM-CM. EXCESS CD INCLUSIONS WERE OBSD. IN THE (0001) PLANE. DURING ANNEALING OF THE CRYSTALS, WHICH INCREASES THE ELEC. RESISTIVITY OF THE SAMPLES, THERE TAKES PLACE A FILLING UP OF THE S VACANCIES AND A REMOVAL OF EXCESS CD FROM THE CRYSTALS. RESULTS OF ANNEALING UNDER VARIOUS CONDITIONS ARE DISCUSSED.

UNCLASSIFIED

1/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF TEMPERATURE, ELECTRIC FIELD, AND ILLUMINATION ON THE ABSORPTION OF ULTRASOUND IN SBSI IN THE PHASE TRANSITION TEMPERATURE

AUTHOR-(05)-ZAPOROZHETS, O.I., LYAKHOVITSKAYA, V.A., PEKAR, S.I., POLOTSKIY, I.G., SILVESTROVA, I.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 671-2

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ULTRASONIC ABSORPTION, THERMAL EFFECT, ELECTRIC FIELD, PHASE TRANSITION, TRANSITION TEMPERATURE, PARAELECTRIC MATERIAL, FERROELECTRIC MATERIAL, ILLUMINATION, IODIDE, SULFUR COMPOUND, ANTIMONY COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0061 STEP NO--UR/0181/70/012/002/0671/0672

CIRC ACCESSION NO--AP0105158

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202410005-5"

2/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105158

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS MADE OF THE EFFECT OF TEMP., EXTERNAL STATIC ELEC. FIELD, AND ILLUMINATION ON ABSORPTION OF LONGITUDINAL ULTRASOUND VIBRATIONS IN SBSI CRYSTALS AT TEMPS. NEAR THE 1ST ORDER PHASE TRANSITION (SIMILAR TO 20DEGREES). THE DEPENDENCE IS GIVEN OF THE ABSORPTION COEFF. OF ULTRASOUND ON THE MAGNITUDE OF EXTERNAL ELEC. FIELD AT INITIAL TEMP. OF 17DEGREES AND AN ELEC. FIELD INCREASING AT 0.4 KV-MIN. THE ABSORPTION COEFF. INCREASES WITH INCREASING FIELD, PASSES THROUGH A MAX. AND STARTING WITH A FIELD OF 5 KV-CM, DECREASES. ILLUMINATION IN THE PRESENCE AND ABSENCE OF AN ELEC. FIELD DECREASES ABSORPTION BY LESS THAN 15PERCENT IN THE FERROELEC. PHASE AND HAS LITTLE EFFECT IN THE PARAELEC. PHASE. FACILITY: INST. METALLOFIZ., KIEV, USSR.

UNCLASSIFIED

Acc. Nr: AP0043761 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 854-864

THEORY OF STIMULATED RADIATIVE CHEMICAL REACTIONS IN GASES AND THE POSSIBILITY OF THEIR APPLICATION IN LASERS

V. A. Kochelap, S. I. Pekar

The contribution to the complex dielectric permeability of a gas mixture due to a radiative chemical reaction between the gases is calculated. The optical properties of the reacting gas mixture, including the light absorption coefficient or amplification coefficient, the chemiluminescence intensity and their dependence on frequency are determined. The formation of diatomic molecules from atoms is analyzed quantitatively. Self stimulation of the radiative chemical reaction by the light it emits is considered. It is shown that the reaction can be divided into two stages. 1) A relatively long period of

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REEL/FRAME 19770167

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photon accumulation in a very slow chemical reaction; 2) a subsequent short period during which a very rapid chemical reaction takes place. The possibility of employing a self-stimulated reaction in the chemical laser proposed in ref [8] is considered. Estimates show that in this type of laser with an initial atom concentration of 10^{19} cm^{-3} one should be able to obtain a light amplification coefficient of 1—10 $db \cdot cm^{-1}$, pulse reaction time 10^{-9} sec and power per cm^3 of the order of $3 \cdot 10^9$ W.

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19770168

Acc. Nr: AP0043640 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 1113-1118

ON THE THEORY OF INTERMOLECULAR INTERACTION AND THE EQUATION OF STATE OF AN EXCITED GAS

V. N. Malnev, S. I. Pekar

The thermodynamic functions and equation of state of a gas in which a certain number of atoms are maintained in the excited state at a given electron energy level are considered. Resonant dipole-dipole interaction only between atoms with different electron energies is taken into account. A virial expansion into powers of a small excited atom density and an arbitrary unexcited atom density is developed. Higher group integrals up to quadruple collisions inclusive are taken into account. The possibility of decomposition of the gas into two spatially separated phases with different relative amounts of excited atoms is discussed.

JPRS 59203
6-73

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IX-4a. STUDY OF GERMANIUM EPITAXY FROM A MOLECULAR BEAM IN A VACUUM THROUGH THE LIQUID PHASE

Article by A. I. Pekarev, Yu. P. Milashenko, A. N. Kotyukov, Yu D. Chistyakov, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 118]

A study was made of germanium epitaxy from a molecular beam in a vacuum [10^{-6} to 10^{-5} mm Hg] through a layer of previously formed liquid phase [tin, indium, gallium] on the surface of various substrates [germanium, silicon or gallium arsenide]. The best results were obtained for the case of germanium condensation through the alloy layer[tin-lead] on the surface of the mono-crystalline germanium substrate. This is explained by the best wetting conditions. The deposition of the metal creating the liquid phase was carried out at a substrate temperature of 70-100 degrees, subsequent pickling of the metal at a temperature of 300-500 degrees, and deposition of germanium through the liquid phase layer, at 300-400 degrees. The x-ray diffraction method of Kossel was used to estimate the variation of the crystal lattice parameter of the autoepitaxial layer of germanium on saturation of it with tin [0.87 atomic percent]. The possibility of creating microdiodes using the given process is demonstrated. The volt-ampere characteristics of the microdiodes 0.2mm in diameter [the n-type layer, the p-type substrate] are close to the characteristics of the all-purpose D1Ye and D1Zh germanium point-contact diodes. The results obtained indicate the prospectiveness of the given method of epitaxy for the creation of homojunctions and heterojunctions based on semiconductors.

PEKAREV, A. I.

Pharmacology and Toxicology

USSR

PEKARSKAYA, L. S., LAVRINOVICH, E. S.

"Mutagenic Effect of Drugs With Psychotropic Activity"

Minsk, V sb. Vopr. med. genet. i genet. cheloveka (Problems of Medical Genetics and Human Genetics--collection of works), Nauka i tekhn. Press, 1971, pp 162-166 (from RZh-Biologicheskaya Khimiya, No 23, Dec 71, Abstract No 23F2601)

Abstract: In experiments on Drosophila melanogaster, a study was made of the genetic effect of 11 drugs with psychotropic effect on "chemical" treatment of the males for the entire development cycle. The compounds E-136B (2,6-dimethyl-4-hydroxy-1,2,3,4-tetrahydroquinoline hydrochloride) and D-43 (2-methyl-4-hydroxy-1,2,3,4-tetrahyroquinoline base) are medium and weak mutagens for drosophila. The compounds E-314 and E-323 (p-hydroxyanilide hydrochlorides of B-morpholinopropionic and B-diethylaminopropionic acids) lower the frequency of occurrence of recessive sex-linked lethal mutations in Drosophila melanogaster by approximately two times.

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Acc. Nr: AP0047359 Ref. Code: UR0589

PRIMARY SOURCE: Vestnik Khirurgii imeni I. I. Grekova, 1970, Vol 104, Nr (1), pp 96-98

THE CRITERIA OF EFFICACY OF CENTRAL HEMODYNAMICS AND WAYS OF CORRECTION OF ITS IMPAIRMENT IN BURN SHOCK

Pekarskiy, D. Ye.; Sandomirskiy, B. P.

The study of main indices of blood circulation in 165 patients in a state of burn shock has demonstrated that central and venous pressure and the circulating blood volume, as well as the type of relationship between these values are reliable criteria in determining how to exercise the influence on and select the means of medication and infusion—transfusion therapy for correction of hemodynamic disturbances.

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REEL/FRAME
19790885

USSR

UDC 620.179.155

GORBUNOV, V. I., YELAGIN, V. B., and PEKARSKIY, G. Sh.

"Use of Fast Neutrons in Radiation Defectoscopy"

Moscow, Defektoskopiya, No 5, 1970, pp 53-56

Abstract: Results are presented from theoretical and experimental studies on the application of fast neutrons to defectoscopy. A defectoscope based on the use of fast neutrons is described and results are presented from testing of large thicknesses of lead and three-layered products. Evaluation of the economic effectiveness of the use of a neutron defectoscope for testing large thicknesses of lead shows that the cost of testing of one running meter is less than the cost of testing of the material with betatron defectoscopes beginning with lead thicknesses of 120 mm. A photograph of the new defectoscope, featuring strip-chart printout of results, is presented.

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1/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CALCULATION OF THE OPTIMUM THICKNESS FOR THE FRONT SCREEN IN A NEUTRON RADIOGRAPHIC TRANSFER METHOD -U-

AUTHOR--PEKARSKIY, G.SH.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 143-4

DATE PUBLISHED----------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NEUTRON IRRADIATION, SECONDARY ELECTRON, RADIOGRAPHY, METALLIC SCREEN, ELECTRON DETECTION, BETA SPECTRUM, GOLD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1646 STEP NO--UR/0139/70/013/003/0143/0144

CIRC ACCESSION NO--AT0133551

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AT0133551
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTIMUM THICKNESS OF THE SCREEN FOR MAX. ENERGY TRANSFER BY ELECTRONS WAS CALCD. AND THE EFFECT OF THE THICKNESS OF THE SCREEN AND THE SHARPNESS OF THE PICTURE WAS STUDIED ALLOWING FOR THE ENERGY LOSSES OF THE ELECTRONS IN THE SCREEN MATERIAL. THE RADIAL DISTRIBUTION OF THE ENERGY TRANSFERRED BY THE ELECTRONS FROM THE BACK SIDE OF THE SCREEN WITH A UNIDIRECTIONAL FLUX OF SLOW NEUTRONS ACTING ON IT WAS USED IN THE CALCN. THE FRONT SCREEN WAS MADE OF AU AND THE BETA SPECTRUM WITH E SUBMAX. EQUALS 0.96 MEV (99.9PERCENT) WAS ALLOWED FOR. CALCNS. WERE MADE FOR A SCREEN THICKNESS OF 0.005, 0.01, 0.02, 0.03, 0.04, 0.05, 0.07, 0.09, 0.12, 0.15, AND 0.19 MM. ALL RESULTS WERE NORMALIZED FOR ONE INCIDENT NEUTRON. THE OPTIMUM THICKNESS OF A SCREEN USED WITH A DETECTOR WHOSE SENSITIVITY IS PROPORTIONAL TO THE ENERGY FLUX OF THE ELECTRONS DIFFERS CONSIDERABLY FROM THE OPTIMUM SCREEN THICKNESS WHEN USED WITH A DETECTOR HAVING A SENSITIVITY PROPORTIONAL TO THE NO. OF ELECTRONS. THE BLURRING OF THE PICTURE IS EVALUATED BY DETG. THE DISTANCE AT WHICH THE TRANSFERRED ENERGY DECREASES BY A FACTOR OF 10 AND 100. IN NEUTRON RADIOGRAPHY THE ENERGY LOSS OF SECONDARY EMISSION IN THE SCREEN MATERIAL MUST BE ALLOWED FOR. FACILITY: TOMSK. POLITEKH. INST. IM. KIROVA, TOMSK, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF BULK DYEING ON THE PROPERTIES OF A KAPRON FIBER -U-

AUTHOR-(03)-PEKARSKIY, M.SH., PAKSHVER, A.B., BELENKIY, L.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (2), 74-6

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--DYE, CAPRONE, PIGMENT, TENSILE STRENGTH, FATIGUE STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0103 STEP NO--UR/0183/70/000/002/0074/0076

CIRC ACCESSION NO--AP0132396

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0132396
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF PIGMENTS (SUCH AS MINERAL PINK, MINERAL YELLOW, PHTHALOCYANINE BLUE, NYLOPHIL BLUE BL, AND CHANNEL BLACK) AND KAPROSOLS (E.G., BROWN 4K, RED K, AND SCARLET S) ON THE PROPERTIES OF KAPRON (I) FIBERS WERE STUDIED. THE DYES AFFECTED THE TENSILE STRENGTH, FATIGUE STRENGTH, AND PHOTOSTABILITY OF I FIBERS.

UNCLASSIFIED

USSR

UDC: 621.376.234

VILISOV, A. A., VYATKIN, A. P., MAKSIMOVA, N. K., MILOSERDOVA, L. I., and PEKARSKIY, Ye. N.

"Sensitivity of Gallium Arsenide Detector Diodes"

Kiev, Izvestiya VUZ - Radioelektronika, vol. 14, No. 5, 1971, pp 585-587

Abstract: This brief communication offers the results of research of the behavior of point contact and Schottky barrier diodes of electronic GaAs. In their experiments, the authors measured the sensitivity of the diodes in the three-centimeter wavelength range at a power level of 10 μW under short-circuit conditions. The tuning of the detector section or a matched transformer produced a standing wave ratio less than or equal to 2 to 2.5. The diodes tested had an electron concentration of from $1 \cdot 10^{16}$ cm^{-3} to $1 \cdot 10^{19}$ cm^{-3} for the point-contact, and a material of $n = 1 \cdot 10^{16}$ to $1.2 \cdot 10^{17}$ cm^{-3} for the Schottky barrier devices. The two types of diodes are compared with regard to their detector characteristics. Curves are given for the sensitivity of both types as functions of the bias current and the frequency. The experiments showed that the sensitivity of the diodes could be significantly increased by applying pulses of the proper shape.

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Semiconductors and Transistors

USSR

UDC 621.382.2

VYATKIN, A. P., MAKSIMOVA, N. K., PEKARSKIY, YE. N.

"Gallium Arsenide Schottky Barrier Pulse Diodes"

Kiev, Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 703-705

Abstract: Results are presented from a study of Schottky barrier diodes. The diodes were manufactured by electrochemical deposition of nickle on monocrystalline gallium arsenide with a charge carrier concentration of $n_0 = (3\text{-}5) \times 10^{16}$ cm^{-3}. Diodes with a diameter of the rectifying contacts of 10 microns were obtained by means of photolithography. The diodes were assembled in cermet cases with a capacitance of 0.12-0.18 picofarads. The volt-ampere characteristics and volt-capacitance characteristics of the diodes are plotted. The frequency dependence of the barrier capacitance is plotted for different junction biases. The differential resistance of the pulse diode and the parameters τ_b and Q_n are plotted as functions of the forward current. The studies demonstrated that the capacitance of the diodes does not depend on frequency in the frequency range from 465 kilohertz to 45 megahertz, the differential resistance of the diodes decreases with an increase in the forward current and reaches saturation at

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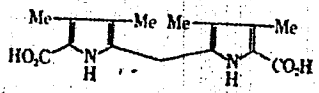
VYATKIN, A. P., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 703-705

currents of 5-10 milliamps. The speed of the diodes was estimated by measuring the recovery time of the inverse resistance τ_b and the switching charge Q. The recovery time of the developed gallium arsenide Schottky barrier pulse diodes does not exceed 0.3-0.5 nanoseconds. The data again confirm the conclusion that the current is carried by the basic charge carriers in diodes of the investigated type and the speed of the diodes is determined by their structural parameters.

2/2

Acc. Nr: AP0101487 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code: UR0079

121502k Synthesis of metallic complexes of decamethyltetradehydrocorrin. Melent'eva, T. A.; Pekel, N. D.; Berezovskii, V. M. (Vses. Nauch.-Issled. Vitam. Inst., USSR). *Zh. Obshch. Khim.* 1970, 40(1), 165–71 (Russ). Electronic and NMR spectra were reported for perchlorates of Ni and Co complexes of the title substance as well as dicyanides of the Co complex. Treating 20 g 2-carbethoxy-3,4,5-trimethylpyrrole in AcOH with 56 g $Pb(OAc)_4$ 3 hr gave 80% 2-carbethoxy-3,4-dimethyl-5-(acetoxymethyl)pyrrole, m. 98–100°, which refluxed with alc. HCl 1 hr gave 36% bis(3,4-dimethyl-5-carbethoxypyrr-2-yl)methane, m. 196–7°, which, heated 3 hr with NaOH in aq. EtOH, gave 35% in fusible free acid (I). Reaction of HCN with 3,4,5-trimethylpyrrole and hydrolysis gave 63% 2-formyl-3,4,5-trimethylpyrrole, m. 145–6°. This (1.5 g) and 17 g I in MeOH-HBr 20



(I)

min gave 90% 1,2,3,7,8,12,13,17,18,19-decamethyl-*ac*-biladiene, did not m. <250°, which heated with $Ni(OAc)_2$ and NaOAc in MeOH 5 min gave a chelate Ni complex, which suspended in MeOH contg. $Ni(OAc)_2$ and refluxed with aeration 1 hr gave,

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after addn. of $NaClO_4$, 44% perchlorate of Ni complex of 1,2,3,-7,8,12,13,17,18,19-decamethyltetradehydrocorrin, violet infusible solid. Similar reaction with $Co(OAc)_2$ gave the perchlorate of the Co complex, black solid, which with NaCN in hot EtOH gave dicyanide of the Co complex a gray-green solid.

G. M. Kosolapoff

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BS

19851394

UDC 621.316.722.1(088.8)

USSR

PEKELIS, V.G., ROMANOVSKIY, V.I.

"Series Type Voltage Regulator"

USSR Author's Certificate No 261475, filed 11 July 68, published 22 May 70 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B552P)

Translation: A circuit is proposed for a d-c voltage regulator with a series regulator transistor and a d-c amplifier, in which with the object of increasing the stabilization factor, the input of the d-c amplifier is connected with the base of the regulator transistor. The amplifier is fed from a stabilitron, one end of which is connected to the output of the regulator. The stabilitron is fed across a resistor from the input voltage of the regulator. 1 ill. S.D.

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UDC 621.316.722.1(088.8)

USSR

PEKELIS, V.

"The Man Who Couldn't Say No"

Moscow, Nauka i Zhizn', No 6, 1973, pp 52-53

Abstract: Despite the prevailing geocentric attitude -- that life can exist only on planets affording habitation conditions similar to those of earth, 20 years ago G. A. Tikhov founded astrobotany and has developed it into a recognized interdisciplinary space science. He hypothesized that the laws of life are the same in nature throughout the Universe and differ only in manifestation, that adaptability to the environment is extremely great, and that plants can adapt optically to environmental conditions. Consequently he argued that plant life can exist in environments differing from those of earth. He suggested that astrobotany need not be a theoretical science and began to experiment with simulated extraterrestrial environments. Although in retrospect some of his initial research and conclusions appear unsophisticated and debatable, his pioneering efforts have earned him and his concepts international recognition.

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USSR

UDC: 539.142

PEKER, L. K.

"Concerning the Particulars of Splitting of a Multiplet of Configuration $\{j_1^{+1};j_2^{+1}\}$"

Moscow, Izv. AN SSSR, Ser. Fiz., Mat. XXII Yezhegod. soveshch. po yadern. spektroskopii i strukture atom. yadra, Kiev, 25-28 yanv. 1972, Vol 36, No 4, Apr 72, pp 913-916

Abstract: The author investigates the spin dependence of the experimental values of the energy of the levels $E = E(I)$ in a multiplet of the simplest two-particle configuration $\{j_1^{+1};j_2^{+1}\}$. It is found that the energies of the multiplet levels lie on two different smooth curves for even and odd nuclear spins I. Particle-particle (hole-hole) and particle-hole configurations can be readily distinguished from the behavior of the curves. Admixtures of other configurations, collective levels, and so forth distort both theoretical curves in various ways, and the violation of Brennan-Bernstein rules for the spins of ground states of multiplets can be attributed to such deformations. It may be assumed on the basis of this research that if any of the levels attributed to a multiplet of the given type does not fall on

USSR

PEKER, L. K., Izv. AN SSSR, Ser. Fiz., Vol 36, No 4, pp 913-916

the corresponding smooth curve, then it does not belong to the given multiplet. All the results of this investigation are applicable to the properties of multiplets of two-particle configurations, not only for odd-odd nuclei but also for even-odd nuclei as well. The author thanks L. A. Sliv and Yu. I. Kharitonov for constructive criticism. Two figures, bibliography of thirteen titles.

2/2

USSR

UDC 539.14.144.3

PEKER, L. K.

"Concerning the Possible Nature of the Isomeric States of ^{135}Te and ^{133}Sn"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 4, 1971, p 855

Translation: Between the properties of light nuclei with Z, $N \gtrsim 20$ and heavy nuclei with $N \gtrsim 82$ there can be some analogy, since in each case close to the Fermi surface are situated the levels $s\frac{1}{2}$; $d\frac{3}{2}$, and $f\frac{7}{2}$ ($2s\frac{1}{2}$, $1d\frac{3}{2}$, $1f\frac{7}{2}$ in nuclei with Z, $N \gtrsim 20$; and $3s\frac{1}{2}$, $2d\frac{3}{2}$, $2f\frac{7}{2}$ in nuclei with $n \gtrsim 82$). In particular, such an analogy in odd nuclei may be manifested in the fact that as in nuclei with Z, $N \approx 21$, 23, in heavy nuclei with N = 83, 85 in the vicinity of the fundamental states $f\frac{7}{2}$ there will "anomalously" exist low levels of positive parity with $I^{\pi} = \frac{3}{2}^+$, $\frac{1}{2}^+$, which in light nuclei are interpreted as hole levels $d\frac{3}{2}$, $s\frac{1}{2}$ in the filled shell. These levels must be isomeric, since they are linked to the fundamental state $f\frac{7}{2}$ by a γ - transition of the M2 type. Recently in the investigation of fission fragments in the $^{135}_{52}Te_{83}$ nucleus there was detected a γ-transition of 321 kev from the isomeric level with

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USSR

PEKER, L. K., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 4, 1971, p 855

[Gruter, J. W., Sistemich, K., Armbruster, P., Eidens, J., Lawin, H., Conf. on the properties of Nucl. far from the region of the β-stability, Leysin, Switzerland, 1970, Abstracts.] This value of $T_{\frac{1}{2}}$ corresponds best of all to the multipolarity of the transition 321 kev -- M2 (with a delay factor F $\approx$ 5 -- 10), if this transition proceeds from the isomeric level specifically. (With a different multipolarity, this transition would be very greatly retarded or accelerated.) Combining these data with what has been said above, one should identify the transition 321 kev with the transition $d_{\frac{3}{2}} \rightarrow f_{\frac{7}{2}}$ and, consequently, identify the isomeric level ^{135}Te 321 kev with the whole neutron state $d_{\frac{3}{2}}$. In the same reference above it is noted that the isomer with $T_{\frac{1}{2}} = 0.5 \pm 0.3$ microseconds has been found in $^{131}_{50}Sn_{81}$, ^{132}Sn, and ^{133}Sn. On the basis of systematized data, we think that the existence of such short-lived isomers in ^{131}Sn or ^{132}Sn nuclei is highly improbable and, consequently, that the observed isomeric state pertains to ^{133}Sn. Possibly it is analogous to the above-considered isomeric state ^{135}Te and is also a hole neutron state $d_{\frac{3}{2}}$. 1 bibliographic entry.

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USSR

UDC 539.14.144.3

PEKER, L. K., VOLNYANSKIY, E. I., VORONKOV, Yu. P., KAZAKOV, A. L.

"Concerning the Causes of Lowering of the Levels $s\frac{1}{2}$ and $d\frac{3}{2}$, Caused by Holes in Filled Shells"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 4, 1971, pp 856-857

Abstract: Since, according to results of recent research, lowering of the hole level in light nuclei is linked to a large amount of particle-hole interaction, an attempt is made to ascertain the role of such interaction in lowering of the hole levels in heavy nuclei. It is found that whereas in light nuclei the effect of lowering of the hole levels is determined by particle-hole interaction, in heavy nuclei it is determined by the effect of rearrangement of the nuclon shells. The possible causes of the decrease of particle-hole interaction in heavy nuclei are enumerated. An important cause of the weakening of particle-hole interaction in heavy nuclei is the fact that in such nuclei the particle-hole interaction is reduced to an interaction of the p -- p type, whereas in light nuclei an important part is played by interactions of the n -- p type. 1 table, 7 bibliographic entries.

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USSR

PEKER, L. K.

"One Effect of pn-Interaction in Odd Nuclei"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 8, Aug 70, pp 1727-1731

Abstract: Residual pn-interaction which eliminates degeneration in multiplets of two-particle configurations of odd-nuclei and three-particle configurations with a fixed angular momentum of 2 protons is studied. This interaction is responsible for the shift of levels with energy E(I) in these multiplets relative to their center of gravity E_c. The magnitude of this shift $\Delta E(I) = E(I) - E_c$ is analyzed to obtain information on pn-interaction in nuclei. It is noted that the shift of the lower level of the multiplet ΔE_H is especially interesting, since it gives an indication of the intensity of this interaction. It is shown that in the case of configurations in which the proton and neutron are in states with $j_p = 1 \pm 1/2$ and $j_n = 1 \pm 1/2$, the shift ΔE_H is considerably greater than for other configurations.

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1/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SOME GENERAL PROPERTIES OF THREE AND MORE PARTICLE STATES WITH LARGE SPIN -U-

AUTHOR-(03)-KHARITONOV, YU.I., PEKER, L.K., SLIV, L.A.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS (NETHERLANDS), VOL. 31B, NO. 5, P. 277-9 (2 MARCH 1970)

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE PHYSICS, NUCLEAR SPIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0658 STEP NO--NE/0000/70/000/005/0277/0279

CIRC ACCESSION NO--AP0111751

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0111751

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES ARE CONSIDERED OF THE LEVELS ARISING FROM SPLITTING OF THE CONFIGURATION (J PRIME3) CAUSED BY RESIDUAL INTERACTIONS. THE DOUBLET SPLITTING OF THE (J PRIMEN SJ, J EQUALS ONE HALF) CONFIGURATION IS SHOWN TO DEPEND ON THE STRENGTH OF SINGLET FORCES AND TO BE PROPORTIONAL TO (2J PLUS 1). FACILITY: ACAD. SCI. USSR. LENINGRAD.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--GENERAL PROPERTIES OF THREE AND MORE PARTICLE STATES WITH LARGE SPIN -U-

AUTHOR-(03)-KHARITONOV, YU.I., PEKER, L.K., SLIV, L.A.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETT. B 1970, 31(5), 277-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR ENERGY LEVEL, SPIN SYSTEM, MULTIPLET SPLITTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1052 STEP NO--NE/0000/70/031/005/0277/0279

CIRC ACCESSION NO--AP0124710

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0124710
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONFIGURATIONS OF THE (J PRIME3) TYPE ARE SPLIT BY RESIDUAL FORCES FORMING MULTIPLETS OF LEVELS WITH SPINS J RANGING FROM J SUBMIN. EQUALS THREE HALVES TO J SUBMAX. EQUALS 3J-3. THE DOUBLET SPLITTING OF THE (JNSJ, J SUB1 EQUALS ONE HALF) CONFIGURATION DEPENDS ON THE STRENGTH OF SINGLET FORCES AND IS PROPORTIONAL TO (2J PLUS 1). FACILITY: A. F. IOFFE PHYS. TECH. INST., LENINGRAD, USSR.

UNCLASSIFIED

USSR

PEKERMAN, Z. M., KALIMOV, K. Z. UDC 539.3

"On Large Bends of Orthogonal Panels Rectangular in Plan"

V sb. Issled. po teorii plastin i obolochek. No. 9 (Studies in the Theory of Plates and Shells. No. 9 -- Collection of Works), Kazan', Kazan' University, 1972, pp 228-246 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V110)

Translation: The solution of the problem of large bends of a hollow rectangular orthotropic shell under the action of a uniform external pressure and axial compression is discussed. Two cases of support are considered: free and hinge fixed. The bending and the stress function are found in trigonometric series by the Bubnov method. Biharmonic terms enter into the stress function such that both the kinematic and static boundary conditions and also the equations for conjunction of deformations are satisfied exactly. The solution has rapid convergence, making it possible to restrict oneself to one or two terms of the Fourier series. N. V. Kolkunov.

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USSR

UDC 576.851.513.095.57.095.18

STOLYAROVA, L. G., USAKOVSKAYA, T. S., TSEYTLIN, P. I., and PEKHOV, A. P.,
Institute of Experimental Biology, Academy of Medical Sciences USSR, Moscow

"The Effect of Nitrous Acid on the Capacity of DNA to Inhibit Transformation of Bac. subtilis"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 3, 1970, pp 81-84

Abstract: The effect of nitrous acid on the capacity of DNA to inhibit transformation of Bac. subtilis was studied using calf thymus DNA treated with a 2 M solution of $NaNO_2$ for 20, 40, and 60 min. In control experiments, the effect of $NaNO_2$ on the transformation activity of DNA was studied. It was determined that 20 min treatment of DNA with $NaNO_2$ augments its inhibiting activity. Longer treatment reverses the order, so that after a 60 min treatment, the inhibition process is completely suppressed.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THE ISOLATION OF HELA AND AM,I MUTANT CELLS RESISTANT TO ANALOGUES OF NITROUS BASES -U-

AUTHOR-(03)-PEKHOV, A.P., STOLYAROVA, L.G., YERSHIKOVA, YU.YE.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 6, PP 91-94

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TISSUE CULTURE, TUMOR, CULTURE MEDIUM, PURINE, PYRIMIDINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0566 STEP NO--UR/0219/70/049/006/0091/0094

CIRC ACCESSION NO--AP0131189

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131189

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS INVESTIGATED THE SENSITIVITY OF CULTIVATED CELLS OF HELA AND AM-I STRAINS TO ANALOGUES OF PURINE AND PYRIMIDINE BASES (8-AZAXANTHIN, HYPOXANTHIN, ADENINE, 2,6-DIAMINOPURINE SULFATE, 5-BROMURACYL, GUANOZINE-2,3-PHOSPHATIDIC ACID, INOSINE, 8-AZAADENINE, 8-AZAGUANINE, GUANOZINE-2,3-BARIUM PHOSPHATE). IT IS SHOWN THAT HELA AND AM-I CELLS ARE SENSITIVE ONLY TO 8-AZAGUANINE AND 2,6-DIAMINOPURINE SULFATE. SPONTANEOUS MUTANTS OF HELA AND AM-I CELLS RESISTANT TO 8-AZAGUANINE (IN A CONCENTRATION OF 4 MU G-ML) WERE ISOLATED. FACILITY: INSTITUTE OF EXPERIMENTAL BIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MATHEMATICAL EVALUATION OF THE VASCULAR TONUS IN PRACTICALLY HEALTHY PERSONS -U-

AUTHOR-(02)-PEKHTEREV, A.G., TKACH, V.K.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 52-55

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARDIOVASCULAR SYSTEM, BLOOD VESSEL, ELASTICITY, BIOLOGIC AGING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1600 STEP NO--UR/0475/70/000/004/0052/0055

CIRC ACCESSION NO--AP0127091

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127091

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELASTIC PROPERTIES OF THE VASCULAR WALL HAVE BEEN STUDIES IN 62 PRACTICALLY HEALTHY PERSONS BY MEANS OF QUANTITATIVE ANALYSIS OF SPHYGOMOGRAMS OF THE RADICAL ARTERY. AN ORIGINAL METHOD HAS BEEN EMPLOYED BASED ON SHANON'S FORMULA USED IN INFORMATION THEORY. RESULTS INDICATED THAT THIS METHOD ALLOWS TO MAKE A QUANTITATIVE ANALYSIS BASED ON MATHEMATICAL EVALUATION OF PULSE WAVE ENTROPY. ENTROPY COUNT ENABLED TO EVALUATE AGE PECULIARITIES (DISORDERS) OF THE VASCULAR TONUS. FACILITY: VINNITSKIY MEDITSINSKIY INSTITUT.

UNCLASSIFIED

1/3 032 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--MECHANISM OF ELECTRICAL CONDUCTIVITY OF CARBONIZED MATERIALS BASED ON PETROLEUM COKE -U-
AUTHOR-(03)-PLECHEV, V.N., PEKIN, P.V., SHULEPOV, S.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TVERD. TOPL. 1970, (2), 120-4

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ACTIVATION ENERGY, COKE, PETROLEUM PRODUCT, ENTHALPY, HALL EFFECT, CHEMICAL REACTION MECHANISM, ELECTRICAL CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1849 STEP NO--UR/0467/70/000/002/0120/0124

CIRC ACCESSION NO--AP0130679
UNCLASSIFIED

2/3 032 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0130679

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESISTIVITY RHO AND THERMAL EMF. COEFFS. ALPHA AT 100-1100DEGREESK WERE MEASURED AND HALL CONSTS., ACTIVATION ENERGIES DELTAE SUB1 AND DELTAE SUB2, ELEC. CURRENT CARRIER CONCNS. N, AND EFFECTIVE MOBILITIES MU WERE CALCD. FOR POWD. PETROLEUM COKE COAL TAR PITCH MIXTS. SINTERED AT 870-2720DEGREESK. THE TEMP. COEFFS. OF RHO WERE NEG. DELTAE SUB1, THE THERMAL ACTIVATION OF THE ELECTRONS FROM THE VALENCE TO THE COND. ZONE, AND DELTAE SUB2, THE ENTHALPY OF ACTIVATION OF ELECTRON MOBILITY, DECREASED WITH INCREASING TEMP. FROM 0.57 AND 0.120 EV AT 870DEGREESK TO 0.20, 0.09, 0.043 AND 0.002, 0.001, AND 0.001 EV AT 1690, 2070, AND 2470DEGREESK. FOR SAMPLES PREPD. AT THE EXTREMES OF THE TEMP. RANGE, ALPHA SHOWED SHARP MAX. (40 AND 8 MUV-DEGREESK AT 200-400DEGREESK FOR SAMPLES CARBONIZED AT 950 AND 2720DEGREES, RESP.), THE POSITIONS OF WHICH DEPENDED ON THE CARBONIZATION TEMP., WHEREAS, FOR THOSE PREPD. AT 1373 AND 1910DEGREESK, ALPHA INCREASED STEADILY BUT MUCH MORE GRADUALLY THE LOWER THE CARBONIZATION TEMP. THE HALL CONSTS. WERE 8, 3.8, 1.5, MINUS 1.7, MINUS 2, MINUS 3.4, 3.5, 11.5, 21.5, 13.8, AND 4.0 CM PRIME3 COULOMB AT 970, 1070, 1170, 1370, 1570, 1690, 1910, 2070, 2270, 2470, AND 2720DEGREESK. AT 870 TO 1000DEGREESK, MU WAS SMALLER THAN 1 CM PRIME2-V-SEC AND THE JUMP MECHANISM WAS APPLICABLE; ABOVE 1000DEGREESK, MU WAS GREATER THAN 1 CM PRIME2-V-SEC AND THE ZONAL MECHANISM WAS VLID.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

3/3 032

CIRC ACCESSION NO--AP0130679

ABSTRACT/EXTRACT--REFLECTING THE DEGREE OF FILLING OF THE VALENCE ZONE AND ACTIVATION OF PI ZONE ELECTRONS, THE VARIATION OF N WITH GRAPHITIZATION TEMP. SHOWED TWO MAX. AT SIMILAR TO 1250 AND 1800DEGREESK, BETWEEN WHICH COND. RESULTED FROM ELECTRON CURRENT AND BELOW AND ABOVE WHICH IT RESULTED FROM HOLE CURRENT. FACILITY: CHELYABINSK. GOS. PEDAGOG. INST., CHELYABINSK, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EXPERIMENTAL PROOF ON THE APPLICABILITY OF A FOURTH DEGREE POLYNOMIAL FOR DESCRIBING THE SURFACE OF EQUALLY CRITIAL PLANE STRESSED

AUTHOR-(02)-ASHKENAZI, YE.K., PEKKER, F.P.

COUNTRY OF INFO--USSR

SOURCE--MEKH. POLIM. 1970, 6(2), 284-94

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CALCULATION, MECHANICAL STRENGTH, GLASS FIBER, REINFORCED PLASTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1120 STEP NO--UR/0374/70/006/002/0284/0294

CIRC ACCESSION NO--AP0124775

UNCLASSIFIED

2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0124775 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE 4TH DEGREE POLYNOMIAL WHICH WAS PROPOSED EARLIER (E. K. ASHKENAZI, 1967) FOR THE ENGINEERING CALCN. OF THE STRENGTH OF GLASS FIBER REINFORCED PLASTIC TUBING WAS TESTED EXPTL. ONLY THE TENSILE STRENGTHS AT YIELD IN PARALLEL, AT 45DEGREES, AND AT 90DEGREES TO THE TUBE AXIS AND THE SHEAR MODULI OF THE SAMPLES ARE REQUIRED TO OBTAIN THE LONG TERM DURABILITY. FACILITY: LENINGRAD. LESOTEKH. AKAD. IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

Acc. Nr.: AT0046532

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Ref. Code: UR 0144

USSR

UDC 621.318.562.001.24

PEKKER, IOEL' IOSIFOVICH, Candidate of Technical Sciences, Acting Professor, Head of the Department of Automation and Telemechanics of the Novocherkassk Polytechnical Institute, SAMSONOV, BORIS BORISOVICH, Postgraduate of Novocherkassk Polytechnical Institute

"Calculating Switching Circuits with Parallel-Capacitive Commutation of Thyristors"

Novocherkassk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika (News of the Institutions of Higher Learning, Electromechanics), No 1, 1970, pp 73-78 (from Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, No 1, 1970, p 114).

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Reel/Frame
19781791

AT0046532

Translation: A class of switching circuits with parallel-capacitive commutation of the thyristors is analyzed under the assumption that a thyristor is an ideal breaker switch. The basic calculational relations are derived for the case of an active-inductive load and considering the specifics of operation of the circuits as single and multiple-link DC power commutators. There is 1 table, 4 illustrations and a 4-entry bibliography.

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19781792

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PROTOPOPOVA, G. V., NESTERENKO, N. I., NESYNOV, Ye. P., BESPROZVANNAYA, M. M., and PEK'KIS, P. S.

UDC 632.95

"Insecticide Activity of Some Arylhydrazones and Aryl Esters E of Iminothioacids for Rice Weevils and for Grain and Chard Aphids"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiological Effects of Compounds, Republic Interscience Symposium), Vyp 4, 1972, pp 68-71 (from Referativnyy Zhurnal -- Khimiya, No 4(II), 1973, Abstract No 4N613 by T. A. Belyayeva)

Abstract: Insecticidal properties of the compounds $PhN{=}C(CN)SC_6H_4R$ (compound I), $PhN{=}C(NHPh)SC_6H_4R$ (compound II), $(EtOOC)_2C{=}NNHC_6H_4R$ (compound III), and the 2-arylthiobenzazols were determined. The highest insecticidal activity for the rice weevils was shown by I (R = p-Me), 67% mortality for a 1% concentration; I (R = p-Br), 94% mortality; II (R = m-Cl), 100% mortality; 2-parachlorophenylthiobenzothiazole, 95% mortality for a 0.1% concentration; and III (R = o-OMe), 100% mortality. It should be noted that for the stereoisomers, the insecticidal properties are stronger for the β-form than the α-form.

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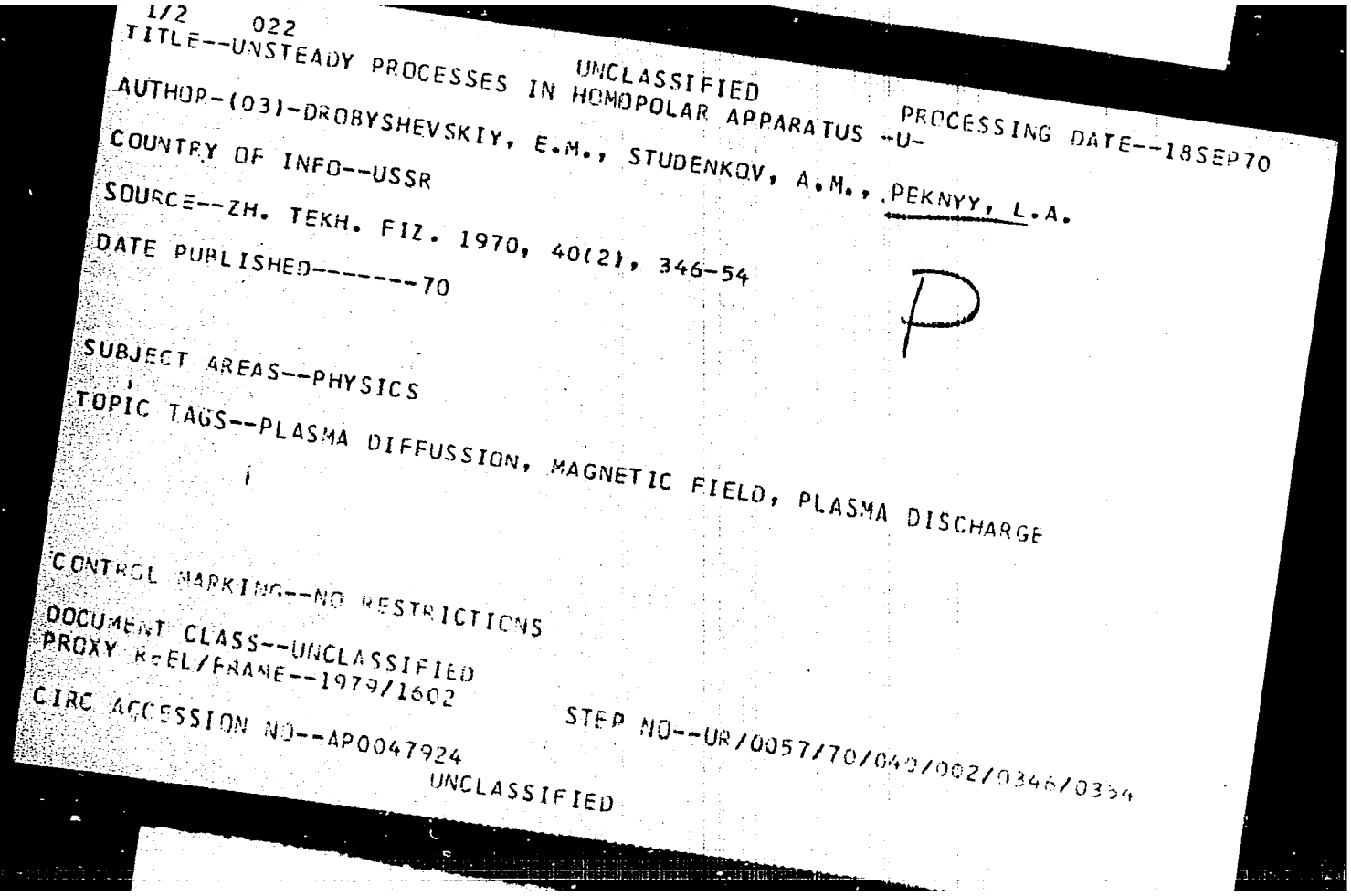


1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--UNSTEADY PROCESSES IN HOMOPOLAR APPARATUS -U-

AUTHOR-(03)-DROBYSHEVSKIY, E.M., STUDENKOV, A.M., PEKNYY, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(2), 346-54

DATE PUBLISHED-------70

P

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA DIFFUSSION, MAGNETIC FIELD, PLASMA DISCHARGE

CONTROL MARKING--NO RESTRICTIONS

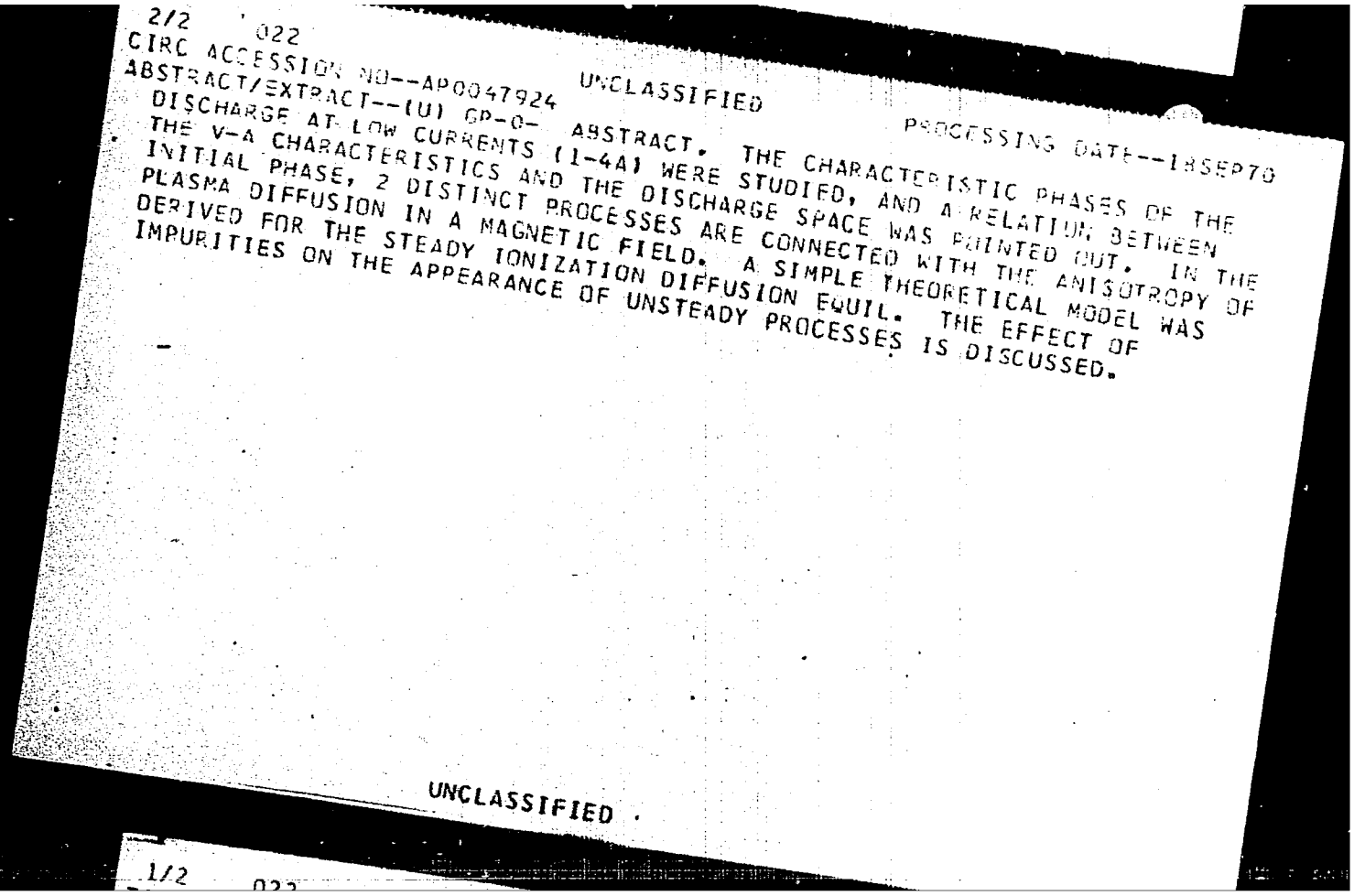
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/1602

STEP NO--UR/0057/70/040/002/0346/0354

CIRC ACCESSION NO--AP0047924

UNCLASSIFIED



2/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0047924

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTERISTIC PHASES OF THE DISCHARGE AT LOW CURRENTS (1-4A) WERE STUDIED, AND A RELATION BETWEEN THE V-A CHARACTERISTICS AND THE DISCHARGE SPACE WAS POINTED OUT. IN THE INITIAL PHASE, 2 DISTINCT PROCESSES ARE CONNECTED WITH THE ANISOTROPY OF PLASMA DIFFUSION IN A MAGNETIC FIELD. A SIMPLE THEORETICAL MODEL WAS DERIVED FOR THE STEADY IONIZATION DIFFUSION EQUIL. THE EFFECT OF IMPURITIES ON THE APPEARANCE OF UNSTEADY PROCESSES IS DISCUSSED.

UNCLASSIFIED

1/2 022

USSR

PEKSHEVA, N. P., et al., Zashchita Metallov, Vol 8, No 6, pp 708-711

from the time the specimen is placed in the liquid. At 75% H_2SO_4 a yellow film is formed on the surface after 20 to 25 hours which makes the metal resistant for 200 hours. In a 60% solution of H_2SO_4 the weight losses of the Ti without the yellow film reached 3.25 g/m^2 in 4 hours while the metal with the yellow film is resistant for 320 hours.

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USSR

PEKSHEVA, N. P., VORONTSOV, YE. S., Voronezh Polytechnic Institute

UDC 620.193.01:669.29

"Corrosion Resistance of Titanium Coated with Interference-Colored Oxide Film"

Moscow, Zashchita Metallov, Vol 8, No 6, 1972, pp 708-711

Abstract: A study was made of the corrosion resistance of technical titanium type OT4-0 (Ti 98.14%, Fe 0.3%, C 0.1%, Al 0.2%, N_2 0.15%, O_2 0.15%, H_2 0.01%, Mn 0.2%, Si 0.15%, Zr 0.3%) in specimens 25 x 10 x 1.5 mm coated with an interference-colored oxide film. The specimens investigated were coated with a dark yellow oxide film with the first order spectrum (~358 Å). In HCl and H_2SO_4 solutions of different concentration, the weight of the specimens remained constant while the colored film remained on them. Thus, the coloring of the film is an indicator which makes it possible precisely to fix the beginning of solution of the metal. In a 22% solution of HCl, the weight losses of the polished titanium reach 2.395 grams/m^2 in 4 hours, but with the yellow film the weight losses were 0 for 408 hours.

In H_2SO_4 solutions with a 20-45% concentration the corrosion of the polished specimens was insignificant at first but after an induction period it increased rapidly. With a concentration of 55-96.5% the corrosion is observed

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USSR

UDC 616.155.3-008.1-07:612.766.2

FEDOROV, I. I., FEDOROVA, Z. P., PEKUS, YE. N., and SAKUN, T. L., Kiev Institute for the Advanced Training of Physicians and Kiev Institute of Medical Problems of Physical Culture

"Change in Leukocyte Stability in Hypodynamia"

Kiev, Vrachebnoye Delo, No 4, 1972, pp 44-46

Abstract? Leukocytolysis was studied in rats and humans subjected to hypokinesia for 30 days. Leukocyte stability decreased markedly in rats immobilized in specially constructed cages for 30 days. Whereas leukocytolysis averaged 8% in the controls, it c increased more than threefold in the experimental animals, averaging 25.4%. In 6 human subjects kept in bed with limited motor activity, leukocyte stability began to decrease by days 10 to 14. Leukocytolysis was twice as high as the original level in half the subjects and somewhat lower in the others. The destruction of leukocytes continued for several days after the experiment was concluded. For example, in one person the original value was 18%; 10 to 14 days after the start of hypokinesia it was 35.8, increasing to 54.5 one month later and remaining high (49.2) for 2 weeks after the end of hypokinesia. Leukocytolysis was accompanied by changes inthe digestive function of neutrophils. A brief period of stimula-

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USSR

FEDOROV, I. I., et al., Vrachbnoye Delo, No 4, 1972, pp 44-46

tion of phagocytosis was followed by prolonged inhibition, weakening both nonspecific resistance to infection and specific immunologic reactivity.

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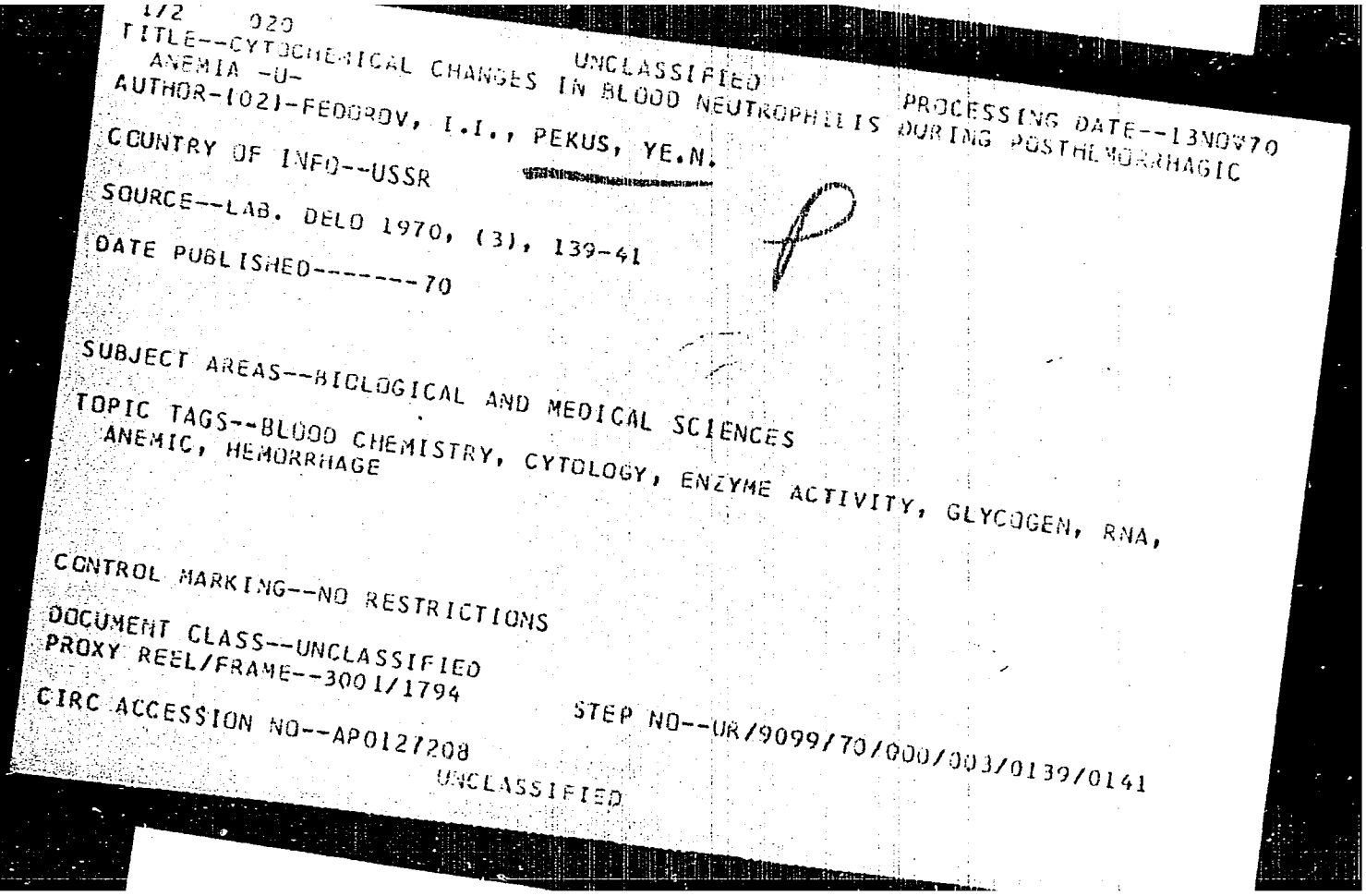
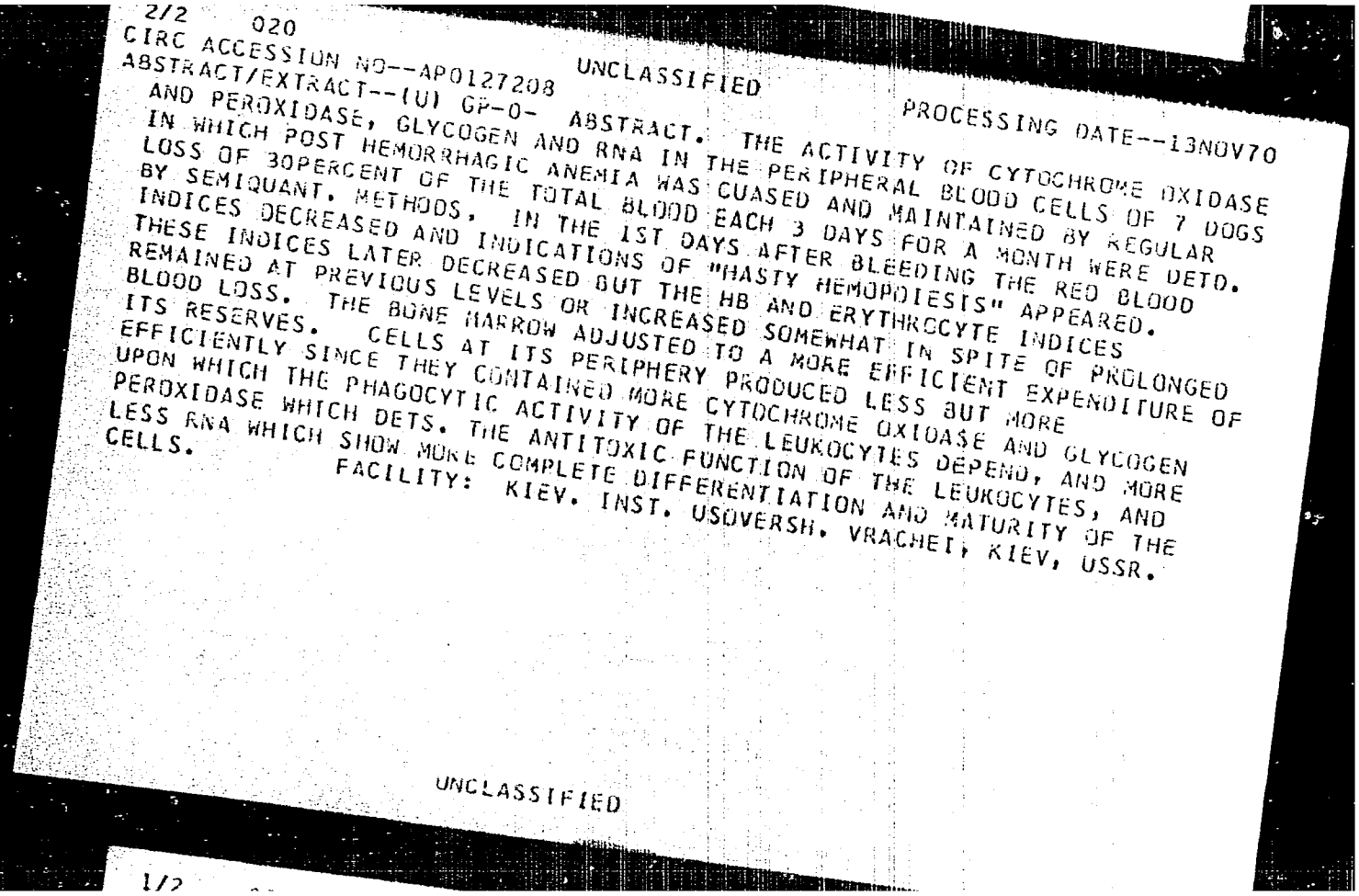


1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CYTOCHEMICAL CHANGES IN BLOOD NEUTROPHILES DURING POSTHEMORRHAGIC ANEMIA -U-
AUTHOR-(02)-FEDOROV, I.I., PEKUS, YE.N.
COUNTRY OF INFO--USSR
SOURCE--LAB. DELO 1970, (3), 139-41
DATE PUBLISHED-------70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BLOOD CHEMISTRY, CYTOLOGY, ENZYME ACTIVITY, GLYCOGEN, RNA, ANEMIC, HEMORRHAGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1794
STEP NO--UR/9099/70/000/003/0139/0141
CIRC ACCESSION NO--AP0127208
UNCLASSIFIED



2/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0127208
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTIVITY OF CYTOCHROME OXIDASE AND PEROXIDASE, GLYCOGEN AND RNA IN THE PERIPHERAL BLOOD CELLS OF 7 DOGS IN WHICH POST HEMORRHAGIC ANEMIA WAS CUASED AND MAINTAINED BY REGULAR LOSS OF 30PERCENT OF THE TOTAL BLOOD EACH 3 DAYS FOR A MONTH WERE DETD. BY SEMIQUANT. METHODS. IN THE 1ST DAYS AFTER BLEEDING THE RED BLOOD INDICES DECREASED AND INDICATIONS OF "HASTY HEMOPOIESIS" APPEARED. THESE INDICES LATER DECREASED BUT THE HB AND ERYTHROCYTE INDICES REMAINED AT PREVIOUS LEVELS OR INCREASED SOMEWHAT IN SPITE OF PROLONGED BLOOD LOSS. THE BONE MARROW ADJUSTED TO A MORE EFFICIENT EXPENDITURE OF ITS RESERVES. CELLS AT ITS PERIPHERY PRODUCED LESS BUT MORE EFFICIENTLY SINCE THEY CONTAINED MORE CYTOCHROME OXIDASE AND GLYCOGEN UPON WHICH THE PHAGOCYTIC ACTIVITY OF THE LEUKOCYTES DEPEND, AND MORE PEROXIDASE WHICH DETS. THE ANTITOXIC FUNCTION OF THE LEUKOCYTES, AND LESS RNA WHICH SHOW MORE COMPLETE DIFFERENTIATION AND MATURITY OF THE CELLS.
FACILITY: KIEV. INST. USOVERSH. VRACHEI, KIEV, USSR.

UNCLASSIFIED

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USSR

NIKIFOROVA, Ye. S., PELEDOV, G. V. UDC 519.281

"Method of Rotatable Central Composition Planning"

Tr. Mosk. Energ. In-ta [Works of Moscow Power Institute], No 76, 1970, pp 45-54, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V192 by B. Granovskiy).

Translation: A description is presented of the algorithm for a known method of rotatable second order central composition planning for n factors. The appendix presents a program for the method written n ALGAMS.

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2/2 020

USSR

PELEGOV, YU. F.

UDC 621.391:519.2

"Linear Synthesis of Signals with Coincident Amplitude Spectra"

Radioelektronika v nar. kh-ve SSSR. Ch.1 -- V sb(Radio Electronics in the National Economy of the USSR. Part 1 -- collection of works), Kuybyshev, 1970, pp 91-102 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A78)

Translation: The general properties of signals with coincident spectra (phase signals) and their practical significance are investigated. The principles of linear synthesis of such signals and the fundamentals of their realization are discussed. The bibliography has 6 entries.

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USSR

PELEGOV, YU. F.

UDC: 621.391:519.2

"Theory of Optimal Noncoherent Reception of Multichannel Information"

V sb. Radioelektron. v nar. kh-ve SSSR, Ch. 2 (Radioelectronics in the National Economy of the USSR, Part 2--collection of works) Kuybyshev, 1970, pp 247-258 (from RZh-Radiotekhnika, No. 5, March 71, Abstract No. 5A105)

Translation: Noncoherent reception using a "separation" multiplexing method is discussed, according to which mutually orthogonal signals corresponding to different partial channels are simultaneously applied to the receiver input. One illustration, bibliography of nine. M. S.

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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 classicial theory based on the hypotheses of Kirkhoff and Love.

1/1

USSR

Stress, Strain, and Deformation

UDC 539.3

GRIGOLYUK, E. I., Corresponding Member of the Academy of Sciences USSR, and PELEKH, B. L., Scientific Research Institute of Mechanics of Moscow State University imeni M. V. Lomonosov, Physicomechanical Institute of the Academy of Sciences Ukrainian SSR, L'vov

"Static-Geometric Analogy and Complex Transformation in the Theory of Three-Layered Shells With a Light Core"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 3, 1972, pp 563-565

Abstract: The article extends V. V. NOVOZHILOV's complex method to the theory of three-layered shells with a light core on the basis of a generalization of static-geometric analogy. Equations are obtained which can be used as the basis for a study of the stressed-strained state of three-layered shells with a light core.

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USSR

PELEKH, B. L., MAMCHUR, I. L., L'vov UDC. 539.3

"One Contact Problem for a Transversely Isotropic Cylindrical Shell of Finite Length"

Kiev, Prikladnaya Mekhanika, Vol 9, No 6, Jun 73, pp 41-46.

Abstract: The contact problem of interaction of a rigid ring of rectangular cross section seated with a certain interference on a cylindrical, transversely isotropic shell of finite length is studied. General equations are produced for the cases when the ends of the shell are free and rigidly clamped. The distribution of contact pressures is studied as a function of the relative length of the ring, relative thickness and shear compliance of the shell.

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SAVIN, G. M., and PELEKH, B. L. -- Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 2, Feb 71, pp 166-168

as well as the equivalence of the respective boundary conditions

$$\frac{\partial \Phi_1}{\partial y} - \frac{\partial F_1}{\partial x} = \int_L X_n ds + C_1,$$

$$\frac{\partial \Phi_1}{\partial x} + \frac{\partial F_1}{\partial y} = -\int_L Y_n ds + C_2, \quad -\frac{m^2}{n^2}\frac{\partial}{\partial s}\Delta\Phi_1 + \frac{\partial F_1}{\partial n} = M_n.$$

and

$$w = w^*, \quad \gamma_n = \gamma_n^*, \quad \gamma_s = \gamma_s^*.$$

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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

UDC 539.3

SAVIN, G. N., PELEKH, B. L., (Kiev, L'vov), Institute of Mechanics AN Ukr SSR, Physico-Mechanical Institute AN Ukr SSR

"Stress Concentration Near Holes in Plates and Shells, With Consideration of Phenomena, Due to the Effect of Transverse Shear Deformations (Survey)"

Kiev, Akademiya Nauk Ukr SSR, Prikladnaya Mekhanika, Vol 7, No 2, Feb 71, pp 3-11

Abstract: A survey is presented of the results obtained for the solution of problems on stress concentration around irregular holes, imbedings, inclusions, and other concentrators in plates and shells (spherical and cylindrical), on the basis of generalized theories (Timoshenko, Reissner, Ambartsumyana), which allow the consideration of the transverse shear deformations. The possibility of applying such solutions to calculations of stress concentrations in plates and shells, made of reinforced plastics, is indicated. It is noted that the solution of static problems for plates and shells weakened by holes, are obtained only for isotropic or transverse isotropic materials. The consideration of similar problems for orthotropic plates and shells is of great importance, although in this case, it's impossible to obtain compact solving equations of the type used here. Thus the problem is reduced

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USSR

SAVIN, G. N., and PELEKH, B. L., Akademiya Nauk Ukr SSR, Prikladnaya Mekhanika, Vol 7, No 2, Feb 71, pp 3-11

to the solution of a system of three (for plates) or four (for shells) equations about the corresponding number of the unknown functions. The solution of these systems can be obtained by using one of the approximate procedures. An attempt to solve the problem of a circular orthotropic cylindrical shell with a circular hole using the Bubnov-Galerkin approximate method was made by K. I. Shnerenko. 17 formulas, 40 references.

2/2

USSR

UDC 539.3

LUN', Ye. I., and PELEKH, B.L., L'vov

"Complex Method in the Theory of Shells of the Timoshenko Type"

Moscow, Izvestiya Akademii Nauk, Mekhanika Tverdogo Tela, No 3, May-Jun 72, pp 74-81

Abstract: The method of Novozhilov, V.V., concerning the complex transform of equations of the theory of shells, is applied to solve equations of the theory of elastic shells of the Timoshenko type, which considers the deformation of transverse displacements. Equations of complex stresses, complex displacements, and also solving equations of slanting shells are derived within the scope of this theory. From reduced equations, with the passage to the limit $\xi = h^2E/3k'(1-\gamma^2)G_z \to 0$, functions of the classical theory of shells result which first were obtained by Novozhilov, V.V. The problem of the determination of the stress-deformed condition of slanting shells is reduced to the determination of complex and real functions which satisfy given conditions. Thirty five formulas, six biblio. refs.

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1/2 013 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--STABILITY OF A TRANSVERSELY ISOTROPIC SPHERICAL SHELL BONDED BY AN ELASTIC MATRIX -U-

AUTHOR-(02)-MELNIK, R.V., PELEKH, B.L.

COUNTRY OF INFO--USSR

SOURCE--MEKHANIKA POLIMEROV, VOL. 6, JAN.-FEB. 1970, P. 129-131

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SPITERIC SHELL STRUCTURE, SHELL STRUCTURE STABILITY, REINFORCED STEEL STRUCTURE, PLASTIC FILLER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1945 STEP NO--UR/0374/70/006/000/0129/0131

CIRC ACCESSION NO--AP0108274

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0108274 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE STABILITY OF A HOLLOW SPHERICAL SHELL WITH AN ELASTIC FILLER. GENERALIZED THEORIES OF THE TIMOSHENKO AND AMBARTSUMIAN (1961) SHELL TYPES ARE USED. THE RESULTS OBTAINED ARE COMPARED WITH THOSE CALCULATED IN TERMS OF THE KIRCHHOFF AND LOVE THEORY.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--APPLICABILITY OF THE TWO DIMENSIONAL APPLIED THEORIES TO THE PROBLEMS OF STABILITY UNDER AXIAL COMPRESSION OF CYLINDRICAL SHELLS MADE

AUTHOR-(04)-GUZ, A.N., BABICH, I.YU., PELEKH, B.L., TETERS, G.A.

COUNTRY OF INFO--USSR

SOURCE--MEKHANIKA POLIMEROV, VOL. 6, JAN.-FEB. 1970, P. 141-143

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHELL STRUCTURE STABILITY, PLASTIC MECHANICAL PROPERTY, ELASTICITY THEORY, SHEAR STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1944 STEP NO--UR/0374/70/006/000/0141/0143

CIRC ACCESSION NO--AP0108273

UNCLASSIFIED

2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0108273 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE APPLICABILITY OF THE TWO DIMENSIONAL, KIRCHHOFF LOVE APPLIED THEORIES OF THE TIMOSHENKO AND AMBARTSUMIAN TYPE, TO THE STABILITY PROBLEMS OF SHELLS WITH A LOW SHEAR RIGIDITY. CRITICAL STRESSES CALCULATED BY USING THESE THEORIES ARE COMPARED WITH RESULTS OBTAINED BY BABICH (1968) FOR STABILITY OF CYLINDRICAL SHELLS ON THE BASIS OF GENERALIZED SOLUTIONS OF THE THREE DIMENSIONAL, LINEARIZED SOLUTIONS OF THE ELASTICITY THEORY.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--BENDING OF AN INFINITE TRANSVERSALLY ISOTROPIC PLATE WEAKENED BY A FINITE NUMBER OF CIRCULAR OPENINGS -U-

AUTHOR--PELEKH, B.L.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK ARMIANSKOI SSR, IZVESTIIA, MEKHANIKA, VOL. 23, NO. 1, 1970, P. 50-57

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ISOTROPIC PROPERTY, BIBLIOGRAPHY, HOLE IN STRUCTURE, METAL BENDING, THIN PLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0945 STEP NO--UR/0430/70/023/001/0050/0057

CIRC ACCESSION NO--AP0118111

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118111

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A METHOD OF SOLVING THE BENDING PROBLEM FOR TRANSVERSALLY ISOTROPIC PLATES WEAKENED BY A FINITE NUMBER OF CIRCULAR HOLES, USING AMBARTSUMIAN'S GENERALIZED PLATE BENDING THEORY. THE QUASI-REGULARITY AND SINGULARITY OF THE RESULTING INFINITE SYSTEMS OF ALGEBRAIC EQUATIONS ARE DEMONSTRATED FOR SUFFICIENTLY WIDE CLASSES OF BOUNDARY CONDITIONS. THE METHOD CAN BE EASILY EXTENDED TO THE CASE OF NONCIRCULAR HOLES. FACILITY: L'VOVSKII POLITEKHNICHESKII INSTITUT, LVOV, UKRAINIAN SSR.

UNCLASSIFIED

Acc. Nr: A70045918 Abstracting Service: 5/70 Ref. Code: INTERNAT. AEROSPACE ABST. UR0198

A70-23298 # Bending of transversely isotropic plates with curvilinear inclusions (Izgib transversal'no izotropnykh plastin s krivolineinymi vkliucheniiami). Iu. N. Nemish (Akademiia Nauk Ukrainskoi SSR, Institut Mekhaniki, Kiev, Ukrainian SSR) and B. L. Pelekh (L'vovskii Politekhnicheskii Institut, Ternopol, Ukrainian SSR). *Prikladnaia Mekhanika*, vol. 6, Jan. 1970, p. 119-124. 6 refs. In Russian.

Application of the generalized Timoshenko theory to an analysis of the stress-strain state of transversely isotropic plates with curvilinear inclusions under bending loads. A system of algebraic equations is derived to describe the stress-strain state of an infinite transversely isotropic plate with a rigid inclusion under biaxial bending. A method of 'boundary perturbation' modified by Savin and Gus' (1964) is used in the process.

V.Z.

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AC5

REEL/FRAME
19780963

18

USSR

UDC 621.394.542.3

PELEKHATYY, M. I., POTAPOV, N. A., SKLYAROV, S. I., SMIRNOV, V. N.

"Problems in the Reception and Transmission of Pseudo-Random PM Signals"

Moscow, Elektrosvyaz', No 7, 1970, pp 32-38

Abstract: This article deals with the following two problems in phase-modulated information transmission: the possibility of reducing the ratio of the side levels of the correlation function to the central lobe through a transformation of the signal; finding a principle on which to construct a new class of pseudo-random sequences with good autocorrelation and inter-correlation characteristics when the signal transformation is introduced. To improve the ratio of the central lobe of the correlation function to the side lobe, a transformation in which two parts of the same signal are multiplied is used. The transformation is made by breaking a sequence up into two orthogonal components. The authors show how their methods can be applied to binary and quaternary sequences.

1/1

USSR

UDC 621.391.2

PELEKHATYY, M.I.

"Some Block Constructions Which Generate Sequences With Good Autocorrelation Properties"

Moscow, Radiotekhnika i Elektronika, Vol XV, No 7, 1970, pp 1428-1439

Abstract: In radar and communications systems it is desirable in many cases to have a signal the aperiodic autocorrelation function of which is as close to the autocorrelation function of a single narrow pulse as theoretically possible. In this article an effort is made to solve the problem of obtaining sequences with a maximum side lobe of the aperiodic autocorrelation function equal to 2 for sequence lengths greater than 13. As a result of the work done on the basis of the theory of partially balanced cyclic incomplete block constructions, some necessary conditions of the existence of such sequences are found. A digital computer is used to find the majority of the existing binary sequences of length $V \leq 27$ with maximum side lobes of the aperiodic autocorrelation function no greater than two. Nonexistence of these sequences for $V = 22$, 23, 26 and 27 is demonstrated.

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USSR

PELEKHATYY, M.I., Radiotekhnika i Elektronika, Vol XV, No 7, 1970, pp 1423-1439

The article contains a brief review of some problems of block construction theory. Some of the pertinent terms and concepts are redefined. Conditions are presented which in many cases permit the solution of the problem of existence of the investigated block constructions. It is pointed out that such conditions have not as yet been found for partially balanced block constructions with unstable association matrices in spite of the fact that the majority of block constructions found in the article belong to this class.

By constructing all the existing block-constructions generating sequences with one-level and two-level background of the aperiodic autocorrelation functions, the overwhelming majority of existing binary sequences with $|r_{max}| \leq 2$ are found. These sequences are found for V = 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 and 25. However, since construction of the block constructions generating sequences with a three-level background of the aperiodic autocorrelation function with $R(\tau) = -4$ which can exist for

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PELEKHATYY, M.I., Radiotekhnika i Elektronika, Vol XV, No 7, 1970, pp 1428-1439

V = 8, 12, 16, 20, 24 was not realized, it is possible to assume the existence of sequences $|r(\tau)_{max}| = 2$ for V = 24. Thus, for V = 22, 23, 26 and 27 there are no sequences with $|r(\tau)_{max}| \leq 2$, and for these values of V, sequences with $|r(\tau)_{max}| = 3$ will be ideal. It is pointed out that further investigations will make it possible to find ideal sequences also for V > 27.

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1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--HIGH ENERGY INTERNAL CONVERSION ELECTRONS EMITTED BY SAMARIUM 150 AND GADOLINIUM 158 IN N, GAMMA REACTIONS -U-

AUTHOR-(02)-PANIN, YU.N., PELEKHOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(4), 804-12

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ELECTRON, SAMARIUM ISOTOPE, GADOLINIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/2045 STEP NO--UR/0048/70/034/004/0804/0812

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CIRC ACCESSION NO--AP0138899

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRA WERE STUDIED OF INTERNAL CONVERSION E EMITTED BY PRIME180 SM AND PRIME150 GD FOR TRANSITION ENERGIES GREATER THAN OR SIMILAR TO EMV. INDIVIDUAL LINES OF THE SPECTRA ARE IDENTIFIED AND THEIR CHARACTERISTICS (COEFF. OF INTERNAL CONVERSION IN THE K SHELL, TYPE AND MULTIPOLARITY OF TRANSITION) ARE PRESENTED.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--DETERMINATION OF THE INITIAL COUNTING RATE IN GAMMA NEGATIVE SPECTRA MEASUREMENTS OF SHORT LIVED ISOTOPES BY MULTICHANNEL ANALYZERS

AUTHOR-(02)-MEDNIS, L., PELEKIS, L.

COUNTRY OF INFO--USSR

SOURCE--LAIV. PSR ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (1), 3-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAMMA SPECTROMETER, MULTICHANNEL ANALYZER, PARTICLE COUNTING, COUNT RATE METER, ALUMINUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1890 STEP NO--UR/0371/70/000/001/0003/0008

CIRC ACCESSION NO--AP0108220

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108220

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR DETG. THE INITIAL COUNTING RATE (N SUBOK) IN GAMMA SPECTRA MULTICHANNEL ANALYZER MEASUREMENTS OF SHORT LIVED RADIOISOTOPES IS DESCRIBED, USING PRIME28 AL, T SUBONE HALF EQUALS 2.27 MIN, AS THE SOURCE OF RADIATION. THE TOTAL PERIOD OF MEASUREMENT (T SUBOP), WAS ALSO DETD., AND A SERIES OF MONOGRAMS WAS USED FOR THE RAPID EVALUATION OF SEVERAL VARIABLES. FOR T SUBOP EQUALS 2.2 T SUBONE HALF EQUALS 300 SEC, N SUBOK EQUALS 423 PLUS OR MINUS 28 PULSES-SEC-MG. FACILITY: INST. FIZ., RIGA, USSR.

UNCLASSIFIED

USSR

UDC: 620.178.4/6

BASTUN, V. N., PELEPELIN, V. M., SHKARAPUTA, L. M., Institute of Mechanics, Academy of Sciences of the UkrSSR, Kiev

"Particulars of Deformation of Titanium Alloys in the Plane Stressed State"

Kiev, Prikladnaya Mekhanika, Vol 8, No 4, Apr 72, pp 93-99

Abstract: Taking VT-6S and VT-14 titanium alloys as an example, the authors investigate the applicability of certain hypotheses of plasticity theory to the evaluation of limiting states, and establish the region of principal stresses in the plane stressed state where the form of the stress deviator has a definite effect on the deformation curve. The plane stressed state was produced by loading thin-walled tubular specimens by axial force and internal pressure. It was found that a unique curve describes deformation in stress-strain coordinates for the given alloys. In the region of biaxial tension where the transverse (tangential) stress is greater than the longitudinal stress ($\sigma_t > \sigma_l > 0$), a deviation from the unique curve is observed. This is attributed to anisotropy in the metal. The average normal stress has no appreciable effect on behavior of the deformation curve. The effect of the stress deviator in the region where $\sigma_t > \sigma_l > 0$ is that greater hardening corresponds to the greater absolute

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BASTUN, V. N. et al., Prikladnaya Mekhanika, Vol 8, No 4, Apr 72, pp 93-99

value of the Lode strain parameter. The curves for limiting states of elasticity, yield and fracture in the region where $\sigma_l > \sigma_t > 0$ and $\sigma_t > 0 > \sigma_l$ are described by the Mises condition for an isotropic body. In the region of positive stresses with greater principal transverse stresses, there is a slight swing toward the St. Venant condition. Similitude of stress and strain deviators is observed at values of the Lode strain parameter of $|\mu_\sigma| = 1$ or $\mu_\sigma = 0$. At intermediate values, deviations are observed which are more noticeable at negative values of μ_σ. Five figures, bibliography of fourteen titles.

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USSR

UDC 669.01:539.4.015

NIZHNIK, S. B., PELEPELIN, V. M., USIKOVA, G. I., and CHERNYAK, N. I., Kiev

"Mechanical Properties and Structure of Stainless Martensite-Containing Steel in the Hardened State"

Kiev, Problemy Prochnosti, No 12, Dec 70, pp 41-44

Abstract: The modes for hardening of types Kh16N6 and Kh16N5D3 steel leading to an increase in the resistance to plastic deformation in extension and compression are determined on the basis of a combination of processes of preliminary deformation and aging. The hardened state of Kh16N6 steel is characterized by formation of a more highly stressed submicrostructure of the martensite and coherently bonded segregations (in comparison with the tempered state). Kh16N5D3 steel is characterized by a decrease in the number of defects in the martensite and segregation of incoherent particles of the hardening phase.

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UDC 620.172.2

CHERNYAK, N. I., BASTUN, V. N., PELEPELIN, V. M., SHKARAPUTA, L. M., Kiev

"Deformation Curves of VT-6S and VT-14 Titanium Alloys at 20-400°C"

Kiev, Problemy Prochnosti, No 6, 1972, pp 65-67.

Abstract: Results are presented from tensile testing of heat-treated VT-6S and VT-14 titanium alloys at 20-400°C. Deformation curves are presented. Within limits of deformation of approximately 1%, the curves can be approximated by a second-order equation. Changes in the primary mechanical characteristics of the alloys with increasing temperature are shown. Tubular thin wall specimens were tested, with outer diameters of 29.5 mm, wall thickness 0.75 mm,and gage length 100 mm. For both alloys, the maximum divergence of calculated data from experimental data is not over 4%. The data produced indicate that the influence of elevated temperature on the characteristics tested is approximately the same for both materials.

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UDC 629.7.036.3.55

DOTSENKO, Yu. N., PELEPEYCHENKO, I. P., VOLKOV, V. G.

"Determination of Adjustment Parameter of Correcting Circuit Operating in System for Regulation of Aviation Gas Turbine Engine Gas Temperature"

Samoletostr. i Tekhn. Vozd. Flota. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Aircraft Construction and Air Force Technology. Republic Interdepartmental Thematic Scientific and Technical Co-lection], 1971, No. 25, pp 46-50. (Translated from Referativnyy Zhurnal Aviatsionnye i Raketnye Dvigateli No 1, 1972, Abstract No 1.34.71, from the resume).

Translation: A method is suggested for determining the time constant of the working thermocouple installed before a turbine in a gas stream, designed to operate in the regulation system of an aviation turbine engine. Determination of the time constant is preceded by determination of the instantaneous temperature and speed of the gas stream, which is achieved by using two measuring thermocouples of different thermal inertia. A method is suggested for converting the time constant of the operating thermocouple for various operating conditions. 5 figs; 5 biblio refs.

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