USSR

LOGUNOV, A. A., Teoreticheskaya i Matematicheskaya Fizika, Vol 9, No 1, Oct 71, pp 3-43

production were studied as functions of one or two angular coordinates. Scattering amplitudes were investigated for their analytic properties in both elastic and inelastic processes as functions of scattering angles and as functions of the impulse transfer. The latter case was studied on the basis of the general principles of field theory. It was shown how the range of analyticity (depending on cos-θ) of the differential cross section of an arbitrary inelastic process can be expanded, making it possible to obtain restrictions on the behavior of the inelastic cross section of differential forward scattering at high energy. The character of the dependence of a partial wave on the orbital moment within the range of high values of the moment was appraised.

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE BEHAVIOUR OF HIGH ENERGY FORWARD SCATTERING AMPLITUDE -U-

AUTHOR-(03)-SAVRIN, V.I., TYURIN, N.YE., KHRUSTALEV, O.Z.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 2, NO 3, PP 338-342
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SCATTERING AMPLITUDE, HIGH ENERGY PARTICLE, ASYMPTOTIC PROPERTY, HEAVY NUCLEUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1445 STEP NO--UR/0646/70/002/003/0338/0342

CIRC ACCESSION NO--AP0101531
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0101531

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNITARITY CONDITION IS USED FOR THE INVESTIGATION OF THE BEHAVIOUR OF FORWARD SCATTERING AMPLITUDE IN MODERATELY HIGH ENERGY REGION AND OF THE CHARACTER OF TOTAL HADRON CROSS SECTION APPROACHING ITS ASYMPTOTIC LIMIT.

UNCLASSIFIED

KHRUSTALEV, V. A.

JPRS 53137

14 May 1971

ACTINOMETRIC INSTRUMENTS ABOARD SOVIET METEOROLOGICAL SATELLITES

[Article by V. A. Beskin, V. V. Zenkov, D. S. Orman, V. P. Timofeyev, V. A. Khrustalev and G. I. Shustov, Moscow, Trudy Tsentral'noy Aerologicheskoy Observatorii, Fizika Svobodnoy Atmosfery, Russian, No 100, 1970, submitted 30 June 1969, pp 125-135]

It is known [1] that the equipment of Soviet meteorological satellites consists of two types of actinometric instruments.

The first type is a narrow-angle scanning instrument (lucimeter), with an instantaneous field of view of 4° x 5° with an operating viewing angle of ±66° from the vertical to the plane perpendicular to the flight trajectory of the satellite.

The second type is a wide-angle instrument (a flux density meter) with a viewing angle of 136-140°.

The instruments are duplicated in order to improve the operating reliability.

The energy brightnesses of the narrow-angle instrument are measured in three spectral ranges(0.3-3, 8-12 and 3-30 microns) over two independent channels; the 8-12 and 3-30 micron ranges are combined in one measuring channel, and they are selected by changing the corresponding optical filters.

In the 0.3-3 micron channel, the instrument operates as a single-beam system, and in the 3-30 and 8-12 micron channel, as a dual-beam system. Earth-space modulation method is used in the last channel: the measurable radiation is compared with the radiation of outer space.

The density of the radiant flux from the Earth into outer space is measured by the wide-angle nonscanning instrument in two spectral ranges: 0.3-3 and 3-30 microns.

The modulation level for the 3-30 micron channel is determined by the modulator temperature, which in the steady-state mode is approximately equal

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF HIGH DOSES OF PROGESTERONE ON URINARY EXCRETION OF GONADOTROPIN AND SEX HORMONES IN PATIENTS OF REPRODUCTIVE AGE WITH
AUTHOR-(03)-SAVCHENKO, O.N., SOKOLOV, YE.G., KHRUSTALEVA, G.F.

COUNTRY OF INFO--USSR

SOURCE--PROBL. ENDOKRINOL. 1970, 16(2), 49-52

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GYNECOLOGY, HEMORRHAGE, PROGESTERONE, URINE, GONADOTROPIN, EXCRETION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0257 STEP NO--UR/0502/70/016/002/0049/0052

CIRC ACCESSION NO--AP0117509
UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320010-0"

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROGESTERONE ADMINISTERED I.M. AT 25 MG DAILY FOR 3 DAYS TO REPRODUCTIVE AGE PATIENTS WITH DYSFUNCTIONAL UTERINE HEMORRHAGE SHARPLY DECREASED SECRETION OF ESTROGENS. LH EXCRETION DECREASED ONLY IN THOSE WITH HIGH INITIAL LEVELS. FSH SECRETION INSIGNIFICANTLY INCREASED, AND THE RATIO OF FSH TO LH INCREASED IN PROGESTERONE TREATED PATIENTS. FACILITY: LAB. VOZRAST. FIZIOL. PATOL. ENDOKRIN, SISTEMY CHELOVEKA, INST. FIZIOL. IM. PAVLOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 514.183:541.124/128

ZARIF'YANTS, YU. A., KARYAGIN, S. N., KISELEV, V. F., KHRISTALEVA, S. V., and CHUKIN, G. D., Moscow State University imeni M. V. Lomonosov

"Possibility of the Control of Binding Forms of Adsorbed Molecules by Means of a Change in the Electronic State of the Semiconductor Surface"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 109-112

Abstract: IR and EPR spectra of p-benzoquinone (BQ) molecules adsorbed on rutile were studied. First passage of BQ over rutile powder leads to the the appearance of two bands in the IR spectrum at 1505 and 1470 cm^{-1}. The first band was assigned to >C:O grouping of the BQ molecule bound to coordination unsaturated Ti^{3+} atoms. This band is quite stable, even after heating the complex to 400° in vacuum it does not disappear. The 1470 cm^{-1} band was assigned to an anion radical of BQ formed by a transfer of an electron from the solid body directly onto the orbitals of the adsorbed molecule. With more complete saturations more bands appear: 1675 cm^{-1} assigned to BQ molecules bound with weak van der Waal forces to the surface, 1657 cm^{-1} -- due to the molecules hydrogen bonded to hydroxyl groups. Adsorption of BQ results in a negative charge on the surface of rutile. Population of the surface levels increases with increased Fermi levels. It was shown that with higher degree of reduction

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USSR

ZARIF'YANTS, YU. A., et al., Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 109-112

the intensity of the 1470 cm^{-1} band increases, while oxidation of the sample (lowering Fermi levels) prior to the adsorption of BQ results in complete dis appearance of this band. When the rutile specimen was heated to 200° (after passage of BQ), the 1675 and 1657 cm^{-1} bands disappeared, the intensity of 1470 cm^{-1} bands increased, and that of 1505 cm^{-1} decreased respectively. At 400° the 1470 cm^{-1} band exceeds substantially the intensity of the 1505 cm^{-1} band. Also, rutile specimens irradiated with a UV lamp (filter transparent in the 400-700 mu region) shows identical behavior. Thus it was possible to stimulate a change in binding form of the molecules adsorbed on the surface, reflected by the IR spectra, by generating excess carriers through the illumination of solid body.

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Materials

USSR UDC 666.593.5

ISAYEVA, V. F., LIFSHITS, YU. A., FRIDBERG, I. D., KHRUSTALEVA, M. M., CHERKUDINOV, A. S.

"A Ceramic Material"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275192, Class No 21, filed 31 Mar 69, p 46

Abstract: This Author's Certificate introduces a ceramic material based on silicons and titanates. As a distinguishing feature of the patent, a material with low dielectric dissipation factor in the SHF range is produced by using a sinter of forsterite and magnesium orthotitanate as the initial components of the charge, with forsterite making up as much as 50 percent of the total weight of the components.

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Acc. Nr. AP0045175 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR0191

91097n **New hardener which increases the thermal stability of epoxy resins.** Khrustaleva, E. N.; Golubkov, G. E.; Zhinkin, D. Ya.; Semenova, E. A.; Markova, N. V.; Lushnikova, M. N. (USSR). *Plast. Massy* 1970, (1), 12–14 (Russ). The thermal stabilities of epoxy resins ED-5 and ED-6 hardened with hexamethylcyclotrisilazane, poly(methylsilazane) (resin MSN-7) (I), and poly(methylphenylsilazane) were detd. Thus, ED-6 was hardened with I (0.8 active H present in I per epoxy equiv. ED-6) at 120° for 3 hr followed by addnl. heating at 150–200° for 2 hr. ED-6 hardened with I had higher tensile strength, impact elasticity, and thermal stability than ED-6 hardened with Endic Anhydride. CKJR

LD

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REEL/FRAME
19780075

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UDC 591.1

NEFEDOV, V. P., SAMOYLOV, V. A., KUDYAKOVA, N. N., DUBYNIN, V. N., PETUSHKOV, V. N., YASNIKOV, I. L., NIKHAYLOV, V. I., and KHRUSTALEV, V. F., Institute of Physics imeni L. V. Kirenskiy, Siberian Department USSR Academy of Sciences

"Culturing Bone Marrow in Vitro by the Method of Isolated Organ Perfusion"

Moscow, Izvestiya Akademii Nauk SSSR, No 2, Mar/Apr 71, pp 179-191

Abstract: The role played by the bone marrow in maintaining normal erythron series was studied. Blood was perfused through the isolated sternum by means of a pumping and oxygenating system which automatically regulated the perfusion pressure, pO_2, HbO_2, pH, and temperature of the perfused blood, partly in response to the feedback information on pO_2, temperature, and impedance received from the bone marrow. Best results were obtained when the circulating blood was completely exchanged after 12 hours of perfusion. The maximum duration of perfusion was 20 hours. Histological examination of the sternum performed after 6, 11, and 17 hours of perfusion revealed a shift in the leukoerythroblast ratio toward the red series and a normal maturation of erythrocytes and granulocytes.

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USSR UDC 576.851.45.095.38:576.895.775].095.18:615.285.7

ALEKSEYEV, A. N., BIBIKOVA, V. A., TATARINOVA, S. G., and KURUSTSELEVSKAYA, N. M., All Union Scientific Research Institute of Disinfection and Sterilization, Ministry of Health USSR, and Central Asian Scientific Research Antiplague Institute

"Effect of the Systemic Poison Fluoroacetamide on the Viability of Infected Fleas and on the Development of the Plague Pathogen in Them"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 571-577

Abstract: Administration of sublethal doses of the systemic organofluorine insecticide fluoroacetamide (a poison with intestinal action against rodent ectoparasites) to the great gerbil flea Xenopsylla gerbilli minax and the rat flea X. cheopis infected with a highly virulent strain of Pasteurella pestis quickly killed the fleas or resulted in elimination of the microorganism from the insects. Fluoroacetamide suppressed the formation of a proventriculus block in the fleas. The mechanism of action of the poison lies in its inhibiting vital functions of both the micro- and macroorganism. By inhibiting the reproduction of the pathogen in the flea intestine, fluoroacetamide is an antagonist of plague bacteria. On the other hand, by

USSR

ALEKSEYEV, A. N., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 571-577

intensifying the injurious effect of the toxins elaborated by the microbes, it is a synergist of the latter in that it intensifies the pathogenic effect of their toxins on the vector.

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Vector Studies

USSR

UDC 576.851.49+576.851.45/.095.38

BIBIKOVA, V. A., KHRUSTSELEVSKAYA, N. M., and ALEKSEYEV, A. N., Central-Asian Scientific Research Antiplague Institute, Alma-Ata, and Order of the Labor Red Banner Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow

"Infection of a Transmitter With Several Pathogens. The Fate of Salmonella and Pasteurella pestis in Fleas"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 42, No 1, Jan/Feb 73, pp 69-73

Abstract: Salmonellae are known to be present in fleas at foci of plague. In experiments carried out on fleas of gerbils and rats, the effects of salmonellae and P. pestis on each other upon mixed infection with them of the fleas were studied. Salmonella typhimurium and S. enteritidis were used in the experiments. On simultaneous infection of the fleas with salmonellae and P. pestis, the rate of survival of the salmonellae during the first hours was higher than that of P. pestis. Subsequently the salmonellae perished at a higher rate than P. pestis and towards the 25th day only P. pestis remained. Initial infection of the fleas with P. pestis followed by infection with salmonellae increased the rate at which the latter perished. This was due to an increase in the unspecific resistance of the organism manifested in a bactericidal effect. The unspecific

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BIBIKOVA, V. A., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 42, No 1, Jan/Feb 73, pp 69-73

resistance of P. pestis was also increased by prior infection with salmonellae, but the effect was much less pronounced. Presence or absence of salmonellae did not affect the rate at which P. pestis finally multiplied. Simultaneous infection with salmonellae and P. pestis did not interfere with the formation of a proventriculus block and consequently with the mechanism by which fleas transmit plague. At the same time, conditions favoring transmission of salmonellae to warm-blooded animals were created. This was demonstrated in experiments on mice, which were infected with both salmonellosis and plague upon being bitten by fleas that carried the causative factors of both diseases. As had already been observed by other authors, salmonellae had a pathogenic effect on the fleas.

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1/2 014 UNCLASSIFIED PROCESSING DATE--07OCT70

TITLE--AUTOCLAVE REWORKING OF GOLD CONTAINING PYRITE ARSENIC CONCENTRATES OF THE ZODSKII DEPOSIT -U-

AUTHOR-(02)-KHRYASHCHEV, S.V., LOBANOVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(2), 82-3

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MINERAL DEPOSIT, GEOGRAPHIC LOCATION, GALENA, GOLD, SILVER, BISMUTH, ARSENIC, PYRITE, OXIDATION, SOLVENT EXTRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0739 STEP NO--UR/0136/70/043/002/0082/0083

CIRC ACCESSION NO--AP0107281

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107281

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FUNDAMENTAL MINERALS OF THE ZODSKII DEPOSIT CONCS. ARE THE FOLLOWING: PYRITE AND MARKASITE (35-55PERCENT), ARSENOPYRITE (2-20PERCENT), CHROMITE (1-3PERCENT), LIMONITE (1.5-10PERCENT), SPHALERITE (2PERCENT), CHALCOPYRITE (0.2-2PERCENT), GALENA (0-5PERCENT), MAGNETITE (0.5PERCENT), PENTLANDITE (1.5-2PERCENT), AS WELL AS SOME AU, AG, BI, AND A FEW OTHER MINERALS. PRACTICAL EXPERIENCE SHOWS THAT THE MOST RESISTANT TO CYANIDING IS AU COMBIED WITH PYRITE AND ARSENOPYRITE. ON CYANIDING SUCH A CONC., ONLY 70-5PERCENT OF THE AU IS EXTRACTED INTO THE SOLN.; THE REMAINDER REMAINS IN THE TAILINGS. UNDER O PRESSURE AND AT INCREASED TEMP., THE PYRITE AND ARSENOPYRITE OXIDIZE ALMOST COMPLETELY. THE EXPTS. WERE PERFORMED IN AN AUTOCLAVE HAVING A CAPACITY OF 1L. THE OPTIMUM PARAMETERS OF AUTOCLAVE LEACHING ARE THE FOLLOWING: NAOH CONCN. 180 G-L.; SOLID:LIQ. EQUALS 1:10, TEMP. 100-120DEGREES, DURATION 3 HR, O PRESSURE 20 ATM. THE EXTN. OF AS WAS 72PERCENT FROM THE CONC. OF MIXED ORES, 90PERCENT FROM TABLE CONC., AND 95PERCENT FROM SULFIDE CONC. AU WAS NOT OBSD. IN THE SOLNS. AFTER AUTOCLAVE TREATMENT. THE EXTN. OF AU INTO THE SOLN. IS SIMILAR TO 99PERCENT, AND THE CYANIDING CAKES CONTAIN 0.2-1 G AU-TON, WHICH MEANS THAT THEY CAN BE DUMPED.

UNCLASSIFIED

USSR

UDC 621.3.049.63

PETROV, E. M., KHRYCHEV, L. I., FILIPPOV, V. Ye., LUPANOV, V. Ye., ZABORSKIY, V. N., ISAYEV, V. S.

"A Device for Attaching Wire Leads to the Contact Areas of Integrated Circuits"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 7, Mar 71, Author's Certificate No 295217, Division H, filed 21 Apr 69, published 4 Feb 71, p 172

Translation: This Author's Certificate introduces a device for attaching wire leads to the contact areas of integrated circuits. The device contains a drum on which a wire is wound, drive rolls, a guide capillary and a unit for checking the strength of the joint between the leads and the contact areas. As a distinguishing feature of the patent, the precision of measuring this joint strength is improved by fastening the drum on one end of a torsion spring carrying an angle-of-turn indicator, the other end of this spring being connected to the drive mechanism.

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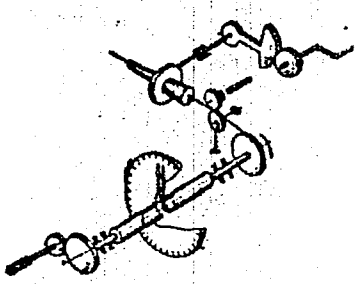
USSR

PETROV, E. M., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 7, Mar 71, Author's Certificate No 295217, Division H, filed 21 Apr 69, published 4 Feb 71, p 172



2/2

Radiobiology

USSR UDC: 577:391.577:1

KHRYPCHANKA, I.P., KAKHNYUK, V.I., Belorussian State University imeni V.I. Lenin

"Cholinesterase Activity of Subcellular Fractions of White Rat Cerebrum During X-Ray Irradiation Depending Upon the Functional State of the Hypophysis-Adrenal System"

Minsk, Izvestiya Akademii Nauk BSSR, No 2, 1970, pp 90-93

Abstract: Mechanisms of adaptation to ionizing radiation were studied in four groups of white rats. Group one was the control group, two was irradiated with a single dose of 40 r., group three was surgically adrenalectomized (bilaterally) and subsequently irradiated with 40 r., and group four was pharmacologically adrenalectomized by administration of 3.5 mg/100 g of hydrocortisone acetate for 12 days. Compensation was fair. The animals were on a regular diet. Adrenalectomized animals were given 1% salt solution to compensate for ion exchange caused by lack of aldosterone. They were also given hydrocortisone in a dose of 2 mg/100 g and adrenalin in a dose of 0.02 mg/100 g, separately or together. Six days after disturbance in the hypophysis-adrenal system, and one day after irridiation, 10% homogenate containing nuclei and mitochondria was obtained from the subcellular fraction of the cerebral cortex. Subcellular fractions were studied for cholinesterase activity, which was expressed in terms of micrograms of acetylcholine per 100 mg of raw tissue after 1 hr. agitation at 37°C. In group two,

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KHRYPCHANKA, I.P., et al, Izvestiya Akademii Nauk BSSR, No 2, 1970, pp 90-93

cholinesterase activity in nuclei and supernatant fluid was equal, while in mitochondria it was high (0.90 micrograms). In some mitochondria fragments of nerve endings and synaptic membranes were found. In group three, the nuclei were unchanged, but cholinesterase activity was high in mitochondria and in all fractions of the supernatant fluid from the cerebral hemispheres. Following the introduction of hydrocortisone, cholinesterase activity is reduced by 28%, in the nuclear fraction increased by 41-45% in supernatant fluid, and almost normal in mitochondria. In group four, the results were similar to those in group three, except more pronounced, since there was a sharp lowering of cholinesterase in the nuclei and mitochondria.

USSR

UDC: 517.5

KHRYPTUN, V.G. (Computing Center, Siberian Department, Academy of Sciences USSR)

"Classes of Functions that are Quasi-analytical with Respect to a Second-Order Linear Hyperbolic Operator"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Matematicheskaya (News of the Academy of Science, Mathematics Series), Vol 34, No 5, Sept- Oct 1970, p 1127-1141

Abstract: Proof is given for sufficient conditions of quasi-H-analyticity of the classes of functions $C_1[\overline{H}, t; M(k_i)]$ for all operators H of the form

(1)

where x and y are real variables, functions $p_1(x, y)$ and $p_2(x, y)$ have continuous, partial second-order derivatives, whereas function $p_3(x, y)$ is of the first order; I is a unit operator. With additional restrictions on the coefficients of operator (1), it is shown that the conditions are also necessary. Expansions in series of functions obtained with the aid of the generalized Taylor formula, are found for the functions f(x, y, t) belonging to quasi-H-analytical classes $C_1[\overline{H}, t; M(k_i)]$. The quasi-H-analytical classes of the function are obtained by analogy to quasi-analytical functions in the sense of Hadamard, which are useful in studying the properties of solu-

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USSR

KHRYPTUN, V.G., Izvestiya Akademii Nauk SSSR, Seriya Matematicheskaya, Vol 34, No 5, Sept-Oct 1970, pp 1127-1141

tions to differential equations containing operator H. Results obtained make it possible to determine the uniqueness of the solutions. Other applications of the results are noted. Orig. art. has 12 refs.

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USSR

UDC 621.791.011:620.192.4

MATKHANOV, V. N., Candidate of Technical Sciences, KHRYUKIN, YU. A., Engineer, FARENBRUKH, V. E., Engineer, Irkutsk Polytechnic Institute, SHERSTNEV, V. V., Engineer, Korshunov Beneficiation Combine

"Cold Resistance of Joints Welded at Negative Temperatures"

Moscow, Svarochnoye proizvodstvo, No 9, 1972, pp 26-28

Abstract: A study was made of the effect of negative temperatures during welding on the cold resistance of welded joints of St.3sp and 10G2S1 steel. The results of a chemical analysis and mechanical testing of the steel are tabulated. The threshold of cold brittleness defined by the minimum impact toughness is somewhat lower than that defined by the presence of a 20% viscous component in the fracture. When welding the investigated steel, the maximum reduction in impact toughness takes place in the zone heated to 200-300° C. With a decrease in the initial welding temperature to -30° C, an increase in the threshold of cold brittleness of the metal in the weld-affected zone by 25-35° C takes place by comparison with the cold brittleness threshold of the base metal. Negative temperatures during welding especially affect the cold brittleness of the weld-affected zone of low-carbon St.3sp steel.

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USSR

UDC: 621.373.421

UTKIN, G. M., KHRYUNOV, A. V., Moscow Power Engineering Institute

"Frequency Stabilization of a Self-Excited Microwave Oscillator"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 150-152

Abstract: The paper describes a self-excited microwave oscillator in which frequency stability is improved by using a narrow-band filter connected in the external feedback circuit of the microwave amplifier. While several types of oscillators use high-Q resonators for frequency stabilization, the proposed system differs in that the stabilizing cavity is a bridge device containing a gas with resonance absorption. With the proper tuning, this bridge device becomes a band filter whose average frequency and passband depend on the parameters of the absorption line of the gas.

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USSR UDC: 621.373.072.6(088.8)

UTKIN, G. M., KHRYUNOV, A. V., Moscow Power Engineering Institute

"A Self-Excited Oscillator"

USSR Author's Certificate No 278775, filed 30 Jun 69, published 26 Nov 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D349 P)

Translation: A self-excited oscillator is proposed which contains an amplifier with an additional two-channel filter connected in series with the band filter in the positive feedback circuit. To improve the frequency stability of the self-excited oscillations, one of the channels of the additional filter consists of an absorbing cell (e. g. filled with ammonia) connected in series with an attenuator, while the other channel is made up of a phase shifter connected in series with an attenuator. V. P.

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USSR

UDC 621.385.632

IVANOV, V.A., KHRYUNOV, A.V.

"Interaction Of Two Harmonic Signals During Amplification In a TWT"

V sb. Dokl. nauchno.-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968--1969 gg. Mosk. energ. in-t, 1970 g. Sekts. Radiotekhnicheskaya. Podsekts.Cosech. radiotekhniki (Report Of The Scientific Technical Conference On The Results Of Scientific-Research Work During 1968-1969. Moscow Power Engineering Institute. Radio Engineering Section. General Radio Engineering Subsection -- Collection Of Works), Moscow, 1970, pp 19-26 (from RZh--Elektronika i yeye primeneniye, No 6,June 1970, Abstract 6A138)

Translation: Nonlinear distortions during transit of two harmonic signals through a 10-cm band traveling-wave tube of average power are experimentally investigated. A measuring device was developed making it possible to conduct measurements of the individual spectral components entering the input of a TWT. During simultaneous amplification of two signals in a TWT, a mutual suppression of these signals is observed and also an increase of the phase inroad at both frequencies. The amplification factor and inroads of the phase are primarily determined by a signal of high intensity, and consequently there is the possibility of linearization of the dynamic characteristics of a TWT at the frequency of one signal by the introduction of an additional strong signal with a stable amplitude. Simultaneous amplification of

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IVANOV, V.A., et al. V sb. Dokl. nauchno.-tekhn. konferentsii..., Moscow, 1970, pp 19-26

two harmonic signals is associated with the appearance of combination components in the output spectrum and also with a distortion of the enveloping amplitude. Near saturation the combination components become commensurable with the basic components. G.B.

2/2

USSR

UDC 616-001.28-07[616.14+616.423]-091

KHUBAYBERDYEV, R. I., KULIKOV, Yu. A., and NURMUKHAMEDOV, B. N., Department of Normal Anatomy of the Tashkent Medical Institute

"State of the Venous and Lymph Network Under Conditions of Ionizing Radiation"

Moscow, Meditsinskaya Radiologiya, Vol 16, No 3, Mar 71, pp 50-53

Abstract: After a single exposure to gamma-radiation (400 r) 112 rabbits were subjected to resection of fragments of the major veins of the extremeties and to removal of the popliteal lymph nodes. The venous and lymph beds of the extremities was studied for one year. Dynamics of the restoration of blood and lymph flows were studied by venography and lymphography. The venous bed in the operated extremities underwent restoration with formation of strong myogenic collaterals within 2-3 months. Under conditions of irradiation, this restoration process is considerably altered. During the first 2-3 days the network of fine vessels and the diameter of cutaneous vessels is considerably enlarged in the operated as well as in the control extremities. Subsequently, in the period of latent radiation sickness (up to the 8-10th day), the vascular channel in the unoperated extremity is almost normalized, whereas in the operated extremity, it remains the same as during the previous days. Also the vessels in both extremities are

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320010-0"

USSR

KHUBAYBERDYEV, R. I., et al., Meditsinkaya Radiologiya, Vol 16, No 3, Mar 71, pp 50-53

dilated, which indicates congestive phenomena. Restoration is considerably prolonged, up to the 110-120th day. In the case of the lymph system, the lymph outflow is restored within 6 months of the operation, whereas under the conditions of radiation sickness, the lymph outflow is not completely restored even after one year.

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1/2 019 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--HISTOGRAM AND COURSE OF CHANGE OF THE PARAMETERS OF IN 3, INS 1, MTKH 90, TKH 18A TUBES WITH A COLD CATHODE -U-
AUTHOR--KHUDAYEV, G.N.

COUNTRY OF INFO--USSR

SOURCE--TR. NOVOCHERK. POLITEKHN. IN-TA (WORKS OF NOVOCHERKASSK
REFERENCE--NZH-ELEKTRONIKA I YEYE PRIMENENIYE, NO 5, MAY 70, ABSTRACT NO
DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTRON TUBE, COLD CATHODE, COLD CATHODE TUBE, ELECTRIC PROPERTYY/(U)MTKH90 COLD CATHODE TUBE, (U)TKH18A COLD CATHODE TUBE, (U)IN3 COLD CATHODE TUBE, (U)INS1 COLD CATHODE TUBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO-----FD70/605023/B10 STEP NO--UR/0000/70/198/000/0080/0085

CIRC ACCESSION NO--AR0141250
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AR0141250

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INVESTIGATION IS PRESENTED OF THE SPREAD AND DRIFT OF TUBES WITH A COLD ACTIVATED CATHODE OF TYPES MTKH-90, TKH-18A, IN-3, AND INS-1. AN ANALYSIS OF THE TEST RESULTS SHOWS THAT THE DISTRIBUTION OF THE TUBES WITH RESPECT TO PARAMETERS IS SUFFICIENTLY DESCRIBED BY STANDARD AND TRUNCATED STANDARD LAW. THE RATE OF CHANGE OF THE PARAMETERS IS DETERMINED BY THE OPERATING CONDITIONS OF THE TUBES. AT THE BEGINNING OF THE TESTS, A REDUCTION OF THE AVERAGE VALUES OF A NUMBER OF PARAMETERS WERE OBSERVED, INDUCED BY INSUFFICIENT AGING OF THE TUBES, AND CONSEQUENTLY IT IS RECOMMENDED THAT ADDITIONAL AGING OF THE TUBES BE CONDUCTED. THE IDENTICAL CHARACTER OF THE CHANGE OF THE MAJORITY OF THE PARAMETERS OF THE TUBES WITH A COLD ACTIVATED CATHODE MADE IT POSSIBLE TO SUGGEST THAT THESE PARAMETERS ARE SUBSTANTIALLY CORRELATED BETWEEN THEMSELVES.

UNCLASSIFIED

USSR UDC 622.24.054.322:622.24.051.64

KHUBOV, A. N., VOSKANOV, T. G., GEVORKOV, G. S., KARAYEV, S. K., MDIVANI, A. G., SIMONYAN, A. A., SHAKHRAMANOV, A. Kh., Baku Division of the All-Union Scientific Research Institute for Drilling Techniques, All-Union Scientific Research Institute for Drilling Techniques and "Kaspmorneft'" Combine

"Effectiveness of Applying Slow-Speed Turbodrills in Drilling With Diamond Chisels"

Dzerzhinsk, Bureniye, No. 4, 1972, pp 3-7

Abstract: The results of experimental boring with diamond chisels of diameter 241 mm in combination with slow-speed and high-revolution turbodrills when approximately the same power is supplied to the chisel are analyzed. It is shown that the highest economic and technical operating indices for diamond chisels are achieved by applying a slow-speed low-pressure turbine of precision casting, namely the 3TSSh-190TL turbodrill and the 33/11 turbine. This turbine can operate consistently at revolutions of 250-400 per minute and can take axial loads of 12 tons or more. Data are presented on the consumption of DRS241S2 diamond chisels, the nature of their wear, and the change in mechanical rate during drilling. It is shown that a

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USSR

KHUBOV, A. N., et al, Bureniye, No. 4, 1972, pp 3-7

decrease in the number of revolutions to 300-400 per minute had a favorable effect on the wear and an increase in cutting capacity by a factor of 2 is achieved at the same mechanical rate.

USSR

UDC 621.791.75

CHERNYSHOVA, T. A., and KHUBRIKH, M. A.

"Intergranular Slippage in a Fused Zone of Welds Produced by the Electric Arc Under Continuous and Pulsed Welding Conditions"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 120-123

Abstract: Uninterrupted welding of EI-435 alloy with tungsten electrodes in argon resulted in much more extensive slippage compared with pulsed welding. Slippage amounted to 1.094 μ along the transverse grain boundaries and 1.07 μ along the longitudinal boundaries of the central axial crystallites. These figures in the case of pulsed welding were 0.720 and 0.590 μ, respectively. The higher slippage produced by continuous welding is attributed to (1) much higher internal stresses within the high-temperature region, (2) slower cooling rate of the hardened metal, and (3) much smoother grain shapes. The intergranular slippage along transverse boundaries of crystallites grown next to the fused grains within the weld zone is larger than along the longitudinal grain boundaries. The shape of grains in both cases is determined by the cooling rate, which is much faster in the case of a pulsed welding.

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USSR

UDC 632.954

TODUA, N. A., and KHUBUTIYA, R. A., Scientific Research Institute of Plant Protection, Tbilisi

"Effectiveness of Herbicides Against Nightshade"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 7 (105), 1972, pp 50-52

Abstract: The most effective herbicide against the nightshade spots is tordon 22-K applied at a dose of 2.5 kg/hectare. Additional application is needed at the appearance of new individual growths. Banwell-D used in 20-30 kg/hectare quantities destroys the entire overground portion of the nightshade plants, but after 1-2 years a repeated treatment is necessary. At the effective dosage, both herbicides are toxic to geranium, tea, citrus cultures, and sweet bay. Apple and pear trees are less sensitive towards them. The only resistant plant is vetiver. Tordon 22-K and banwell-D penetrate down to 60 cm depth of the soil and are preserved there for two vegetation periods. Tordon 22-K is deactivated at a slower rate.

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USSR

UDC 632.95.024.4

UGULAVA, N. A., and KHUBUTIYA, R. A., Georgian Scientific Research Institute of Plant Protection

"Phytotoxic Reactions of Perennial Plants Caused by Diurone and Atrazine"

Moscow, Agrokhimiya, No 1, 1972, pp 114-117

Abstract: Application of 8, 10, 13.5 kg/ha of diurone or atrazine around tea bushes, grape vines, tangerine, apple, and peach trees caused chlorosis in these plants by reducing sharply the amount of chlorophyll a in leaves two months after application. Atrazine was more toxic in doses of 10-13 kg/ha, while the effect of diurone was cumulative in smaller doses and lasted much longer. Among plants tested, tangerine trees were the most resistant, and two-year old apple trees were the most sensitive to both compounds. Analysis of the carbohydrate content showed that it was only slightly influenced by large doses of these herbicides (13-16 kg/ha). Sensitiveness of perennial plants to these herbicides depends on their age, variety, and type.

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USSR

KHUBAYEV, G. N.

UDC 621.385.11:621.317.3

"Histogram and Course of Change of the Parameters of In-3, INS-1, MTKh 90, TKh-18A Tubes with a Cold Cathode"

Tr. Novocherk. politekhn. in-ta (Works of Novocherkassk Polytechnical Institute), 198, pp 80-85 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5A76)

Translation: An investigation is presented of the spread and drift of tubes with a cold activated cathode of Types MTKh 90, TKh-18A, IN-3, and INS-1. An analysis of the test results shows that the distribution of the tubes with respect to parameters is sufficiently described by standard and truncated standard law. The rate of change of the parameters is determined by the operating conditions of the tubes. At the beginning of the tests, a reduction of the average values of a number of parameters were observed, induced by insufficient aging of the tubes, and consequently it is recommended that additional aging of the tubes be conducted. The identical character of the change of the majority of the parameters of the tubes with a cold activated cathode made it possible to suggest that these parameters are substantially correlated between themselves. 3 ill. 5 ref. G. G.

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Acc. Nr. AP0041496 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR0411

87451f Effect of S-methylmethionine (vitamin U) on vitamin B_{12} biosynthesis by Propionibacterium shermanii. Bykhovskii, V. Ya.; Zaitseva, N. I.; Khuchua, G. N. (A. N. Bakh Inst. Biochem., Moscow, USSR). *Prikl. Biokhim. Mikrobiol.* 1970, 6(1), 75–8 (Russ). S-Methylmethionine (vitamin U) stimulated the formation of vitamin B_{12} and simultaneously inhibited the synthesis of porphyrins by *P. shermanii* under each physiol. state studied, suggesting that this compd. is an active Me group donor. Vitamin B_{12} synthesis increased under the action of S-methylmethionine to about an equal extent in both developing cultures and in suspensions of resting propionic acid bacteria cells. δ-Aminolevulinic acid (3 mg/100 ml medium) further stimulated vitamin B_{12} formation only in the resting cell suspensions. BJJR

REEL/FRAME
19751364

USSR

UDC: 621.315.592

CHIGOGIDZE, Z. N., KHUCHUA, N. P., GUTNIK, L. M., KHARATI, R. G., VARLAMOV, I. V., BEKIREV, U. A., TYUTYUN, A. A.

"Concerning the Mechanism of Failure of Gunn Diodes"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1670-1676

Abstract: Devices based on the Gunn effect operate most effectively at high bias voltages; however, increasing the voltage causes breakdown of the device. At present there is no unanimous opinion on the mechanism of failure and degradation of Gunn diodes. In this paper the authors investigate coplanar Gunn diodes with plane-parallel and annular electrode configurations both with and without a silicon dioxide passivating coating. The diodes were tested in the pulse mode. It is shown that in accordance with previously available experimental data the failure of Gunn diodes takes place as a result of formation of a shorting channel between the contacts of the device. Information is obtained on the dynamics of the visible portion of the breakdown by means of motion picture photography of this process through an optical microscope. It is shown that silicon dioxide passivation of the

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CHIGOGIDZE, Z. N. et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1670-1676

active region has an appreciable effect on the nature of the visible portion of the breakdown and on the ratio of the breakdown voltage to the threshold voltage. A microscopic x-ray analysis is made of the composition of the contact regions and the channel on various stages of thermal breakdown. It is found that a transverse magnetic field affects the position of the shorting channels and the ratio of the breakdown voltage to the shorting voltage. A study is made of Gunn diode emission in the infrared region of the spectrum at voltages close to the breakdown voltage. It is concluded that the cause of failure of Gunn oscillators at high bias voltages is the formation of current strings caused by the development of an S-shaped current-voltage curve due to impact ionization when a strong field domain passes over the specimen. The authors thank M. S. Shur for discussing the results of the paper, and N. N. Mamatsashvili for taking part in the measurements.

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1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF CASTRATION AND THE SUBSEQUENT ADMINISTRATION OF TESTOSTERONE PROPIONATE ON THE SUSCEPTIBILITY OF ANIMALS TO CONVULSIONS

AUTHOR-(02)-GRIGORYAN, V.Z., KHUDAVERDYAN, D.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. EKSP. KLIN. MED. 1970, 10(1), 11-17

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SOUND, MUSCLE STIMULATION, TESTOSTERONE, SELECTIVE DRUG EFFECT, SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0506 STEP NO--UR/0507/70/010/001/0011/0017

CIRC ACCESSION NO--AP0128075

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128075

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CASTRATION INCREASED CONVULSION SUSCEPTIBILITY IN RATS SENSITIVE TO SOUND IRRITATION AND IN DOGS AFTER INJECTION OF A CAMPHOR ETHER MIXT. THE INCREASED SUSCEPTIBILITY OCCURRED IN THE 2ND WEEK AFTER OPERATION. THE LATENT PERIOD IN CONVULSIONS (DOGS) WAS DECREASED; THE TONIC AND CLONIC PERIOD WAS PROLONGED. THE ADMINISTRATION OF TESTOSTERONE (0.5 MG-KG OF BODY WT.) FOR 30 DAYS DECREASED CONVULSION SUSCEPTIBILITY, BUT THE REACTION OF ANIMALS DID NOT REACH THE NORMAL LEVEL.

UNCLASSIFIED

USSR

UDC 612.57+611.814

KHUDAYBERDIYEV, M. D., and REPIN, I. S. Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"The Effect of the Pyrogenic Albumin Fraction of Polymorphonuclear Leukocytes on the Thermoregulating Structure of the Hypothalamus"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 4, 1970, pp 961-963

Abstract: Microinjection of an aqueous acellular extract of granulocytes into the medial preoptical region (MPR) leads to an increase in internal body temperature. The pyrogenic activity of such extracts in rabbits was studied by internal testing after either intravenous or intraventricular introduction of various albumin fractions. In both cases, a centrogenic mechanism was established for the effect of the leukofactor on thermoregulation. Microinjections of the active fraction were introduced into different parts of the hypothalamus. The pyrogenic effect was proportional to the doses used. On introduction of purified granulocytes into the MPR, the body temperature increase was considerably faster (around 3-5 min) than when an unpurified extract was used. Similar injections of hydrocortisone, insulin, and several other substances (even at higher doses and concentrations) did not reproduce the effect of the leukocyte extracts. The brain threshold value was established at 10^{-7}g. This value corresponds to a concentration of 10^{-11}M and indicates the high specificity of the thermoregulating components in the MPR.

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KHUDAYBERDIYEV M.D.

Acc. Nr: AP0052074 Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, 1970, Vol 14, Nr 1, pp 78-80

DEVELOPMENT OF PYREXIA IN ADMINISTRATION OF LEUKOCYTIC PYROGEN INTO VARIOUS PORTIONS OF THE CEREBROSPINAL FLUID BEARING SYSTEM IN RABBITS

M. D. Khudayberdiyev, A. I. Anisimov, Ye. M. Belyavskiy

Experiments were performed on rabbits with chronically implanted cerebral cannulae. A comparison was made of development of fever caused by administration of standard volumes of leukocytic pyrogen (LP) into the III ventricle, the lateral ventricle of the brain, the subdural space of the cortex of cerebral hemispheres, the cysterna magna, subdural space of the spinal cord in the lumbar region (L_{3-4}) and intravenously. In administration of minimal doses (2 µl) pyretic reaction could be induced only after the injection into the III cerebral ventricle. To induce analogous pyretic reactions from other portions of the cerebrospinal bearing system of the brain a considerable increase of the dose of the leukocytic pyrogen (to 5—100 µl) was required.

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REEL/FRAME
19820612

USSR

UDC 534.014.2

KHUDAYBERDIYEV, R., TSITOVICH, P. A., Tashkent Electrical Engineering Institute of Communications, Tashkent Institute of Engineers for Irrigation and Mechanization of Agriculture

"Toward a Theory of Transition Processes in Nonlinear Systems"

Tashkent, Izvestiya Akademii Nauk Uzbek SSR, Seriya Tekhnicheskikh Nauk, No. 2, 1972, pp 38-42

Abstract: The integral manifold method of N. N. Bogolyubov and Yu. A. Mitropol'skiy and the small parameter method of Poincaré and Lyapunov are combined to investigate the dynamic system

$$\left.\begin{aligned} \frac{d^2\Phi_i}{d\tau^2} = f_i\left(\Phi_j;\ \frac{d\Phi_j}{d\tau}\right) + \\ + F_i\left(\Phi_j;\ \frac{d\Phi_j}{d\tau}\right) + B_i\cos\tau \\ (i=\overline{1,n}),\ (j=\overline{1,n}) \end{aligned}\right\} \quad (1)$$

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KHUDAYBERDIYEV, R., TSITOVICH, P. A., Izvestiya Akademii Nauk Uzbek SSR, Seriya Tekhnicheskikh Nauk, No. 2, 1972, pp 38-42

where f_i are nonlinear functions, F_i are nonlinear holomorphic functions, and B_i are certain constants. The steady-state made is found and the process of setting it up is described. The perturbed transition manifold is expressed in terms of the generating manifold through the use of power expansions suitable for brief transition processes. The technique of structural perturbations reflects the specific characteristics of the commutation transition phenomena and is also suitable for noncommutation transition processes. The method gives an analytical description of the effect of nonlinearities on dynamic systems with a large number of branches. In many cases the briefness of the transition process is technically feasible, so the given method is valid from an engineering standpoint.

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USSR

KHUDAYBERDYYEV, R. I., Professor, Chair of Normal Anatomy, Tashkent Medical Institute

"Blood Vessels Under Normal and Pathological Conditions"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 81-85

Abstract: A review is presented of studies conducted at the Tashkent Medical Institute of the growth and comparative anatomy of the vascular system and of the compensatory-adaptation reactions of vascular channels between organs and tissues under conditions of injury of the main vessels (arterial and venous vessels and lymph nodes), with various external and internal factors. Among the topics discussed are the blood supply of nerves of the lower extremities in the normal and experimental states; changes in the portal vein of man; characteristics of the adrenal blood supply in man; formation of main vessels in the brain; blood supply of the diaphragm nerve; morphological and functional changes in intraorganic vessels; the macro- and microstructures of the vascular apparatus of the extremities under various circulatory stresses, and the effect of ultrasound waves and radiation on these conditions; restructuring of the vascular channel, guaranteeing normalization of the blood circulation during experimental disturbances; and the

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USSR

KHUDAYBERDYYEV, R. I., Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 81-85

effect of ionizing radiation (X-rays, gamma-rays) on the blood and lymph circulation systems. It was established that ultrasound waves accelerate the formation of collateral vessels in the extremities. It is apparent that one trauma in one member of the vascular apparatus will lead to the development of compensatory and adaptation mechanisms affecting the entire vascular system.

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USSR UDC 615.825.015.4:616-005.5

KHUDAYBERDIYEV, R. I., and KULIKOV, Yu. A., Chair of Normal Anatomy, Tashkent Medical Institute

"Active Movement as a Stimulant of Collateral Circulation (Experimental Study)"

Moscow, Voprosy Kurortologii Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 4, Jul/Aug 70, pp 334-338

Abstract: Physical exercise (running on a treadmill) greatly accelerated the restoration of impaired blood circulation in rabbits from which portions of the femoral or external iliac artery had been resected. Collaterals developed 20-30 and 30-40 days sooner (after resection of the femoral and external iliac artery, respectively) than in animals that were not exercised after similar operations. Exercise also hastened the reconstruction of the venous bed of the extremities, causing collaterals to form 20 to 30 days sooner than in controls. Study of the arteries and veins of the unoperated extremities showed that the diameter of the main blood vessels increased somewhat during the experiment and that a network of small arteries and veins developed during the first 20-30 days.

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1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF PHYSICAL LOAD ON DEVELOPMENT OF COLLATERAL CIRCULATION FOLLOWING IMPAIRED BLOOD DRAINAGE -U-
AUTHOR-(02)-KHUDAYBERDYEV, R.I., KULIKOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--ARKH ANAT GISTOL EMBRIOL 58(1): 83-88. ILLUS. 1970

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD VESSEL, BLOOD CIRCULATION, SURGERY, MICROSCOPY, TISSUE REGENERATION, EXERCISE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1091 STEP NO--UR/9076/70/058/001/0083/0088

CIRC ACCESSION NO--AP0128518

UNCLASSIFIED

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0128518 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXCISION OF FRAGMENTS FROM THE MAJOR VEINS OF THE LOWER EXTREMITIES IN RABBITS BRINGS ABOUT CONSIDERABLE CHANGES IN THE VENOUS CIRCULATION OF THESE LIMBS, POWERFUL MUSCULAR COLLATERALS BEING FORMED WITHIN 2 MO. POSTOPERATIVELY. CHANGES IN THE MICROSCOPIC STRUCTURE OF VEINS WERE REVEALED IN EVERY ORGAN AND TISSUE OF THE THIGH. AT FIRST THESE ARE MOSTLY DUE TO DESTRUCTIVE PROCESSES, FOLLOWED BY REPARATIVE REGENERATION. IN THE CASE OF INTRA ORGANIC MUSCULAR VEINS, THESE PROCESSES OCCUR WITHIN 90-120 DAYS AFTER THE OPERATION. BY 120 DAYS COLLATERALS ARE FORMED, HAVING A WELL DEVELOPED MUSCULAR ELASTIC FRAMEWORK. EXERCISE IS AN EFFECTIVE METHOD FOR STIMULATING DEVELOPMENT OF COLLATERAL BLOOD FLOW, GROSS APPEARANCE OF THESE CHANGES OCCURRING 30 DAYS EARLIER, MICROSCOPIC EVIDENCE OF THE FORMATION OF COLLATERAL VESSEL WALL BECOMING APPARENT 60 DAYS IN ADVANCE OF CONTROL. FACILITY: DEP. NORM. ANAT., TASHKENT STATE MED. INST., TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC: 519.2

KHUDAYBERGANOV, R.

"Concerning Approximation of Functions of Two Variables"

Nauch. tr. Tashkent. un-t (Scientific Works. Tashkent University), 1972, vyp. 402, pp 131-137 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V19)

Translation: The results of previous papers (RZhMat, 1970, 4B152, 2B149) are generalized to the two-dimensional case.
L. Zolotukhina.

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USSR

UDC: 519.2

KHUDAYBERGANOV, R.

"On Approximating a Random Field"

Teoriya veroyatnostey i mat. stat. Mezhved. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1972, vyp. 6, pp 129-132 (from RZh--Kibernetika, No 8, Aug 72, Abstract No 8V125)

Translation: The paper deals with the problem of approximating a square-law random field which is continuous on the average, and its derivatives by Bernshteyn polynomials. Author's abstract.

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USSR

UDC 621.357.2:66.061:669.783

BIKASHEV, G. K., YESIRKEGENOV, G. M., and KHUDAYBERGENOV, T. YE.

"The Influence of Fe:Ge Ratio on the Migration of Germanium in Solution During the Electrochemical Leaching of Sintered Wafers of the Type $xFe_2O_3yGeO_2$"

Kazakhsk, politkh. in-t. Alma-Ata (Kazakstan Polytechnica Institute of Alma-Ata), 1972, 12 pp (Manuscript from a dep (expansion unknown) in VINITI (All-Union Institute of Scientific and Technical Information), No 5058-5072 Dep. (expansion unknown) from 13 Nov 1972 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L310)

Translation: Data are presented on laboratory studies on the leaching of wafers containing the oxides of Fe and Ge. Double sulfuric acid treatment of these wafers resulted in the extraction of 5 or 6% Germanium into solution. Applying an electric field having a constant current during the second stage of leaching very effectively transferred the Ge into a liquid phase.

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KHUDAYBERGENOV, T. Ye.

Chemistry

JPRS 55263

24 February 1972

UDC 669.295.4

COMPARATIVE EVALUATION OF VARIOUS METHODS OF REFINING TITANIUM TETRACHLORIDE

[Article by L. A. Nisel'son, Yu. V. Golikov, and T. Ye. Khudayberganov, Moscow, Tsvetnye Metally, Russian, No 11, 1971, pp 41-46]

Titanium tetrachloride is a very important intermediate for the production of metallic titanium and titanium dioxide pigment. Its production approaches tens of thousands of tons per year in the industrially developed countries. The production of titanium metal as well as the production of titanium dioxide place stringent demands on the purity of the tetrachloride used as the starting material.

Technical $TiCl_4$ consists of a very complex non-equilibrium system containing many minor components. It contains a broad spectrum of impurities which are clearly determined by the nature of the starting materials and by the chlorination method. The domestic industry produces the bulk of technical titanium tetrachloride by the established technology. In accordance with this technology, the titanium-containing slags or concentrates are chlorinated in the presence of carbon-containing reducing agents (petroleum or coal-tar coke) in shaft furnaces (in the form of briquets), or, preferably, in molten chlorides of the alkali or alkaline earth metals (for example, in the spent electrolytes from the electrolytic magnesium cells). As a rule the chlorination of titanium-containing raw materials in molten salts yields purer $TiCl_4$ than that obtained by the chlorination in electric shaft furnaces. Thus, for example, on chlorination in the melt, most of the aluminum remains in the melt and is partially trapped in the condensation system as $NaAlCl_4$ which considerably facilitates the subsequent purification of the tetrachloride, involving aluminum removal. As a second example we may cite the sulfur-containing impurities which are present in the technical titanium tetrachloride in quantities that are determined not only by the sulfur content of the starting material, but also by the type of the chlorinating agent.

The resulting technical-grade titanium tetrachloride is a milky (due to the presence of hydrolysis products and entrained starting material) and fuming liquid that varies in color from yellow-green to dark red, depending on the quantity and type of impurities present.

The impurities found in the technical titanium tetrachloride may be tentatively divided into three basic groups depending on their physical form at the normal boiling point of $TiCl_4$ and their solubility in the tetrachloride:

1) Gases and vapors (O_2, N_2, CO_2, Cl_2, $COCl_2$, HCl, etc.);

2) liquids ($SiCl_4$, CCl_4, $VOCl_3$, CCl_3COCl, Si_2OCl_6, etc.);

3) solids ($FeCl_3$, $TiOCl_2$, $NbCl_5$, C_6Cl_6, $POCl_3.TiCl_4$, $AlCl_3$, etc.).

Under normal conditions, the impurities of the first group are gases or vapors that are only sparingly soluble in $TiCl_4$ and are, therefore, readily removed from the latter simply by boiling. The second group contains compounds that are either liquids or low-melting solids under normal conditions. All of these compounds are miscible with $TiCl_4$ in all proportions. This group contains the majority of the compounds that are very difficult to remove, e.g., $VOCl_3$ and Si_2OCl_6. Finally, the third group are practically insoluble in titanium tetrachloride ($MgCl_2$, $CaCl_2$, $MnCl_2$, etc.), or are almost insoluble ($AlCl_3$, $FeCl_3$, $POCl_3.TiCl_4$, etc.).

The analytical data on the common types of technical titanium tetrachloride are given in Table 1. In the same table are also listed the specifications for purified $TiCl_4$ according to TU--39--69 [Tekhnicheskiye Usloviya; Technical Conditions (Specifications)] and the impurity levels commonly attained under practical industrial conditions.

In the case of titanium tetrachloride which is slated for the production of the titanium dioxide pigment, the content of the so-called tinting impurities must be limited. These impurities are mainly those containing iron, vanadium, and chromium. In the case of titanium tetrachloride which is used in the production of titanium sponge, the impurities that increase the titanium sponge hardness must be limited, i.e., the impurities containing oxygen, sulfur, carbon, vanadium, and silicon [1].

USSR

UDC 669.295.48

KHUDAYBERGENOV, T. YE., RUBAN, N. N., NISEL'SON, L. A., POGORELOV, V. I., GOLUBKOV, YU. V.

Pererabotka pul'p chetyrekhkhloristogo titana i mednovanadiyevykh kekov (Processing Titanium Tetrachloride Pulp and Copper-Vanadium Cakes), Institute of Metallurgy and Beneficiation of the Kazakh SSR Academy of Sciences, Alma-Ata, 1971, 21 pp, 19-entry bibliography (No2694-71 Dep) (from RZh-Metallurgiya, No 7, Jul 1971, Abstract No 7G241 DEP)

Translation: This is a survey. The published information about the methods of processing $TiCl_4$ pulp and Cu-V cakes to extract $TiCl_4$ and V and Cu compounds is classified. A critical analysis is performed, and it is demonstrated that all the proposed procedures have a number of essential deficiencies both with respect to equipment and technological process. These deficiencies make it impossible to introduce them into industrial production. It is recommended that scientific research work be continued in this area. The bibliography has 19 entries.

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Organ and Tissue Transplanation

USSR

UDC 616.831.95-089.843-097

MESKHIYA, N. SH., PERTSEVA, T. N., AND KHUDAYTOV, I. S., Institute of Neurosurgery imeni N. N. Burdenko, Academy of Medical Sciences USSR, and Laboratory of Tissue Preservation, Central Institute of Traumatology and Orthopedics, Ministry of Health USSR, Moscow

"The Immunological Reaction of the Recipient's Organism to the Homotransplantation of Dura Mater Preserved at a Low Temperature"

Moscow, Voprosy Neyrokhirurgii, Vol 35, No 5, Sep/Oct 71, pp 58-62

Abstract: In experiments conducted on rabbits, homotransplantation of pathces of fresh dura mater and of dura mater preserved for 30 days at minus 70° was carried out. The immunological reaction of the organism to transplantation antigens, as indicated by the increase in the weight of the regional lymph nodes and the induced formation in them of immature cells of the lymphoid series of the type that form antibodies, was much less pronounced than that which followed homotransplantation of a skin patch on an ear. Both on grafting of dura mater andof skin, the reaction in the lymph nodes was stronger on the side of the operation than the opposite side. The peak of the immunological reaction, as indicated by the accumulation of immature lymphoid cells in the regional lymph nodes, was equally high on transplantation of dura mater preserved at minus 70° and that of fresh dura

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USSR

MESKHIYA, N. SH., et al., Voprosy Neyrokhirurgii, Vol 35, No 5, Sep/Oct 71, pp 58-62

mater, but developed on the 8-10th day after transplantation in the first case and on the 6-7th day in the second. The delayed immunogenesis on transplantation of the tissue that had been frozen was presumably due to the longer time that was required for the development of a full-fledged interaction between this tissue and the organism.

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USSR

UDC 669.18:621.746.58

TULIN, N. A., Candidate of Technical Sciences, VAYNSHTEYN, O. Ya, Engineer, KUZ'KINA, N. N., Engineer, KHUDEN'KIKH, A. A., Engineer, and SNEZHKO, B. Ya., Engineer, Chelyabinsk Metallurgical Plant

"The Use of Argon in the Production of Non-Aging Low-Carbon Steel"

Moscow, Stal', No 3, Mar 73, p 226

Abstract: Low-carbon non-aging steel at the Chelyabinsk Metallurgical Plant is melted by the scrap-ore process in 100-ton open-hearth furnaces with oxygen scavenging of the metal. Argon protects the metal flux against oxidation. This method makes it possible to lower the degree of contamination of 6.2-ton ingots by oxide aluminaceous impurities which give rise to laminations in sheet. Argon flux protection decreased sheet rejection by customers and plants by factors of 2.7-4.5 and 3-4, respectively, and increased annual output by 12%. Two figures.

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1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SINTERED METAL ANTIFRICTION MATERIAL -U-

AUTHOR-(03)-ANTSIFEROV, V.N., CHEREPANOVA, T.G., KHUDENKIKH, N.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,161

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METALLURGIC PATENT, ANTIFRICTION ALLOY, SINTERED METAL, METAL POWDER, CHROMIUM, CARBON, COPPER, IRON, MOLYBDENUM COMPOUND, SULFIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1055 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130090

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0130090
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HIGH STRENGTH POWDER METALLURGICALLY PREPD. ANTIFRICTION MATERIAL CONSISTED OF CR 2-4, C 2-4, CU 1.5-2.5, MOS SUB2 4.6 WT. PERCENT, AND THE REST FE. FACILITY: PERM POLYTECHNIC INSTITUTE.

UNCLASSIFIED

USSR

UDC 661.143

KHUDENSKIY, YU. K.; TISHCHENKO, V. G., VOYEVODA, L. V., and BEZUGLYY, V. D.

"Electro-Fluorescent Substance"

USSR Author's Certifictae No 335967, filed 16 Mar 68, published 18 Aug 72 (from Referativnyy Zhurnal -- Khimiya, No 12(II), 1973, Abstract No 12L182P by V. D. Matveyev)

Translation: This electro-fluoric substance is used to manufacture electrochemical indicator systems in computer technology and in systems for automatic control and has a luminescence during the application of an electric current across an electrode in liquid solutions. It contained dimethylformamide as a solvent, lithium halide as an electrolyte, and benzophenanthrene as an electrophor. A change in the above mentioned electrolyte from tetrabutylammoniumperchlorate to LiCl increases the intensity of the electrofluoric lumniscence 10 fold. The substance is made of a solution containing 0.004-0.9 g LiCl and 0.002-0.2 g benzophenanthrene and dimethylformamide. For example, 0.002 g of benzophenanthrene and 0.16 g of LiCl are dissolved in 100 ml of reagent grade dimethylformamide. The prepared solution is placed in the electrofluoric ampule and an alternating current approximately 10 milliamps is applied at approximately 6.3 volts. The lumniscence obtained in the of 420-470 microns was 10 times the luminescence obtained for the electrophor.

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USSR

UDC 661.143(088.8)

KHUDENSKIY, YU. K., and VOYEVODA, L. V.

"Electrofluoric Composition"

USSR Author's Certificate No 328155, Cl. C 09 k 1/02, C 09 k 3/00, filed 1 Apr 68, published 20 Mar 72 (from RZh-Khimiya, No 20, 25 Oct 72, Abstract No 20L109P by N. SH.)

Translation: The electrofluoric composition contains a solvent, for example dimethylformamide, and electrolyte -- alkali metal halides, for example LiCl, and an electrofluor. In order to increase brightness, stilbene is introduced into it as an electrofluor. This makes possible an increase in the brightness of the luminescence. The composition contains the following (in wt.%): LiCl 0.004-4, stilbene 0.002-2 and dimethylformamide up to 100. The suggested electrofluoric composition is prepared by dissolving LiCl and stilbene in dimethylformamide. Example : 0.025 g of the electrofluor stilbene and 0.16 g of electrolyte are dissolved in 100 ml of "Ch" brand dimethylformamide. The resultant solution is put in an electrofluoric cell and a 10-ma alternating current passed through it at voltage of 6.3 v. The composition has a luminescence range of 460-480 nm.

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USSR

UDC 621.383.932

BYKH, A. I., KHUDENSKIY, YU. K., YEVSEYEV, F. YA.

"Representation Procedures with Digital Control of the Display Elements"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Instruments and Systems. Republic Interdepartmental Thematic Scientific and Engineering Collection), 1971, vyp. 17, pp 128-133 (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A460)

Translation: A study was made of prospective methods of representation which can theoretically be used to build display units. A classification of them is proposed, and a detailed analysis of the representation procedures with digital control of the display elements is presented. Possible areas of application of the display units are isolated. There is 1 table and a 17-entry bibliography.

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USSR UDC 678.6

EFENDIYEV, A. A., ABBASOVA, B. G., BABAZADE, S. N., ORUDZHEV, D. D., KHUDIYEV, A. K.

"Synthesis and Sorption Properties of Phosphorus Containing Selective Polyelectrolytes"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 2 (84), 1973, pp 97-99

Abstract: A description is given of the synthesis of complex-forming films based on copolymers of diethyl ether of vinylphosphonic acids and acrilic acid with different ratios of the components. A study is made of their sorption properties as a function of the copolymer composition. Tabulated data are presented which show that it is more difficult for the diethyl ether of vinylphosphonic acid to enter into the copolymerization reaction than acrilic acid -- for all monomer ratios in the initial mixture, copolymers are obtained which are impoverished with respect to the ether.

A study was made of the sorption properties of cross-linked films with respect to K, Na, Ca, Mg, Ba, Zn and Cu ions in solutions with a concentration equal to 0.1 normal by the static method. Films based on the copolymers of all compositions (including the homopolymer of acrilic acid) fail in practice to extract ions of alkali and alkali-earth metals from water solutions of their chloride and sulphate salts. The films extract K and Na ions only in

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UDC 678.6

EFENDIYEV, A. A., et al., Azerbaydzhanskiy Khimicheskiy Zhurnal, No 2 (84), 1973, pp 97-99

an alkaline medium. The films are capable of extracting copper ions from neutral and even weakly acid solutions which indicates the occurrence of complex formation.

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USSR

UDC 621.785.377

KHUDOKORMOV, D. N. and GALUSHKO, A. M., Belorussian Polytechnic Institute

"Effect of Magnesium, Cerium, and Aluminum on Electroconductivity of Graphite in Synthetic Cast Iron"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 5, 1971, pp 425-427

Abstract: For certain amounts of Mg and Ce added to the pure alloy Fe-C containing 5 wt. % carbon, specific electroconductivity rho of the alloy can be reduced down to practically the values for pure iron. This low rho value of the alloy can be obtained only by alloying graphite inclusions with elements leading to a sharp increase in impurity conductivity of the graphite. When 0.1-0.2 % Mg relative to alloy weight is added, a very low rho value is obtained along the axis of load application during pressing. The anisotropy of the electroconductivity of pressings of graphite extracted from the cerium alloy varies just as for the case of graphite pressings made of the magnesium alloy. Aluminum used in the experiments as a "neutral" additive does not introduce marked changes in the ratio rho_c/rho_a (rho_c is the specific electroconductivity parallel to the axis along which the load is applied during pressing, while rho_a is the specific electroconductivity perpendicular to this axis). Results showed that when the amount of cerium added is increased to 0.1-0.2%, the intensity of the decrease in rho compared with the graphite of the initial

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KHUDOKORMOV, D. N., etal, Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 5, 1971, pp 425-427

alloy becomes steeper. This effect is associated with the increased number of current carriers in the graphite. Thus, the effect of variation in the anisotropy of electroconductivity of crystalizing free carbon under the action of magnesium and cerium must not be neglected when describing the mechanism of action of globulizing elements on the shape of graphite inclusions and cast iron.

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USSR

UDC 621.785.377

KHUDOKORMOV, D. N., and GALUSHKO, A. M., Belorussian Polytechnic Institute

"Effect of Magnesium, Cerium, and Aluminum on the Electric Conductivity of Synthetic Cast Iron Graphite"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 5, May 71, pp 425-427

Translation of Abstract: The effect of microadditions of magnesium, cerium, and aluminum on the electric resistivity ρ of pure Fe-C alloy containing 5 wt. percent carbon was studied. It was found that additions of Mg and Ce reduce ρ to practically pure iron values. The sharp drop in the resistivity of the alloy is due to the change in the anisotropy of the electric conductivity of the crystallizing free carbon under the action of the magnesium and cerium. Additions of aluminum cause no substantial decrease in ρ. The results obtained in ρ measusements for Fe-C alloy are confirmed by data obtained from measuring ρ and the temperature dependence of the resistivity of specimens pressed from graphite extracted from the alloy.

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USSR

KARAPETYAN, G. O.; RAABEN, E. L.; KHUDOLEYEV, A. G.

"Optical Absorption Spectra of Hexavalent Chromium in Nitrate Glasses"

Minsk, Zhurnal Prikladnoy Spektroskopii; January, 1971; pp 82-5

ABSTRACT: The optical absorption spectra of hexavalent chromium in glasses with a content of 50 $Mg(NO_3)_2 \cdot 50\ KNO_3$ are studied. By means of experimental data the molar extinction coefficient ε and the oscillator strength f for the observed absorption band at 27300 cm^{-1} are calculated. These are: $\varepsilon = 16200$, $f = 0.774$. The absorption band for 27300 cm^{-1}, in accordance with the oscillator strength and the diagram of the Ballhausen and Liehr molecular orbitals for the tetrahedral complex CrO_4^{2-} (J. Mol. Spectroscopy,

USSR

KARAPETYAN, G. O., et al, Zhurnal Prikladnoy Spektroskopii; January, 1971; pp 82-5

2, 342, 1958), is interpreted as corresponding to the orbital allowable transition $^1A_1 \rightarrow {}^1T_2$ with nonconnection $t_1(\pi)$ of the orbital with the antibonding orbital $e^*(\pi)$. It is shown that the degree of covalent bonding of the activator ligand in nitrate glasses is greater than in silicate glasses and that the π-bonds play a significant role in the complex CrO_4^{2-}.

The article includes two equations, one table, and two figures. There are 12 references.

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USSR

UDC 621.357.13:669.298

SMIRNOV, M. V., KUDYAKOV, V. YA., KHUDOLOZHKIN, V. N., and SHERSTOBITOVA, I.A.

"Volatile Components of Alloy Mixtures KCl-$ThCl_4$"

Tr. In-ta elektrokhimii. Ural'sk nauch. tsentr. AN SSR (Studies of the Institute of Electrochemistry. Ural Science Center, Academy of Sciences USSR) Vyp 18, 1972, pp 33-40 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L426 by A. D. Davydov)

Translation: The volatiles were measured in saturated vapors of KCl and $ThCl_4$ containing 0-50 mole % $ThCl_4$, in the temperature range 690-990°C. The composition of the gas phase was determined relative to the liquid phase. Based on the experimental data, the conclusion was drawn that there is an equilibrium concentration of the two compounds of the type K_2ThCl_6 in the vapor phase.

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USSR

UDC: 530.145

KLIMENKO, Yu. I. and KHUDOMYASOV, A. I., S. M. Kirov Polytechnical Institute, Tomsk

"Induced Radiation of Fermi Particles With Anomalous Magnetic Moments in the Field of Two Electromagnetic Waves"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy--Fizika, No 11, 1972, pp 71-76

Abstract: The generalized Dirac equation describing the motion of a relativistic particle having an anomalous magnetic moment is given. Since this equation has been solved for the electron in the field of a single plane electromagnetic wave in an earlier paper published in the same journal noted above (I. M. Ternov, et al, No 2, 1968, p 50), the authors of the present paper do the same for the electron in two superposed waves, circularly polarized and propagated in the same direction. Still a third electromagnetic wave directed at an angle to the first two but with lesser amplitude is assumed bearing on the electron. Under the effect of this third field, the electron makes some forced transitions that may be accompanied by induced strengthening or weakening of the third

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UDC: 530.145

KLIMENKO, Yu. I., et al, Izvestiya vysshikh uchebnykh zavedeniy--Fizika, No 11, 1972, pp 71-76

wave. This wave is assumed quantized and so low in amplitude that it is subject to the method of the theory of perturbations. Formulas are derived to yield a complete solution for the probability and power of the induced radiation for the electron with anomalous magnetic moment, and the case of neutral Fermi particles with the same type of magnetic moment is also investigated. The authors express their gratitude to Professor V. G. Bagrov for his assistance.

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1/2 041 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--COMBUSTION IN A SINTERING LAYER -U-

AUTHOR-(04)-BRATCHIKOV, S.G., GROSHEV, M.YA., KHUDOROZHKOV, I.P., TUMASHEV, V.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 46-50

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PROPULSION AND FUELS, MATERIALS

TOPIC TAGS--IRON ORE, SINTERING FURNACE, COMBUSTION KINETICS, CARBON, CARBON DIOXIDE, GAS ANALYSIS, COMBUSTION TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0803 STEP NO--UR/0148/70/013/004/0046/0050

CIRC ACCESSION NO--AT0132901
UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132901

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMONG THE COMPLEX PROCESSES GOING ON DURING SINTERING OF AN IRON ORE BATCH, THE COMBUSTION OF C AND THE REDN. OF FE OXIDES ARE SIGNIFICANT. BOTH PROCESSES EXERT AN EFFECT ON THE COMPN. OF THE GAS PHASE. THE COMBUSTION OF FUEL IN THE LAYER DILD. BY INERT MATERIAL WAS INVESTIGATED 1ST. THE CHANGE IN THE GAS COMPN. IN THE O ZONE IS ANALOGOUS TO THE CHANGE IN THE GAS COMPN. DURING THE COMBUSTION OF THE FUEL IN A DENSE LAYER WITHOUT INERT MATERIALS BEING PRESENT. THE INTERACTION BETWEEN C AND THE GAS TERMINATES SOONER THAN THE REDN. REACTION OF CO SUB2 GAS DEVELOPS. THE COMBUSTION OF C IN THE LAYER OF A BATCH CONTG. FE OXIDES IS ACCOMPANIED BY OXION. REDN. REACTIONS, THE EFFECT OF WHICH ON THE COMPN. OF THE GAS AT VARIOUS C YIELDS IS KNOWN. AT LOW C CONSUMPTION, FAVORABLE CONDITIONS ARE CREATED FOR THE OXION. OF LOWER FE OXIDES OF THE BATCH, AS A RESULT OF WHICH A LOSS IN CO SUB2 CAN TAKE PLACE. IF FEO IS NOT PRESENT IN THE BATCH, THEN THE COMPN. OF THE GAS IS STABILIZED. DECREASING THE FUEL CONTENT IN THE BATCH RESULTS IN A DECREASE IN THE TOTAL SURFACE OF INTERACTION OF C AND O. THE START OF COMBUSTION DOES NOT ALWAYS COINCIDE WITH THE INSTANT OF ATTAINMENT OF THE TEMP. CORRESPONDING TO THE INFLAMMATION POINT OF THE SOLID FUEL. A COINCIDENCE IS OBSD. ONLY AT LOW C CONTENTS (LESS THAN OR EQUALS TO 3.0-3.3PERCENT) IN THE BATCH. AT HIGHER C CONTENTS (4.0-5.0PERCENT), THE COMBUSTION COMMENCES LATER. TO THE LOW C CONTENT CORRESPONDS A HIGHER CONTENT OF RESIDUAL O IN THE GAS. UNDER THESE CONDITIONS, THE COMBUSTION OF THE FUEL COMMENCES AT LOWER TEMPS.

FACILITY: URAL. POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--THE PATHOGENICITY OF LAMBLIA -U-

AUTHOR-(02)-KOMAROV, F.I., KHUDOSHIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 52-54

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTOZOA, INFECTIVITY, SMALL INTESTINE, DIGESTIVE SYSTEM DISEASE, PATHOGENESIS, THERAPEUTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0698 STEP NO--UR/0177/70/000/003/0052/0054

CIRC ACCESSION NO--AP0134435

UNCLASSIFIED

2/2 024 UNCLASSIFIED

CIRC ACCESSION NO--AP0134435 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALMBLIOSIS IS WIDESPREAD AMONG THE POPULATION. ACCORDING TO THE LITERATURE DATA, THE INFECTIVITY OF ADULTS VARIES FROM 3.4 TO 13PERCENT AND OF CHILDREN, FROM 16 TO 75PERCENT (A. YE. SOKURENKO, 1954; ZH. A. ALEKSANYAN, 1955; M. S. MASLOV, 1951). IN RECENT YEARS MANY WORKS ON LAMBLIOSIS HAVE APPEARED (I. D. ASS, 1964; V. K. ILINICH, 1965; M. YA. KRIVOKHIZHA, 1966; L. V. MUKHINA, 1967, AND OTHERS). HOWEVER, UP TO NOW THERE IS NO AGREEMENT ON THE PATHOGENIC ROLE OF LAMBLIA. MANY CLINICISTS CONSIDER THEM PATHOGENIC ORGANISMS AND SEE IN THEM THE CAUSE OF VERY VARIED AFFLICITIONS OF MAN (M. P. KONCHALOVSKIY AND S. M. TAREYEV, 1946; A. M. SEMENOV, 1955; A. F. TUMKA, 1967, AND OTHERS). OTHER INVESTIGATORS ADHERE TO THE OPINION THAT LAMBLIA IS HARMLESS TO MAN I. A. RASULEV, 1957; A. I. AVENIROVA, 1966; M. V. GUBERGRITS AND V. L. VARLANOVA, 1967, AND OTHERS). A THIRD GROUP ASSUME THE POSSIBILITY OF THEIR PATHOGENIC EFFECT ON THE ORGANISM ONLY IN DISEASE OF THE GASTROINTESTINAL TRACT (M. V. FEDOROVA AND M. V. VASIL'YEVA, 1967, AND OTHERS). THE DIAMETRICALLY OPPOSED VIEWS OF THE PATHOGENICITY OF LAMBLIA CAN HAVE A NEGATIVE EFFECT ON THE ORGANIZATION OF THERAPEUTIC AND PREVENTIVE MEASURES. THIS HAS INDUCED US TO SHARE OUR OBSERVATIONS AND EXPRESS OUR POINT OF VIEW ON THIS QUESTION.

UNCLASSIFIED

USSR

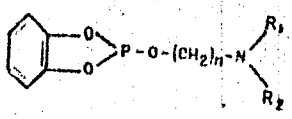
UDC 547.26'118.07

KHASKIN, A. N., SAKISYAN, L. A., KHUDOYAN, K. L., AYRAPETYAN, S. G., and ZAVLIN, P. M., Leningrad Institute of Cinema Engineers

"A Method of Making N-Substituted Aminoalkyl Esters of Pyrocatecholphosphorus Acid"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 25, Soviet Patent No 277781, class 12, filed 4 Apr 69, published 5 Aug 70, p 27

Translation: This Author's Certificate introduces a method of making N-substituted aminoalkyl esters of pyrocatecholphosphorous acid of general formula



where n is 2 or 3, R_1 is C_2H_4OH, an alkyl or a phenyl, and R_2 is H or an alkyl. As a distinguishing feature of the patent, the corresponding N-substituted alkanolamines are treated with pyrocatecholchlorophosphite in an organic solvent with subsequent isolation of the product by the action of an alkoxide of an alkali metal.

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172 025 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--MELTING NICKEL ALLOYS IN VACUUM MELTING FURANCES -U-

AUTHOR-(02)-KHUDOZHNIK, O.A., KRAPIVNER, L.L.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(1), 71-3

DATE PUBLISHED-------70

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

TOPIC TAGS--NICKEL ALLOY, ALLOY MELTING, VACUUM FURNACE, REFRACTORY MATERIAL, GAS ANALYSIS, METAL CONTAINING GAS, METAL DEOXIDATION, CARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0761 STEP NO--UR/0136/70/043/001/0071/0073

CIRC ACCESSION NO--AP0102726

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102726

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VACUUM MELTING INDUCTION FURNACES OF CONTINUOUS OPERATION AND OF THE EDWARDS HIGH VACUUM TYPE WERE USED FOR THE PREPN. OF BILLETS FROM NI ALLOYS CONTG. MG 0.04-0.1 AND W 2.5-3.5PERCENT. THE CHARACTERISTICS AND THE FUNDAMENTAL PARTS OF THE FURNACE ARE DESCRIBED. THE MELTING CHAMBER IS A CYLINDER MADE OF C STEEL 2000 MM IN DIAM. AND 2740 MM IN HEIGHT: ITS VOL. IS SIMILAR TO 11.5 M PRIME3. THE FURNACE HAS 2 INDEPENDENT VACUUM SYSTEMS. THE CRUCIBLES WERE MADE FROM REFRACTORIES TERMAKS B-3, TERMAKS MG-10, AND TERMAKS FUMAGAL 313A. RESULTS OF THE NI ALLOY MELTING SHOW THAT THE 1ST MELTINGS IN THE NEW CRUCIBLE CONTAIN A SLIGHTLY INCREASED AMT. OF SI, WHICH IS EXPLAINED BY THE FACT THAT C NOT ONLY DEOXIDIZES NI, BUT ALSO REDUCES SI FROM THE SIO SUB2 OF THE CRUCIBLES. IN NI DEOXIDIZED BY MG THERE IS A LARGER AMT. OF NONMETALLIC INCLUSIONS IN THE FORM OF MGO AS COMPARED TO THE NI DEOXIDIZED BY C. ROOS OF NI ALLOYS PROCESSED BY SAID VACUUM MELTING CONTAINED H SMALLER THAN 0.0002, O SMALLER THAN 0.0005, AND N SMALLER THAN 0.001PERCENT. THE MEAL PRODUCED BY SAID VACUUM MELTING IS ACCORDING TO CHEM. COMPN., GAS CONTENT, MECH. PROPERTIES, STRUCTURE, D., AND TECH. PROPERTIES, PRACTICALLY ON THE SAME LEVEL WITH ANALOGOUS METAL OF VACUUM MELTING PREPD. PREVIOUSLY IN OKB-5718 FURNACES.

UNCLASSIFIED

USSR

UDC 621.039.532.5:621.039.553

KHUDYAKOV, A. V.

"Helium Pore Growth Rate in Irradiated Beryllium Oxide During Annealing"

Moscow, Atomnaya Energiya, Vol 30, No 1, Jan 71, pp 54-55

Abstract: Beryllium oxide samples were irradiated at 70°C in an integral flux of 5×10^{20} neutron/cm^2 ($E \geq 1$ Mev). To produce a concentration of helium atoms equal to approximately 1.2×10^{19} cm^{-3}. These samples were then annealed at 1400 and 1500°C. For samples annealed at 1400°C the number of pores observed increased up to 30 minutes, after which the number decreased. However, the average pore size continually increased with time. At 1500°C, 633 pores were noted at heating for 4 minutes while only 36 could be found after 15 minutes at that temperature. Again the average pore size grew with increased heating time. The assumption was made that the pore growth was caused by the high gas pressure in them (5000 atm at 1400-1500°C). The grain boundaries (vacancy sources) had a great effect on pore size. The mechanical stresses at the grain boundaries, due to their anisotropic expansion during heating, plays some role. It is possible to conclude that in reactors at 1400-1500°C almost all the helium

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320010-0"

will be concentrated in pores. Secondly, the helium pressure in the pores for each time interval of irradiation will be equalized by surface tension. These conclusions stem from the fact that development of pores from the moment of nucleation up to stoppage of growth occurs at specific temperatures in a very short time.

The author thanks Z. Ye. OSTROVSKIY, N. V. SUDAKOVA, and G. S. BALANDIN for their assistance in the work and V. I. KLIMENKOV for useful discussions.

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT7(

TITLE--AMOUNT OF GAS SWELLING IN IRRADIATED BERYLLIUM OXIDE -U-

AUTHOR-(03)-KHUDYAKOV, A.V., SUDAKOVA, N.V., BALANDIN, G.S.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(2), 157-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--BERYLLIUM OXIDE, IRRADIATION, HELIUM, POROSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1575 STEP NO--UR/0089/70/028/002/0157/0159

CIRC ACCESSION NO--AP0120354

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120354

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IRRADN. OF COLD PRESSED AND SINTERED BEO (D. 2.8 G-CM PRIME3 AND MEAN GRAIN SIZE 35 MU) WITH AN INTEGRATED DOSE OF 5 TIMES 10 PRIME20 GREATER THAN OR EQUAL TO 1-MEV N, AT 70DEGREES SHOWED NO MICROCRACKS AND PRACTICALLY NO INCREASE IN TOTAL POROSITY, WHICH WAS 8.3-8.9PERCENT. ANNEALING OF THE IRRADIATED BEO FO 15-225 HR AT 1500DEGREES INCREASED THE POROSITY TO 11.0-12.5PERCENT; NO SUCH INCREASE IN POROSITY WAS OBSD. ON ANNEALING NONIRRADIATED SAMPLES. THE INCREASE IN POROSITY WAS ASSOCD. MAINLY WITH THE FORMATION OF INTERGRANULAR POROSITY; THE OPEN POROSITY ACTUALLY DECREASED FROM 1.9PERCENT IN NONIRRADIATED SAMPLES TO 0.86PERCENT IN IRRADIATED SAMPLE AND 0.4PERCENT IN IRRADIATED AND ANNEALED SAMPLES. THE MEAN SIZE OF HE PORES (WHICH OCCUPIED SIMILAR TO 1PERCENT OF THE TOTAL VOL. OF IRRADIATED AND ANNEALED SAMPLES) WAS 0.6-0.7 MU.

UNCLASSIFIED

USSR

UDC 662.75:662.61

BLINOV, V. I., LUSHPA, A. I., KHAYLOV, V. M., and KHUDYAKOV, G. N.

"Burning Rich Kerosene-Air Mixtures in a Tunnel-Type Combustion Chamber"

Moscow, Goreniye i vzryv -- sb. (Combustion and Detonation -- Collection of Works), Nauka Publishing House, 1972, pp 416-420 (from Referativnyy Zhurnal -- Teploenergetika, No 3, 1973, Abstract No 3T71)

Translation: The authors present the results of experimental research in the effect of the excess air ratio (α = 1.0-0.3), the air temperature (T_a = 0-1,000°C), and the length of the combustion chamber (0.5-0.2 meters) on the degree of approximation of the mixture and the combustion products' parameters to their equilibrium values in a chamber with an internal diameter of 100 mm and at a pressure of 1.1 kg/cm^2. As the values of α and T_a are reduced, the difference between the experimental and theoretical parameters increases, while the curves showing the change in the experimental data along the length of the chamber have a greater slope. The authors show that the process of achieving an equilibrium state is limited by the heterogeneous combustion of the solid carbon given off during the thermal decomposition of the kerosene in the initial combustion zone. (4 illustrations; 5 bibliog. ref.)

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USSR

UDC 629.7.036.3:536.46

BLINOV, V. I., LUSHPA, A. I., KHAYLOV, V. M., and KHUDYAKOV, G. N.

"The Combustion of Rich Kerosene-Air Mixtures in a Tunnel-Type Chamber"

Moscow, Goreniye i Vzryv--Sbornik (Combustion and Explosion--Collection of Works), Nauka, 1972, pp 416-420 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34.26. Resume)

Translation: Results are presented of an experimental investigation of the influence of the air-excess coefficient (α = 1.0 -- 1.3), the air temperature (T_{air} = 0 -- 1000°C), and the combustion-chamber length (0.5--2.0 m) upon the degree of approximation of the composition and parameters of the combustion products to their equilibrium values in a chamber with an inner diameter of 100 mm at a pressure of 1.1 absolute atmospheres. The result is obtained that as α and T_{air} decrease, the difference between the experimental and theoretical parameters increases, and the curves of change of the experimental data with respect to the chamber length become flatter. It is shown that the process of attainment of the equilibrium state is limited by the heterogeneous combustion of solid carbon escaping during the thermal decomposition of kerosene in the initial zone of combustion. 4 figures. 5 references.

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USSR

GORLIN, S. M., MIRONOVA, N. A., KHUDYAKOV, G. Ye.

UDC: 533.6.07

"Wind Tunnels"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works. Institute of Mechanics of Moscow University), 1971, No 14, pp 4-27 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B541)

Translation: The authors describe the construction and aerodynamic characteristics of wind tunnels of the Institute of Mechanics, Moscow State University: tunnel A-6 (a closed single-channel tube with open working section of elliptical cross section measuring 2.34 × 4 m, flowrate $V \leqslant 50$ m·s^{-1}, nonuniformity of velocity field of less than ±0.5%, downwash in the range of ±15′ (±4.36·10^{-3} rad), gradient of static pressure along the axis of the tube $d\bar{p}/dx = 0.002$ m^{-1}, turbulence intensity $\varepsilon_0 \leqslant 0.2\%$, drive power $N = 2000$ kW); tube A-10a (a direct-action tunnel capable of operation with a closed octangular working section 800 mm high, or with an open section and an Eifel chamber, $V \leqslant 55$-10 m·s^{-1}, $\varepsilon_0 \approx 0.4\%$, $N = 240$ kW); tunnel A-1 (closed type with a closed working section 250 mm in diameter, $V \leqslant 60$ m·s^{-1}, $\varepsilon = 0.4\%$, $N = 21$ kW); tunnel A-4 (direct-action with a closed 300 × 300 mm working section, $V = 25$

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GORLIN, S. M. et al., Nauch. tr. In-t mekh. Mosk. un-ta, 1971, No 14, pp 4-27

m·s^{-1}, N = 6 kW); tunnel A-11 (a near-sonic tube with ejector drive and supply from a gas tank, M = 0.4-2.5, $\varepsilon_0 \approx 0.9\%$). Information is also given on the tunnel instrumentation. B. I. Bakum.

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GORLIN, S. M., KHUDYAKOV, G. YE.

UDC 533.6.013.42

"Lift Reversal Effect for Cylindrical Bodies of Circular Cross Section"

Nauch. tr. In-t mekh. Mosk. un-ta(Scientific Works. Institute of Mechanics of Moscow University), 1971, No. 12, pp 34-46 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V509)

Translation: The physical reasons for a considerable change in the aerodynamic characteristics of unstreamlined bodies with a change in Reynolds number are discussed. These characteristics have been studied especially little in the range of large values of R. Computational methods for determining them even for the plane case of steady-state flow of a viscous liquid are still not developed to the necessary degree. On the basis of experimental data attention is devoted to the considerable difference in the behavior of the aerodynamic coefficients of a nonstreamlined body under different orientations to the flow from the Reynolds number. Measurements were made for models with a semicircular cross section over a wide range of angles of orientation to the flow for $R = (1.5\text{-}8)\cdot 10^5$. Zero angle of attack corresponds to the incident velocity vector coinciding with the plane side of the model. For values of $R = 2.2\cdot 10^5$ in a narrow zone of angles of attack ($\pm 15^\circ$), there occurs a zone of negative

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GORLIN, S. M., KHUDYAKOV, G. YE., Nauch. tr. In-t mekh. Mosk. un-ta, 1971, No. 12, pp 34-46

values of the lift. Graphs of the change in lift as a function of the angle of orientation have minima and the signs do not change for the upper boundary of the region of values of R studied. On the other hand, at subcritical and high values of R the nature of the change in the drag coefficient as a function of angles of orientation are greatly different. The reason for these effects is the change in the nature of the flow of the convex portion of the model in the zone of small angles of orientation under a change in R. The nature of the flow over the plane edge of the model at small angles is a separation. With the growth of the absolute angles in values of R the boundary of the separation zone is displaced toward a rear angular point. It is noted that the range of values of R in which lift reversal occurs for these models is also characterized by a crisis flow in the case of a circular cylinder. Graphs are given showing the change in the aerodynamic quality and the polar of the model for various R. These characteristics of the effect of Reynolds number appear to a greater degree with an increase in the length of the models. 5 ref. K. G. Kravtsov.

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USSR

UDC: 533.6.07

GORLIN, S. M., KHUDYAKOV, G. Ye., ZIBOROVA, S. P., TIMOSHUK, L. T.

"Effect Which Initial Flow Turbulence Has on Flow Around Solids and Their Characteristics"

V sb. Nauchn. konferentsiya. In-t mikhan. MGU. Tezisy dokl. (Scientific Conference. Institute of Mechanics of Moscow State University. Summaries of the Reports--collection of works), Moscow, 1970, pp 22-23 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B504)

Translation: Data are given from studies of the effect which initial flow turbulence ε_0 has on streamline flow and on the aerodynamic characteristics of various solids. The research was done in a subsonic wind tunnel with $\varepsilon_0 = 0.2$-10%. It is shown that: 1) the lift coefficient of the wing and the model is critically dependent on the parameter ε_0; 2) the initial flow turbulence has a considerable effect on the critical Reynolds number for rounded, poorly streamlined bodies; 3) for poorly streamlined solids with sharp edges, as ε_0 increases as a consequence of the change in nature of the burbling zone, there is first an increase, and then stabilization

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GORLIN, S. M., et al, V sb. Nauchn. konferentsiya. In-t mikhan. MGU. Tezisy dokl., Moscow, 1970, pp 22-23 (From RZh-Mekhanika, No 9, Sep 70, Abstract No 9B504)

or a reduction in the drag c_x for the solid which exceed in magnitude the changes in c_x due to the Reynolds number. Mention is made of the leveling effect which a deflector has on the aerodynamic drag of poorly streamlined solids for various values of ε_0. The authors discuss the effect of ε_0 on parameters of oncoming flow close to local terrain, city skylines, etc. B. I. Bakum.

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USSR

UDC 629.7.036.54

TISHIN, A. P., KHUDYAKOV, V. A., KOSTIN, V. N.

"On the Retention of Condensate Particle Crystallization in the Nozzle of a Jet Engine"

Kazan', Izvestiya vysshikh uchebnykh zavedeniy - Aviatsionnaya tekhnika, No. 2, 1971, pp 24-31

Abstract: The effect of crystallization retention of condensate particles in the nozzle on the power characteristics of a jet engine are discussed. It is noted that in the standard technique for calculating the thermodynamic characteristics of rocket fuels, it is assumed that the expansion process in the nozzle is an equilibrium process. For fuels with two-phase combustion products this indicates that under expansion the temperature and rate of the particles and the gas are equal and the condensate as it cools in the nozzle passes uniformly through phase states. For example, the combustion products of solid fuels with Al additives contain 15-35% condensed aluminum oxide which has a melting point of 2303°K. The combustion temperature of these fuels is 3000-3500°K and the temperature of products at the cutoff of the nozzle is 1500-2000°K. The aluminum oxide particles in the combustion chamber are in the cold state according to an equilibrium thermodynamic calculation; the temperature of the products reaches 2303°K upon expansion in a certain cross section of the nozzle. The expansion process subsequently occurs isothermally until the

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TISHIN, A. P., et al, Izvestiya vysshikh uchebnykh zavedeniy - Aviatsionnaya tekhnika, No. 2, 1971, pp 24-31

heat of aluminum oxide crystallization is transformed into kinetic energy. In this section of the nozzle the condensate gradually transforms from the liquid to the solid state as heat is transferred to the gas. In each cross section the amount of hardened concentrate is equal to the amount of heat of crystallization removed. In the actual case the equilibrium process may be limited, first by the finite rate of crystallization and second by the finite rate of heat transfer from particles to the gas. Results of an approximate thermodynamic calculation and of special thermodynamic calculations of two compositions with 7 and 15% aluminum are given for determining the relative effectiveness of the expansion process in the absence of crystallization. Also given are the results of calculations of known equilibrium flows of two-phase combustion products of a composition with 15% Al for the study of the effect of the rate of heat exchange between particles in the gas on the crystallization process. It is shown that in a real case the phase transition heat may be achieved in the nozzle to a considerable degree only under suitable conditions of heat exchange between the particles and the gas.

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Acc. Nr: AP0055147

Ref. Code: UR0220

PRIMARY SOURCE: Mikrobiologiya, 1970, Vol 39, Nr 2, pp 372-378

PURPLE BACTERIA IN OIL STRATA OF THE APSHERON PENINSULA

Ye. P. Rozanova and A. L. Khudyakova

Purple bacteria are distributed in waters of the stratum of Balakhano-Sabunchino-Ramanino flexure of the Apsheron peninsula, watered by mixtures of stratum and sea water, exploited by compressor bore holes, into which air is pumped. These bacteria are found rather rarely in water samples from nonwatered strata of Surakhan flexure and were registered only in the water sample of one compressor bore-hole among 15 studied.

Ecological conditions of the habitat of purple bacteria were similar. Water samples, containing the bacteria, were of sodium hydrocarbonate type with a salinity of 15—39 g/l salts, contained sulphates, had weak alkaline reaction and rather high redox potential.

The cultures of purple bacteria, isolated from the oil stratum of Balakhano-Sabunchino-Ramanino flexure, watered by sea water, differed by their morphological proper-

ties from the cultures isolated from the stratum of Surakhan flexure. Their physiological properties were similar. The bacteria belonged to genera of the families Athiorhodaceae Rhodospirillum and Rhodopseudomonas. The organisms were capable to grow in dark in the presence of air on media with organic acids as well as in biocenosis in the presence of oil.

Biocenosis with purple bacteria in the zones of strata with compressor bore-holes contained also sulphate-reducing, hydrocarbon oxidizing and thionic bacteria, heterotrophs, growing on MPA, and oligocarbophils.

The sheme is suggested explaining penetration and distribution of purple bacteria in oil strata in dark in the presence of oxygen.

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Acc. Nr. AP0049838 Abstracting Service: CHEMICAL ABST. 5/70 K Ref. Code UR0075

106738y Theoretical curves of the conductometric titration of acids and bases in nonaqueous solutions. Khudyakova, T. A.; Kreshkov, A. P. (Gorki Polytech. Inst., Gorki, USSR). *Zh. Anal. Khim.* 1970, 25(1), 11–17 (Russ). Equations were derived for titrn. curves of acids and bases in nonaq. solvents, permitting the calcn. of equil. concns. of solvated H ions, acid anions, and base cations during the titrn. Ion concn. dependences were found and theoretical curves of the conductometric titrn. of acids of different strength by strong and weak bases in a nonaq. solvent with $pK_s = 20$ were derived. Chaim Weiner

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