"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

Polymers and Polymerization

USSR UDC 54--126+546.56+546.81

DUSHCHENKO, V. P., BARANOVSKIY, V. M., KUZ'MOVICH, V. V., CHEGORYAN, V. M., VYSOTSKAYA, V. N., and IVKINA, N. A., ~~Institute of Colloidal~~ Chemistry and Chemistry of Water, Academy of Science Ukrainian SSR

"Thermophysical Properties of Metallopolymers Derived From Inorganic Heteropolyacids"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 37, No 6, Jun 71, pp 618-620

Abstract: Coefficients of heat- and electroconductivity of copper and tin metallopolymers derived from silicomolybdic and silicotungstic acids were studied as functions of temperature. The acids were reduced by respective metals employing a ratio of 6 electrons per acid molecule. Highly dispersed metals were produced in aqueous solutions of complex blues by electrolytic or chemical methods; the complexes were coagulated on the surface of metal particles, and then the system was treated with barium oxide or glycerine at 200°C. The resulting powdery metallopolymers were compressed into tablets and studied by the method of dynamic heating. It was shown that the inorganic base of these metallopolymers exhibits some crystalline structure. Metal particles appear to be isolated from each other by layers of the inorganic

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

DUSHCHENKO, V. P., et al., Ukrainskiy Khimicheskiy Zhurnal, Vol 37, No 6, Jun 71, pp 618-620

polymer. The relationship between the coefficient of heat conductivity and temperature is analogous to the case of crystalline polymers. An increase in the concentration of metal in metallopolymers results in different increases of the coefficient of heat conductivity, depending on the polymer.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 54-126+546.72+661.88

DUBININ, V. N., KUZ'MOVICH, V. V., SHEVTSOVA, A. F., IVKINA, N. A., and NATANSON, E. M., Institute of Physics and Institute of Colloid Chemistry and the Chemistry of Water, Academy of Sciences Ukr. SSR

"Application of the Moessbauer Effect for the Study of the Composition of Metal Polymers Derived from Inorganic Polymers"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 12, Dec 70, pp 1,298-1,299

Abstract: The Moessbauer effect was applied for the study of Fe and Sn polymers derived from silicomolybdic acid. The synthesis of these polymers has been described elsewhere. The Moessbauer effect spectra of the Fe polymers exhibited a doublet indicating the presence of amorphous $Fe(OH)_3$. Presumably highly disperse crystalline beta-FeOOH or alpha-FeOOH was present in the polymers. A second doublet corresponded to interaction of colloidal metallic Fe with the basis of the polymer. The magnitude of this doublet indicated that the amount of Fe which had reacted with the polymer basis was 15 and 30%, respectively, for polymers prepared by the electrolytic method and those prepared chemically. The spectra of Sn polymers constituted a superposition

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

DUBININ, V. N., et al, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 12, Dec 70, pp 1,298-1,299

of spectra typical for SnO_2 and metallic Sn, and of a doublet with parameters characteristic for Sn dioxide and hydroxide. The relative content of metallic Sn was approximately 10%.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 621.375.82

LATYNIN, YU. M., and KUZ'MYCHOV, V. M.

"Effect of Giant Laser Pulses on Thin Metallic Wire"

Visnyk Kharkiv. un-tu (Herald of Khar'kov University), 1973, No 92, Radiophysics, vyp. 2, pp 86-89 (Ukrainian) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D901 by V. N. SH.)

Translation: For purposes of studying the possibility of using thin metallic wires in a laser emission energy meter, a study was made of the effect of a neodymium glass laser pulse on Pt wire 3 microns in diameter. It was found that under the action of a giant emission pulse the increase in its electrical resistance is proportional to the incident energy right up to densities causing failure of the wire. The radiation striking a black wire causes it to kink and stretch. The simultaneous decrease of almost 4% in the electrical resistance of the wire is due to the disappearance of imperfections in the crystal lattice.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 681.327

FINOGEYEVA, G. G., KOVAL', Ye. N., and KUZNECHENKOV, V. P.

"Memory Element with 2-Aperture Transfluxor"

USSR Author's Certificate No 275142, Filed 7/02/69, Published 6/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemakhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B286P)

Translation: Memory elements with 2-aperture transfluxors made of material with a rectangular hysteresis loop, operating in the mode of partial switching, are well known. The basic shortcoming of these elements is the low linearity of the accumulation characteristic U=f(N) (U is the amplitude of the pulse taken from the output winding of the transfluxor, N is the number of pulses recorded), which occurs as a result of the non-ideal rectangularity of the hysteresis loop of the magnetic material, the finite dimensions of the transfluxor, and other factors. The memory elements suggested differ in that the output winding of the transfluxor is connected to its load through a quadrupole which is made as an integrating RC circuit with changing time constant. This allows linearization of the accumulation characteristic. 3 figs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF THE HEAT OF HYDRATION OF CEMENT -U-

AUTHOR-(04)-ZASEDATELEV, I.B., MAMEDOV, F.YU., MESHIN, G.V., KUZNECHENKO, YU.L.

COUNTRY OF INFO--USSR

SOURCE--USSR 263,221

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

DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, PATENT, HEAT OF HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1475 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128874

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128874

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT OF HYDRATION OF CEMENT WAS DETD. BY CALORIMETRIC MEASUREMENTS IN AN AUTOCLAVE, USING A DIFFERENTIAL CALORIMETER CONTG. REF. SUBSTANCES AND THE SUBSTANCES TO BE ANALYZED. TO INCREASE THE TEMP. RANGE OF THE ANAL., THE AUTOCLAVE IS FILLED WITH GAS, SUCH AS N, AT A PRESET PRESSURE AND THE TEMP. OF THE MEDIUM IN THE AUTOCLAVE IS MAINTAINED AT A LEVEL BELOW THE B. P. OF WATER AT THE PRESET PRESSURE. THE DIFFERENCE IN THE CONSUMPTION OF ELEC. ENERGY EXPENDED WHILE HEATING THE SUBSTANCE BEING ANALYZED ACCORDING TO A SET PROGRAM AND WHILE MAINTAINING THE TEMP. OF THE REF. CALORIMETRIC SUBSTANCE AT THE TEMP. OF THE SUBSTANCE UNDER ANAL. IS DETD. THE UNKNOWN QUANTITY IS DETD. FROM THE DIFFERENCE IN THESE CONSUMPTIONS. FACILITY: TEPLOPROEKT ALL UNION SCIENTIFIC RESEARCH AND DESIGN INSTITUTE.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 041 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--THE FIRE BIRD OF AERODYNAMICISTS -U-

AUTHOR--KUZNECHIKOV, V.

COUNTRY OF INFO--USSR

SOURCE--PRAVDA UKRAINY, JULY 24, 1970, P 4, COLS 1-6

DATE PUBLISHED--24JUL70

SUBJECT AREAS--PHYSICS, METHODS AND EQUIPMENT, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DESIGN BUREAU, WIND TUNNEL, COMPUTER APPLICATION, AERODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0887 STEP NO--UR/9013/70/000/000/0000/0000

CIRC ACCESSION NO--AN0122931

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 041 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AN0122931

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THANKS TO THE INVENTION MADE BY ASANOV, THE DESIGN BUREAU OF O. K. ANTONOV NOW HAS THE FIRST WIND TUNNEL WHOSE TEST DATA ARE AVAILABLE IN THE FORM OF GRAPHS IMMEDIATELY AFTER TESTING THE MODEL. THE IMMENSE SAVING OF TIME HAS BEEN MADE POSSIBLE BY LINKING THE WIND TUNNEL TO A SMALL COMPUTATION CENTER AND BY INTRODUCING A CARD PUNCH THAT IS ACTIVATED BY THE AERODYNAMIC BALANCE. IT TOOK TWO YEARS TO ELIMINATE MANUAL PUNCHING OF COMPUTER CARDS. WHILE AT THE ANTONOV DESIGN BUREAU, THE AUTHOR MET O. V. FLORINSKIY, HEAD OF THE EXPERIMENTAL DEPARTMENT, NAIL KHANITOVICH, HEAD OF A DEPARTMENT, AND ASANOV, THE PRINCIPAL INVENTOR OF THE NEW SYSTEM.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PROBLEM OF HUMAN TOLERANCE UNDER THERMAL STRESSES -U-

AUTHOR-(03)-GORODINSKIY, S.M., BAVRO, G.V., KUZNETS, YE.I.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P. 30-34

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THERMAL STRESS, BODY TEMPERATURE, HUMAN PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0289 STEP NO--UR/0453/70/004/000/0030/0034

CIRC ACCESSION NO--AP0120978

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120978

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE VALUE OF VARIOUS PHYSIOLOGICAL INDICES AS CRITERIA OF THE THERMAL STRESS TOLERANCE OF MAN. RECTAL TEMPERATURE IS FOUND TO BE AN INSUFFICIENTLY INFORMATIVE CREITERION OF THERMAL STRESS TOLERANCE. A CLOSER RELATION IS ESTABLISHED BETWEEN TOLERANCE AND THE THERMAL CONDITION OF THE BODY SURFACE. IT IS ALSO SHOWN THAT THE MEAN TEMPERATURE OF THE BODY IS A USEFUL CRITERION AND THAT THE TOLERANCE CAN BE VARIED SUBSTANTIALLY BY LOCALIZED COOLING OF PORTIONS OF THE BODY.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC: 621.317.373

KUZNETSKIY, S. S., CHMYKH, M. K.

"Classical Digital Methods of Measuring Phase Displacement"

V sb. Tonkiye magnitn. pleenki, vychisl. tekhn. i radiotekhn. T. 1 (Thin Magnetic Films, Computer Technology and Radio Engineering--collection of works. Vol. 1), Krasnoyarsk, 1970, pp 32-36 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A345)

Translation: Methods of converting phase displacement to code are taken as a basis for the proposed classification. It is pointed out that the most extensively used phase meters are those with intermediate conversion of phase displacement to time intervals. These meters can be divided into two groups: "single-period" and "multiple-period". The groups are then broken down into subgroups. Bibliography of nine titles. E. L.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 666.01:542.65:666,117.9

KUZNETSOV, A. A., MAKAROV, A. P.

"Influence of Glassmaking Conditions on Photochromic Properties of Glass Activated by Cerium"

Optiko Mekhanicheskaya Promyshlennost', No 12, 1972, pp 37-38.

Abstract: The influence of manufacturing conditions on the properties of photochromic glasses activated by cerium is studied. It is established that the maximum photochromic effect is achieved in glasses melted in flame furnaces, where the necessary reducing conditions are provided. Glassmaking in a medium of nitrogen and argon, although it provides good reproducibility of results, does not provide a high photochromic effect, particularly in the medium of nitrogen. The clear dependence of the photochromic effect on the concentration of dissolved nitrogen in the glass indicates that nitogen effects photochromism.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

Acoustics

USSR UDC: 534

SVETLICHNYY, I. B., MARGOLIN, A. D., KUZNETSOV, A. A., POKHIL, P. F., MYSOV, V. G.

"Direct Method of Measuring the Acoustic Conduction of the Burning Surface of Powder"

Fiz. aerodispers. sistem. Mezhved. nauch. sb. (Physics of Aerodisperse Systems. Interdepartmental Scientific Collection), 1971, vyp. 4, pp 84-92 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Zh524)

Translation: A direct method is developed for measuring acoustic conductivity of a burning surface as the ratio of the change in the velocity of outflow of combustion products from the surface to the pressure in the acoustic wave at the burning surface. The pressure is measured by a piezoelectric transducer, and the acoustic velocity at the burning surface is determined by an electromagnetic flowmeter system with transverse magnetic field in a tube of circular cross section with insulated walls. The high--temperature ionized products of gunpowder combustion acted as the conducting medium. The test specimen of powder was placed in the tube together with a noise emitter which generated plane longitudinal waves. Measurements

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

SVETLICHNYY, I. B. et al., Fiz. aerodispers. sistem Mezhved. nauch. sb., 1971, vyp. 4, pp 84-92

could be made both at fixed and variable pressures and signal frequencies. A theory of the method is developed, and a theoretical analysis and experimental study are made of the effect of various factors on measurement results. The dimensionless acoustic conduction of the burning surface of nitroglycerin powders is measured, and satisfactory agreement with the results of measurements by other methods is obtained. Authors' abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

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USSR

UDC 531.781.2+536.5:658.62.011.56

BEKLEMISHCHEV, A. I., BLOKIN-MECHTALIN, YU. K., BRENNERMAN, V. M., KUZNETSOV, A. A., LEBEDEVA, A. I., SHARIY, K. A.

"Information Measuring System for Automating Deformation and Temperature Measurements in Testing Structures for Strength"

V sb. Ustroystva i elementy sistem avtomatiz. nauch. eksperimentov (Devices and Elements of Automation Systems for Scientific Experiments -- Collection of Works), Novosibirsk, "Nauka", 1970, pp 169-172 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.145)

Translation: The system includes a digital measuring device, a device for transducer commutation, a centralized computer system and a device for contact with the object. The basic characteristics of the system are: number of transducers connected 2500 (2000 tensometers and 500 thermocouples); range of measuring deformation $\pm 1 \cdot 10^{-5} - \pm 0.5 \cdot 10^{-2}$ relative units; temperature measurement range 0-375°C, 0-750°C and 0-1250°C; the size of the scale of the measuring device is 1000 units; rate of interrogation is 30 transducers per second for each of the channels; the reduced maximum error (without considering transducer error) is 1%; length of measurement distance is up to 150 m.

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USSR

BUDAGOV, YU. A., VINOGRADOV, V. B., VOLOD'KO, A. G., DZHELEPOV, V. P., KIRILLOV-UGRYUMOV, V. G., KLADNITSKIY, V. S., KUZNETSOV, A. A., LOMAKIN, YU. F., MEL'NIKOVA, N. N., PONOSOV, A. K., FLYAGIN, V. B., SHLYAPNIKOV, P. V., MARTINSKA, G.(1), BOLDEA, V. (2), MIKHUL, A. (2), MUMUYANU, D. (2), PONTA, T. (2), TELEA, S. (2), and CHADRAA, B. (3), Joint Institute of Nuclear Research; (1) University imeni P. I. Shafarik, Koshitse, Czechoslovak SSR; (2) Institute of Atomic Physics, Bucharest, Romania; (3) Physics Institute of the Academy of Sciences Mongolian People's Republic, Ulan-Bator

"Study of the Mass Spectrum of a ΛK-System in $\pi^- p$-Interactions at 4 and 5.1 Gev/c"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

Abstract: The results of a study of the spectrum of the effective masses of a ΛK-system are reported. The spectrum was obtained in investigating $\pi^- p$-interactions in a 24-liter and a 1-meter propane bubble chamber irradiated in π-meson beams of the proton synchrotron of the Joint Institute of Nuclear Research with pulses of 4 and 5.1 Gev/c, respectively. An investigation of the structure of the effective mass spectrum of a ΛK-system was of interest from the viewpoint of observing new

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

BUDAGOV, YU. A., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

resonances with zero strangeness and the decays of different isobars via the channel $N^* \to \Lambda + K$, to determine the relative probabilities of these decays. Approximately 230,000 photographs were analyzed for each bubble chamber. The effective mass spectra of ΛK^0 combinations for events in which the decays of a Λ-hyperon and a K^0-meson were simultaneously recorded in the chamber are graphed. The graphs show a considerable excess in the number of events above the background in the mass region 1.61-1.96 Gev/c^2. It is shown that this anomaly is not associated with the reflection of known resonances Y^* (1385) and K^* (890) in the ΛK^0-spectrum. The total excess in the number of events over the background in the mass interval 1.61--1.96 Gev/c^2 was 114 ± 13. The experimental data verify the existence of two resonances with masses about 1685 and 1935 Mev/c^2 and widths of the order of 150 Mev/c^2. It is concluded that the anomaly observed in the effective mass spectrum of ΛK can be explained only by the decay of the isobar S_{11} (1710), P_{11} (1750) via the channel $N^* \to \Lambda + K$ or by the existence of a new resonance with mass about 1685 Mev/c^2, as the data of R. Erbe et al indicate.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--A QUARTZ OSCILLATOR BASED ON FIELD EFFECT TRANSISTORS -U-

AUTHOR-(02)-KUZNETSOV, A.A., BARYSHEV, V.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIBORY I TEKHNIKA EKSPERIMENTA, NO 2, MAR-APR 70, PP 137-139

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--FIELD EFFECT TRANSISTOR, QUARTZ, RESONATOR, CRYSTAL OSCILLATOR, ELECTRONIC CIRCUIT/(U)K26 QUARTZ RESONATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0374 STEP NO--UR/0120/70/000/002/0137/0139

CIRC ACCESSION NO--AP0139164

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 030 UNCLASSIFIED PROCESSING DATE--04DEC79

CIRC ACCESSION NO--AP0139164

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE A QUARTZ OSCILLATOR BASED ON MOS FIELD EFFECT TRANSISTORS AND A LOW-Q R-26 QUARTZ RESONATOR. THE OSCILLATOR WAS TESTED CONTINUOUSLY FOR 32 DAYS WITH A FREQUENCY DRIFT OF 1.2 TIMES 10 PRIME NEGATIVE8 IN THAT TIME. FREQUENCY WAS FOUND TO BE A NONMONOTONIC FUNCTION OF TIME. AVERAGE DAILY FREQUENCY STABILITY WAS FOUND TO BE ABOUT 3 TIMES 10 PRIME NEGATIVE9. THE THEORETICAL ASPECTS OF USING MOS FIELD EFFECT TRANSISTORS IN QUARTZ OSCILLATORS ARE DISCUSSED. FACILITY: INSTITUTE OF PHYSICS OF THE EARTH, ACADEMY OF SCIENCES OF THE USSR, MOSCOW.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC: 529.786.2

KUZNETSOV, A. A., BARYSHEV, V. I., Institute of Physics of the Earth, Academy of Sciences of the USSR, Moscow

"A Quartz Oscillator Based on Field Effect Transistors"

Moscow, Pribory i Tekhnika Eksperimenta, No 2, Mar/Apr 70, pp 137-139

Abstract: The authors describe a quartz oscillator based on MOS field-effect transistors and a low-Q K-26 quartz resonator. The oscillator was tested continuously for 32 days with a frequency drift of $1.2 \cdot 10^{-8}$ in that time. Frequency was found to be a nonmonotonic function of time. Average daily frequency stability was found to be about $3 \cdot 10^{-9}$. The theoretical aspects of using MOS field-effect transistors in quartz oscillators are discussed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

KUZNETSOV, A. A., YAROTSKIY, V. N.

"Probabilistic Characteristics of Mechanical Properties of Certain Alloys at Elevated and Reduced Temperatures"

Zavodskaya Laboratoriya, No 3, 1971, pp 337-338.

ABSTRACT: The statistical characteristics of mechanical properties of steels were studied at -196 and +600°C. Unbiased estimates of the mathematical expectation and mean square deviation of the mechanical properties studied, their variation factors, boundaries of confidence intervals at 95% confidence level were produced. The data presented can be used in calculating the reliability of structures made of the alloys studied [Kh18N9, 1Kh18N9, and KhN60V] at the temperatures used.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--CALCULATION OF THE ABSORPTION OF MULTICOMPONENT HYDROCARBON GASES -U-

AUTHOR-(02)-KUZNETSOV, A.A., KOSYAKOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(2), 61-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCULATION, GAS ABSORPTION, HYDROCARBON, MASS TRANSFER, HEAT TRANSFER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0838 STEP NO--UR/0152/70/013/002/0061/0064

CIRC ACCESSION NO--AT0137866

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0137866

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION WAS CALCD. BY MEANS OF EQUATIONS, TAKING INTO ACCOUNT THE THEORETICAL TRAY SEPN., EFFECTIVE ABSORPTION FACTOR AND EFFECTIVE PROCESS TEMP., MIN. ABSORBENT AND EXCESS ABSORBENT FACTOR, SINGLE DIRECTION MASS AND HEAT TRANSFER. AN EQUATION WAS USED, WHICH INCLUDED THE EFFICIENCY OF THE TRAY FOR VARIOUS COMPONENTS. THE CALCD. SEPN. COEFF. AND AMT. OF ABSORBED PHASE AGREE WITH THE ACTUAL DATA: THE RELATIVE ERROR IS 1-5PERCENT.

FACILITY: GROZN. NEFT. INST., GROZNY, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

Acc. Nr.: AM0104087 Ref. Code: UR0000

Kuznetsov, A. A.; Alifanov, O. M.; Vetrov, V. I.; Zolotov, N. A.; Titov, M. I.

Probability Characteristics of Strength of Aircraft Materials and Dimensions of an Assortment (Veroyatnostynyye kharakteristiki prochnosti aviatsionnykh materialov i razmerov sortamenta) Manual.Moscow, Mashinostroyeniye, 1970, 565 pp (SL:2007)

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II	Probability Characteristics of Dimensions of an Assortment	417
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...The manual contains tables of mathematical expectations, mean square deviations of the tensile strength and yield point, relative elongation and probability characteristics of sheet thickness, cross-section areas of shapes and thickness of tubes from nonferrous alloys and steels.

The book was written for designers and calculators employed by the aircraft industry and other machine-constructing branches.

1/1 Reel/Frame 19870480 18 KZ

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ON THE PROBLEM OF THE ULTRA RELATIVISTIC ELECTRON BUNCH RADIATION IN CYLINDRICAL RESONATOR -U-

AUTHOR-(02)-KUZNETSOV, A.B., RUBIN, S.B.

COUNTRY OF INFO--USSR

SOURCE--(JINR P9 4909) DEP. CFSTI

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RESONATOR, RELATIVISTIC ELECTRON, EXICTATION ENERGY, EMISSION SPECTRUM, ELECTRON BOMBARDMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2166 STEP NO--UR/0000/70/000/000/0011/0011

CIRC ACCESSION NO--AT0127530

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0127530

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMULA FOR THE ENERGY OF THE RADIATION, EXCITED INSIDE A CLOSED CYLINDRICAL RESONATOR BY A RELATIVISTIC ELECTRON BUNCH PASSING THROUGH THE RESONATOR, IS ANALYZED. IT IS SHOWN THAT, WITHIN THE ULTRARELATIVISTIC LIMIT, THE INCREASE OF THE INITIAL ENERGY OF THE BUNCH DOES NOT LEAD TO THE INCREASE OF THE RADIATION ENERGY. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA (USSR).

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--FORMULATING DIFFERENTIAL EQUATIONS FOR MANOMETERS CONTAINING FLUID -U-

AUTHOR-(03)-DROZDOVICH, V.N., KUZNETSOV, A.D., YUSHCHENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, PRIBOROSTROYENIYE, NO 2, 1970, PP 97-101

DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, PHYSICS

TOPIC TAGS--MANOMETER, DIFFERENTIAL EQUATION, LAGRANGE EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1686 STEP NO--UR/0146/70/000/002/0097/0101

CIRC ACCESSION NO--AT0123510

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0123510

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS PROPOSED FOR FORMULATING DIFFERENTIAL EQUATIONS FOR MANOMETERS OF LOG SYSTEMS. THE PRESENCE OF FLUID IN THEIR SENSING ELEMENTS AND IN THE PULSE LINES IS CONSIDERED. THE METHODOLOGY IS BASED ON THE USE OF LAGRANGE EQUATIONS WHICH HAVE FOUND WIDE APPLICATION IN THE THEORY OF SOLID BODY VIBRATION.

FACILITY: LENINGRAD INSTITUTE OF PRECISE MECHANICS AND OPTICS.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

KUZNETSOV, A. D.

UDC 551.507.314 551.571.7

POSSIBILITIES OF MORE EXACT DEFINITION OF THE MOISTURE CONTENT CHARACTERISTICS USING THE SOLUTION OF THE PROBLEM OF THERMAL SOUNDING OF THE ATMOSPHERE

[Article by Candidates of Physical and Mathematical Sciences Yu. M. Timofeyev, O. M. Pokrovskiy, A. D. Kuznetsov, Leningrad State University; Moscow, Metmorologiya i Gidrologiya, Russian, No 3, 1972, submitted 28 April, 1971, pp 102-104]

A study was made of the statistical approach to the problem of reproducing the humidity profile and the total moisture content of the atmosphere on the basis of solving the thermal sounding problem. It was demonstrated that the proposed method permits reproduction of the humidity profile with high accuracy under winter conditions.

In recent years a great deal of attention has been given to the development of satellite methods of determining the physical parameters of the state of the Earth's atmosphere [2, 3]. Significant progress has been made in the matter of practical realization of indirect reproduction of the temperature, moisture and ozone profiles using interpretation of the precision measurements of outgoing thermal radiation in different absorption bands of atmospheric gases. In the statistical approach to the problems of restoring the vertical temperature profile (T) and moisture profile (q), usually the mean T and q profiles and also the autocorrelation matrices K_{TT} and K_{qq} are used as the a priori information about the desired solution [1, 7, 9]. In reference [5], a general statistical approach to the all-around solution of the inverse problem is proposed which is based on using all the available statistical information in particular, the mutual correlation matrices of the physical parameters of the atmosphere, for example, K_{Tq}.

As was shown in reference [5], one of the special cases of this approach is the problem of determining the vertical specific humidity profile q on the basis of determining the vertical temperature profile using the solution of the thermal sounding problem and using mutual correlations between T and q. The advantage of this approach is that it does not require special satellite equipment to measure the outgoing radiation in the water vapor absorption bands, and at the same time it permits more precise definition of our a priori information about the water content characteristics of the atmosphere.

JPRS 55899
5 May 72

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 669.18:542.5

MEDZHIBOZHSKIY, M. Ya., Doctor of Technical Sciences, KUZNETSOV, A. F., LYKIN, A. A., and RUDAKOV, G. A., Candidates of Technical Sciences

"Effect on Liquid Steel Output of Certain Parameters of Oxygen Blowing Into a High-Capacity Martin Furnace Bath"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-Oct 70, pp 10-12

Abstract: A study was made of the effect of certain parameters of oxygen blowing into a steel bath (blowing rate, oxygen concentration in the blowing-through mixture, melting time, total expenditure of oxidizers, etc.) The oxygen blowing rate substantially affects the liquid metal output, so that there is an increase in metal losses in the form of oxides and regulus in the slag and as dust in the combustion products. The relationship between the blowing intensity and metal losses is expressed by a formula established from data on more than 300 melts. It follows from this formula that every 1000 m3/hr increase in blowing rate reduces the liquid metal output by 1.2%. This may be compensated by reducing the melting time and oxygen concentration in the blowing-through mixture.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

MEDZHIBOZHSKIY, M. Ya., et al, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-Oct 70, pp 10-12

A reduction in oxygen concentration from 95 to 65% at a 3000 m3/hr average blowing rate increased the liquid steel output by 1.7%. Figures show the dependence of liquid steel output on oxygen purity, melting time, specific oxygen flow rate and total expenditure of oxides. A table shows results of a series of experimental meltings conducted with the purpose of determining the metal losses in the form of dust and slag particles.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 669.184.244.66

KUZNETSOV, A. F., Candidate of Technical Sciences, TERESHCHENKO, N. I., Engineer, and SHANIN, N. I., Engineer, Zhdanov Metallurgical Institute and Zhdanov Heavy Machine Building Plant

"Effect of Smelting Method and Deoxidation System on the Quality of Converter and Open-Hearth Steel"

Moscow, Stal', No 9, Sep 70, pp 784-786

Abstract: A study was made of the effects of the smelting method, the deoxidation system, and the consumption of deoxidizing agents on the quality of St.3sp sheet steel, produced at the Novolipetsk Metallurgical Plant and the Zhdanov Plant imeni Il'ich. The experimental steel from the Novolipetsk Plant showed the highest impact toughness at temperatures of -40°C and +70°C, but also showed the highest relative sensitivity to mechanical aging at -40°C. The impact toughness, after artificial aging of the investigated steel groups at negative temperature, was practically independent of the smelting method and the deoxidation system.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF SOME TECHNOLOGICAL PARAMETERS OF AN OXYGEN CONVERTER MELT ON THE STABILITY OF TAR DOLOMITE MAGNESITE LINING -U-

AUTHOR-(05)-~~KUZNETSOV, A.V.~~, SHAM, P.I., PASHCHENKO, N.K., BULSHAKOV, V.A., ZELTSER, I.G.

COUNTRY OF INFO--USSR

K

SOURCE--OGNEUPORY 1970, 35(2), 35-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL OXYGEN CONVERSION, SLAG, PIG IRON, CORROSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0873 STEP NO--UR/0131/70/035/002/0035/0039

CIRC ACCESSION NO--AP0118045

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118045

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AS A LINING FOR O CONVERTERS IN THE REFINING OF PIG IRON, A MIXT. OF 65PERCENT DOLOMITE AND 35PERCENT MAGNESITY, TO WHICH WAS ADDED 5PERCENT TAR CONTG. 70-75PERCENT PITCH, WAS USED. THE CORROSION OF THE LINING DURING EXPLOITATION IS CONNECTED WITH DECARBONIZATION OF THE WORKING LAYER AND DIFFUSION OF OXIDES FROM THE SLAG INTO THE LINING, WITH FORMATION OF EASY MELTING COMPDS. (FERRITES, BROWNMILLERITE, ETC.). MOST INFLUENCE IN THESE PROCESSES HAVE FE OXIDES, AS THEY EFFECT THE DECARBONIZATION; CA FERRITES FORMED HAVE A LOW M.P. AN INCREASE OF THE TEMP. OF THE MELT ACCELERATES THE CORROSION OF THE LINING. THE CORROSION OF THE LINING IS DECREASED BY INCREASING CAO CONTENT OF THE SLAG, AS A CONSEQUENCE OF A DECREASE OF OTHER COMPDS. PRESENT. THE RATE OF DISSOLN. OF CAO IS NOT CONST. DURING BLOWING AND DEPENDS ON THE FE OXIDE CONTENT OF THE SLAG. IN ORDER TO PROMOTE THE RATE OF DISSOLN. OF CAO, IT IS RECOMMENDED TO ADD A 2ND PORTION OF CAO BEFORE THE INTENSIVE DISSOLN. OF THE 1ST PORTION BEGINS, THAT IS 4-6 MIN AFTER BEGINNING OF THE BLOWING. THE RATE OF DISSOLN. OF THE LINING DURING THE 1ST HALF OF THE PERIOD OF BLOWING IS CONST., DURING THE 2ND HALF OF THE PERIOD IT INCREASES, DEPENDENT ON TEMP. AND FE OXIDE CONTENT OF THE SLAG. OVER OXION. OF THE SLAG DURING THE 2ND PERIOD IS UNDESIRABLE. THE CORROSION OF THE LINING DEPENDS ON THE BLOWING REGIME AND THE CONSTRUCTION OF THE NOZZLE AND INCREASES WITH PROLONGATION OF THE BLOW. FACILITY: ZHDANOV. MET. INST., ZHDANOV, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 621.382.002

ROGOV, YU.P., PREOBRAZHENSKIY, A.I., KRIKUNENKO, N.K., KUZNETSOV, A.G.

"Some Distinctive Features Of The Construction Of Multiposition Mechanical Systems Of Inspection-Classification Complexes"

Elektron. tekhnika. Nauchno-tekhn.sb. Upr.kachestvom i standartiz. (Electronic Technology. Scientific-Technical Collection. Quality Control And Standarization), 1970, Issue 2, pp 94-108 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B413)

Translation: On the basis of an analysis of the technology for inspection of semiconductor devices, recommendations are given on the use of single- and multiposition inspection-classification equipment. The distinctive features are considered of the construction of multiposition mechanical systems of an automatic inspection-classification complex. The possibility and the advantages of the aggregation principle of construction of mechanical systems on the basis of a single structural scheme are shown. Recommendations are given on the choice of devices for a particular purpose. 6 ref. Summary.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

Glass and Ceramics

USSR UDC 666.1:539.4

USHAKOV, D. F., KUZNETSOV, A. I., and MILYUKOV, YE. M., Leningrad Technological Institute imeni Lensoveta

"Effect of Microliquation on Mechanical Strength of Glass"

Moscow, Neorganicheskiye Materialy, Vol 6, No 11, Nov 70, pp 2035-2037

Abstract: The effect of microliquation on the mechanical strength of a series of glass compositions was investigated. Moldings 6 mm in diameter served as test specimens. The test for mechanical strength involved transverse bending. Study of one glass specimen showed that microliquation occurs in the 500-560° C range, while at higher temperatures bulk crystallization of solid solutions of beta-eucryptite -- silica -- takes place. Microliquation was observed at temperatures higher than 670° C. The heat treatment lasted for 4 hrs in all cases. The investigation showed that the mechanical strength of liquating glasses in increased at all initial stages of microliquation. Compositions of the liquating phases have only a slight effect on the strengthening of glass in the initial stages of microliquation. An increase in the size of microliquation regions and separation in the bulk of multialkali glass of crustals with a low coefficietn of thermal expansion deteriorates the mechanical characteristics of the glasses tested. 1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

UDC: 621.318-503.55

KUZNETSOV, A. I.

"A Device for Checking the Tracking Accuracy of Transformer Selsyns"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazcy, Tovarnyye Znaki, No 4, 1970, p 47, patent No 260736, filed 20 Jun 68

Abstract: This Author's Certificate introduces a device for checking the tracking accuracy of transformer selsyns. The unit contains a mechanism for holding the standard selsyn and the one being checked, the shafts of the two being rigidly fastened together. Also incorporated in the device are a program mechanism for working out the checking program, and a system for determining the tracking error of the selsyn being checked. As a distinguishing feature of the patent, the precision of checking the tracking error is improved by connecting the output shaft of the reference selsyn, while the takeoff shaft of the same speed reducer is connected to the carrier of an indicator mechanism or to the pen of a chart recorder.

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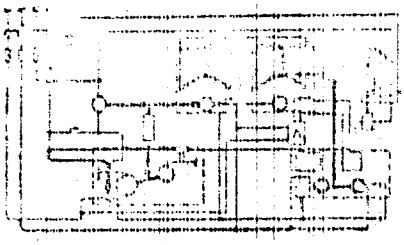
"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

KUZNETSOV, A. I., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, 1970, p 47, patent No 260738, filed 20 Jun 68



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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--KINETICS OF THE ISOTOPIC EXCHANGE OF NITROGEN BETWEEN AMMONIA AND ITS COMPLEXES WITH ALCOHOLS -U-

AUTHOR-(C2)-KUZNETSOV, A.I., PANCHENKOV, G.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1116-18

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--AMMONIA, NITROGEN ISOTOPE, COMPLEX COMPOUND, REACTION KINETICS, METHANOL, ETHANOL, BUTANOL, EXCHANGE REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0009 STEP NO--UR/0097/70/044/004/0116/0118

CIRC ACCESSION NO--AP0132309

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132309

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE EXCHANGE OF PRIME15 N AND PRIME14 N BETWEEN NH SUB3 AND ITS COMPLEXES WITH MEOH, ETOH, PROH, BUOH, AND C PRIME5 H PRIME11 OH WAS STUDIED AT ROOM TEMP., 1 ATM, AND A NH SUB3 CIRCULATING RATE OF 5-7.1.-MIN. THE EXCHANGE REACTIONS RUN VERY FAST AND WERE COMPLETED IN 2-5 MIN. THE REACTION RATE WAS DETD. BY THE RATE OF THE MIXING PROCESSES OF NH SUB3 IN THE GAS STREAM. THE RESULTS PROVIDE INFORMATION FOR THE BETTER DESIGN OF COUNTERCURRENT INSTALLATIONS FOR THE SEPN. OF THE N ISOTOPES. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 014 UNCLASSIFIED PROCESSING DATE--090CT70

TITLE--THEORY OF HOMOGENEOUS REACTIONS INVOLVING PROTON TRANSFER -U-

AUTHOR-(05)-LEVICH, V.G., DOGONADZE, R.R., GERMAN, E.D., KUZNETSOV, A.M., KHARKATS, YU.I.

COUNTRY OF INFO--USSR

SOURCE--ELECTROCHIM. ACTA 1970, 15(2), 353-67

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PROTON, QUANTUM MECHANICS, CHEMICAL REACTION

CONTROL MARKINGS--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1849 STEP NO--UR/0000/70/015/002/0353/0367

CIRC ACCESSION NO--AP0112833

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 014 UNCLASSIFIED PROCESSING DATE--030CT70

CIRC ACCESSION NO--AP0112833

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A QUANTUM MECH. THEORY FOR PROTON TRANSFER PROCESSES IN SOLNS. IS GIVEN. THE BRONSTED RULE AND ISOTOPE EFFECT FOR THESE PROCESSES ARE ALSO DISCUSSED. FACILITY: INST. ELECTROCHEM., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--PROPERTIES OF POLARIZATION CURVES -U-

AUTHOR-(02)-VOROTYNTSEV, M.A., KUZNETSOV, A.M.

K

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(2), 261-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTRODE POLARIZATION, CURRENT DENSITY, ELECTROLYTIC CELL, TRANSITION PROBABILITY, MASS TRANSFER, HEAT OF REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0426 STEP NO--UR/0364/70/006/002/0261/0265

CIRC ACCESSION NO--AP0055210

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0055210

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EQUATION FOR THE CURRENT I IN A GENERAL FORM WAS STUDIED: I EQUALS E INTEGRAL DEPSILON M (EPSILON) W (EPSILON), WHERE W (EPSILON) IS THE PROBABILITY OF THE TRANSITION OF A QUASIPARTICLE FROM THE LEVEL TO THE ION IN UNIT TIME, M (EPSILON) DEIS. THE PROBABILITY TO FIND M ELECTRONS IN AN ELECTRODE WITH THE OVERALL ENERGY EPSILON. AT REACTION HEATS THAT ARE HIGHER THAN THE ENERGY OF REORGANIZATION THE MICROSCOPIC TRANSFER COEFF. ALPHA(DELTA) IS OF AN INFINITELY LARGE SCALE OF CHANGE. THE MACROSCOPIC TRANSFER COEFF. OF CHANGE HAS 2 AREAS WITH INFINITELY LARGE SCALE OF CHANGE: ONE AREA WHERE THE COEFF. IS ZERO (ACTIVATION FREE DISCHARGE) AND ONE WHERE IT IS UNITY (BARRIER FREE DISCHARGE). THE WIDTH OF THE TRANSITIONAL AREA FROM ZERO TO UNITY IS IN THE ORDER OF THE ENERGY OF REORGANIZATION. THUS, THE WIDTH OF THE NORMAL AREA ON THE CURVE OF THE MACROSCOPIC TRANSFER COEFF. IS OF THE SAME ORDER. FACILITY: INST. ELEKTROKHIM., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THEORY OF ADIABATIC AND NONADIABATIC ELECTROCHEMICAL REACTIONS -U-

AUTHOR-(03)-DOGONADZE, R.R., KUZNETSOV, A.M., VOROTYNTSEV, M.A.

COUNTRY OF INFO--USSR

SOURCE--J. ELECTROANAL. CHEM. INTERFACIAL ELECTROCHEM. 1970, 25(2), 17A-19A

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRODE REACTION, CALCULATION, ELECTRON ENERGY, ADIABATIC PROCESS, ELECTROCHEMICAL REACTION, NONADIABATIC PROCESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1306 STEP NO--NE/0000/70/025/002/0017/0019

CIRC ACCESSION NO--AP0116766

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116766

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBABILITY OF ADIABATIC AND NONADIABATIC ELECTRODE REACTIONS IS CALCD. BY TAKING INTO ACCOUNT THE MANY POTENTIAL ENERGY SURFACES (TERMS) IN THE INITIAL AND FINAL STATES, CORRESPONDING TO DIFFERENT POPULATIONS OF THE ELECTRON ENERGY LEVELS IN A METAL. THE TRANSITION PROBABILITY FOR EACH 2 TERMS IS DETD. MATH.

FACILITY: INST. ELECTROCHEM., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132296

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEGREE OF JUSTIFICATION AND THE LIMITS OF APPLICABILITY OF THE ACTIVATED COMPLEX CONCEPT ARE DISCUSSED. THE PRINCIPAL FACTORS ARE ENUMERATED WHICH MUST INEVITABLY BE CONSIDERED WHEN FORMULATING THE THEORY OF THE REACTION KINETICS WITH THE CHARGE TRANSFER. IT IS SHOWN HOW THE FACTORS ARE TAKEN INTO ACCOUNT IN THE QUANTUM THEORY OF THE INDICATED REACTIONS, AND THE IDEAS ABOUT THE ELEMENTARY ACT OF THESE REACTIONS, DERIVED FROM THE QUANTUM THEORY, ARE SET FORTH. THE QUANT. AND A MORE DETAILED APPROACH ON THE SAME SUBJECT CAN BE FOUND IN AN EARLIER PAPER (R. R. DOGONADZE, ET ALL, 1968). FACILITY: INST. ELEKTROKHIM., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC: 621.762.2:669.71

ZHILKIN, V. Z., KUZNETSOV, A. N., GORBUNOV, Yu. A., SHEPEL'SKIY, N. V.

"Influence of Temperature of Aluminum Melt and Rotation Rate of Cooling Fluid on Formation of Granule Shape During Centrifuging"

Liteyn. Proiz-vo, Metalloved. i Obrabotka Met. Davleniyem (Foundry Production Metal Science and Pressure Working of Metals -- Collection of Works], No 6, Krasnoyarsk, 1972, pp 92-94 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G392, by the authors).

Translation: The influence of the temperature of a melt and rate of rotation of the cooling medium on the shape of Al granules produced by the centrifugal method is studied. The optimal intervals of values of these factors for the production of particles of equiaxial form are determined. 1 figure, 3 biblio. refs.

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Biophysics

USSR UDC 576.343

BINYUKOV, V. I., BORUNOVA, S. P., GOL'DFEL'D, M. G., ZHUKOVA, I. G., [illegible], D. G., KUZNETSOV, A. N., SHAPIRO, A. B., and OSTROVSKIY, D. N., Institute of Biochemistry imeni A. N. Bakh, Academy of Sciences USSR, Moscow, Institute of Chemical Physics, Academy of Sciences USSSR, Moscow, and Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Moscow

"Investigation of Structural Transformations in Biomembranes by Means of the Spin- Probe Method: Temperature-Induced Changes in Bacterial Membranes"

Moscow, Biokhimiya, Vol 36, No 6, Nov/ Dec 71, pp 1149-1155

Abstract: To investigate changes induced in bacterial membranes by temperature changes within a physiological range, isolated and sonna-disintegrated membranes of M. lysodeikticus and E. coli were mixed and incubated with the free iminoxyl radicals 1,1,3,3,7-pentamethyl-7,8-benzo-1,2,3,4-tetrahydro-pyrrolo-(3,4-beta)-indole-2-oxyl (I) and 2,2,6,6-tetramethyl-4-carboxyl-oxylpiperidine-1-oxyl (II) serving as indicators of structural changes. Compound I was incorporated in the protein fraction and compound II in the lipid fraction of the membranes. The correlation observed between the rate of diffusion of the test molecules and the temperature indicates that [illegible] transformations take place in both the protein and the lipid [illegible]

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BINYUKOV, V. I., et al., Biokhimiya, Vol 36, No 6, Nov/Dec 71, pp 1149-1155

temperatures suggest that high temperature induces conformational transformations in the protein fraction, and these induce structural transformations in the lipid fraction of bacterial membranes.

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USSR UDC: 539.4.01

KUZNETSOV, A. P., TRUBIY, V. A.

"Study of the Dispersion of Creep Curves"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, Sep-Oct 72, pp 188-192

Abstract: This article presents the results of studies of the dispersion of 293 creep curves produced on specimens of D16T alloy under identical test conditions: temperature 207°C, stress 18 kg/mm^2. The reasons for the dispersion are analyzed and a formula is produced which can describe creep curves as random functions of time. Threaded specimens were turned out of 18 mm bars as delivered. The guage portion was 100 mm long, 8 mm in diameter; test time was 20 hours. Most of the variation in creep results from variations in the internal structure of the material of the specimens and the uncertainty in the degree of eccentricity of application of the load.

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USSR

AKATNOV, N. I., KUZNETSOV, A. P., Leningrad

"Equation of Energy Balance for Turbulent Pulsations in the Theory of a Free Turbulent Boundary Layer"

Moscow, IAN SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov/Dec 70, pp 75-79

Abstract: Semiempirical formulas are proposed for the coefficient of turbulent viscosity and the scale of turbulence which appear in the system of equations of a free turbulent boundary layer in an incompressible fluid where this system includes equations of continuity, motion, and balance of the average energy of turbulent pulsations. An advantage of this formula over others is that the two empirical constants which are a part of the system of equations have close values for circular and plane turbulent jets, and also for a turbulent boundary layer on the edge of a semi-infinite uniform flow with a stationary fluid. The distributions of average velocity and average energy of turbulent pulsations calculated in the work agree satisfactorily with experimental data.

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USSR UDC 669.15-194:669.295:621.785.565:620.183

KIDIN, I. N., ANDRYUSHECHKIN, V. I., RAGIMOV, M. M., and KUZNETSOV, A. S., Moscow Institute of Steel and Alloys

"The Effect of Fast Heating on the Formation of the Transition Zone in Bimetals of the Iron-Titanium System"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 11, 1970, pp 130-133

Abstract: An investigation was made of the kinetics of the formation of the transition zone in the bimetals Armco iron-VT1-0 and steel 20-VT1-0 in repeated heating with rates of v = 4 deg/sec (furnace heating) and v - 100 deg/sec (electroheating), in a 940-1070°C interval, and with aging for 0-150 min (v = 4 deg/sec) and 0-4 min (v = 100 deg/sec). The deformation process of the diffusion transition zone in the bimetals intensifies in fast heating with v = 100 deg/sec. The diffusion of titanium in iron in fast heating takes place primarily in the grain boundaries. Microhardness and micro-thermoelectric power methods and X-ray phase analysis and metallographic analysis showed that an increased heating rate from 4 to 100 deg/sec in repeated heating after rolling does not affect the phase composition and structure of the transition zone in the bimetals.

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USSR

IVERONOVA, V. I., KUZNETSOV, A. V., Moscow State University imeni M. V. Lomonosov, Petrozavodsk State University

"Calculation of the Dependence of the Interference Coefficient of Absorption of X-Rays on Dislocation Density"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 9, Sep 73, pp 2689-2693

Abstract: For a thick crystal ($\mu \gg 1/T$) in the Laue symmetric case formulas are derived for dependence of integral power and the interference coefficient of absorption on dislocation density. Satisfactory agreement is observed between the theoretical data and published experimental results.

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USSR UDC 532.5

KUZNETSOV, A. V.

"An Investigation of the Stability of a Hollow Vortex Bounded by A Solid Wall"

Kazan', Tr. Seminara po krayev. zadacham. Kazan. un-t (Transactions of the Seminar on Boundary-Value Problems of the Kazan' University), Vyp 9, 1972, pp 173-182 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4B474 by V. G. Markov)

Translation: Two two-dimensional problems are considered: a hollow cylindrical vortex, enclosed in a round tube, whose axis coincides with the vortex axis, and a hollow vortex bounded by two infinite planes parallel to the vortex axis. The liquid is ideal, incompressible and nonviscous. Stability investigations were conducted by the method of solving nonstationary problems with a given, small initial divergence from the stationary state; the linear problem arising from this is solved by the operational method. The fundamental result of the work is: it is shown that the flows (generally speaking, with certain sufficient limits) are neutrally stable. The first problem considered was solved earlier by Fox and Morgan (Fox, J. L. and Morgan, J. W., Quart. J. Mech. and Appl. Math., 1954, 11, No 4, 439-456 -- RZhMekh, 1955, No 1, 771) for the case of the absence of surface tension at a free boundary. The author considers

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KUZNETSOV, A. V., Tr. Seminara po krayev, zadacham. Kazan. un-t, Vyp 9, 1972, pp 173-182

surface tension and shows that, in the limited case when it equals zero, the value which he found coincides with that obtained in the work of Fox and Morgan.

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UDC 533.69.01+533.662.013

USSR

KUZNETSOV, A. V.

"Nonstationary Problem of Flow Around a Solid Profile"

Tr. Seminara po krayev. zadachan. Kazansk. un-t (Works of the Seminar on Boundary Problems. Kazan' University), 1970, No 7, pp 198-204 (from RZh-Mekhanika No 10 Oct 70, Abstract No 10 B281)

Translation: In this article a method is proposed for solving the problem of determining the forces acting on a closed profile undergoing small oscillations superposable on some primary motion. Assuming that the solution of the problem with stationary streamlining corresponding to the primary motion is known, the author undertakes conformal mapping of the physical region cut along the flow line passing through the rear edge of the profile and the corresponding region of the complex potential on to a curvilinear halfband of an auxiliary plane. The boundary problem is formulated for this halfband. The effective solution can be obtained by taking the boundary conditions down to the boundaries of the rectilinear halfband, which for small circulations of the primary motion

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KUZNETSOV, A. V., Tr. Seminara po krayev. zadacham. Kazansk. un-t, 1970, No 7, pp 198-204

differs little from the mentioned curvilinear halfband. The solution of the modified boundary problem using the Keldysh-Sedov formula permits us to obtain approximate values of the aerodynamic forces for the initial problem.

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1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INVESTIGATION OF THE STRUCTURE OF MOLECULES BY GAS ADSORPTION CHROMATOGRAPHY -U-

AUTHOR-(02)-KUZNETSOV, A.V., SHCHERBAKOVA, K.D.

COUNTRY OF INFO--USSR

SOURCE--J. CHROMATOGR. 1970, 49(1), 21-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, GAS CHROMATOGRAPHY, CARBON BLACK, ISOMER, PENTENE, CYCLIC GROUP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0054 STEP NO--NE/0000/70/049/001/0021/0026

CIRC ACCESSION NO--AP0125889

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125889

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IDENTIFICATION OF STRUCTURAL ISOMERS BY GAS ADSORPTION CHROMATOG. ON GRAPHITIZED CARBON BLACK IS DISCUSSED AND DEMONSTRATED BY IDENTIFYING THE CIS AND TRANS ISOMERS OF C SUB6-12 CYCLIC HYDROCARBONS, 3,METHYL,2,PENTENE, AND 3,4,DIMETHYL,2,PENTENE. THE THEORETICALLY CALCD. POTENTIAL ENERGIES OF ADSORPTION OF THE COMPDS. ARE CORRELATED WITH THEIR HEATS OF ADSORPTION OF GRAPHITIZED CARBON BLACK. FACILITY: LAB. ADSORPTION GAS CHROMATOGR., M. V. LOMONOSOV STATE UNIV. MOSCOW, MOSCOW, USSR.

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USSR

UDC: None

KUZNETSOV, A. Ya., CHERNYAVSKAYA, N. A., OKATOV, M. A., BURNISTROV, A. N.

"A Method of Preparing Band-Pass Filters for the Long-Wave Infrared Region of the Spectrum"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 31, 1973, p 144, 391520

Abstract: The filter is designed as a sharp cutoff device and is filled with hygroscopic, powdered materials such as KBr, NaCl, NaF, and CsBr heated to temperatures of 120°C and above for at least two hours before and after pulverization. The filling is then processed by a water-proofing solution. Some examples of the latter are named.

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(5)

Semenova, V. I. Electromagnetic wave reflection during oblique incidence on a moving ionization front. IVUZ Radiofiz, no. 5, 1972, 665-674.

An extensive theoretical analysis is given of the interaction of a monochromatic wave with a plasma boundary. The particular case considered is of inclined incidence of monochromatic TE and TM waves upon a sharply defined boundary of a plasma half-space, where the plasma is generated by ionizing radiation acting on a neutral gas. For simplicity the incident pulse is assumed arbitrarily narrow and the dielectric constant outside the plasma is taken to be unity. It is shown that when the E-field normal to plane of incidence, the solution for the inclined incidence case is essentially the same as for normal incidence. With the TM wave, however, inclined incidence is shown to generate two axial waves in addition to the transverse ones, at any given frequency of the incident wave. Formulas for the reflection and transmission of the latter are obtained and analyzed in terms of the idealized plasma parameters.

Kuznetsov, A. Ya., I. S. Varnashova, A. A. Poplavskiy, and G. P. Tikhomirov, Destruction of reflective dielectric coatings by laser radiation. OMP, no. 3, 1972, 39-42.

The resistance of reflective coatings to laser radiation was studied using zinc sulfide and magnesium fluoride coatings. The coatings were applied by thermal evaporation in a vacuum, and the reflection factor was R = 90% at λ = 0.7μ. The flux falling upon the specimen was controlled

KUZNETSOV, A. Ya.

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Pesticides

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UDC 632.934.1:546.57-386

KUZNETSOV, A. YA., BAYGOZHIN, A., BEYM, I. G., MIRONOV, V. YE.,
Leningrad State Pedagogical Institute imeni A. I. GERTSEN

"Study on the Light Sensitivity and Fungicidal Properties of Silver Complexes"

Leningrad, Zhurnal prikladnoy Khimii, Vol 64, No 10, Oct 71, pp 2311-2316

Abstract: Dense shielding of a silver ion by various ligands without reducing properties makes it possible to obtain photostable complexes. This study concerns the quantitative aspects of the light sensitivity, thermal stability, and the fungicidal properties of a number of silver compounds with high light sensitivity. The highest light resistance (1 year+) was shown by tris-1,10-phenanthroline perchlorate. The high light resistance is attributed to the dense shielding of the silver ion by three large ligend molecules which hinder the charge transfer to Ag^+ from outer-sphere ions as well as to the low electron donor capacity of the outer-sphere perchlorate ion. It is noteworthy that

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KUZNETSOV, A. YA., et al, Zhurnal prikladnoy Khimii, Vol 64, No 10, Oct 71, pp 2311-2316

high light resistance is typical of thermally stable compounds. Bis-2,2'-bipyridylsilver nitrate was the only compound to pass the standard tests for biological activity (15 days). Silver complexes with 1,10-phenanthroline and ethylenethiourea also show promise with regard to both light resistance and biological activity. These compounds must be used in the form of nitrates or perchlorates with a co-ordination-saturated inner sphere. Test data on the light resistance and biological activity of complex silver compounds, their formulas, ligands, complex concentration in solution and test durations are given.

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USSR UDC: 621.373:530.145.6

VARGIN, V. V., KUZNETSOV, A. Ya., VEYNBERG, T. I., STEPANOV, S. A., TSEKHOMSKIY, V. A.

"Ferromagnetic Glass"

USSR Author's Certificate No 267032, filed 17 Jan 64, published 15 Jul 70, (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2D274 P)

Translation: This Author's Certificate introduces a ferromagnetic glass which includes SiO_2, Fe_2O_3, Al_2O_3, CaO, BaO, CdO, ZnO, PbO, TiO_2 and Na_2O. To increase the electrical resistance and softening temperature, the glass contains these components in the following amounts (mol.%): SiO_2 40-60; Fe_2O_3 7-20; Al_2O_3 10-20; CaO up to 20; BaO up to 20; CdO up to 10; ZnO up to 10; PbO up to 10; TiO_2 up to 10; Na_2O up to 20.

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Acc. Nr: AP0047607 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0057

105059r Breakdown of dielectric reflecting coatings under the influence of laser radiation. Kaznetsov, A. Ya.; Poplavskii, A. A.; Bonch-Bruevich, A. M.; Imas, Ya. A.; Rozhdestvenskii, V. N.; Tikhomirov, G. P.; Fadeeva, E. I. (USSR). *Zh. Tekh. Fiz.* 1970, 40(1), 170-2 (Russ). The threshold of breakdown of coatings was measured as a function of the direction of the effect, the no. of coating layers, the temp. of the base during the application, the purity and structure of the starting materials, the degree of orientation of microcrystals in the layer, the presence of defects, and the structure of the layer. The breakdown threshold of vacuum dielec. coatings on K-8 glass depended on the degree of orientation and the structure of crystals in the ZnS layer, and on the compn. of the surface of the coatings. M. Ticky

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76

Dec 73

compares theory with earlier experimental results. The divergence seen at lower frequencies and higher pressures is ascribed to increased multiphoton ionization probabilities owing to local nonuniformity.

Kusnetsov, A. Ye., A. A. Orlov, and P. I. Ulyakov. Pulsed regime for vaporizing optical materials by CO_2 laser radiation. IN: Sbornik. Kvantovaya elektronika. Moskva. no. 7, 1972, 97-99.

An analysis is given of experimental results on the interaction of CO_2 laser radiation (λ = 10.6μ; constant power density = (0.5-2) 10^4 w/cm^2) with a series of optical materials, as reported by Bubyakin et al (FIAN, 1969, 34p), where a shielding effect in the evaporation process of the substance and cavity formation were noted. Time characteristics of cavity depth $\bar{I}_k$ and the length of the luminous part of the flare I_f for KY quartz glass are plotted in Fig. 1. The evaporation displays a clearly

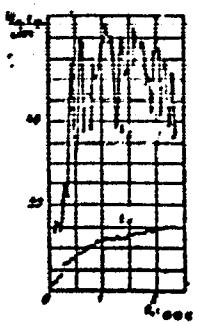

Fig. 1. Relationship of cavity depth $\bar{I}_k$ and flare length I_f to irradiation time for quartz glass ($q = 1.9 \times 10^{14}$/cm^2)

KUZNETSOV, A. Ye.

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USSR UDC: 621.378:536.4:666

KUZNETSOV, A. Ye., ORLOV, A. A., and ULYAKOV, P. I.

"Pulsating Evaporation of Optical Materials Under the Action of a Carbon Dioxide Laser"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 57-60

Abstract: An analysis is made of some of the experimental results on the interaction of a CO_2 laser, having a wavelength of 10.6 μ, with several optical materials in which a screening effect was noted in vaporization of the material, and pits were formed. The screening of the vaporized surface is caused by the appearance of a large quantity of electrons in the vapor at power densities of 10^8-10^9 W/cm^2. Some of the materials investigated were quartz glass of the KV type, LK-5 glass, TF-5 glass, K-8 glass, and LiF crystals. Curves are plotted for the pit depths and the length of flame jets observed to spurt from the specimens under laser action as functions of time, and for the vaporized mass of the material as a function of time at the initial vaporization period. The authors of this brief communication thank V. N. Shavskiy for his assistance in the processing of the results.

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USSR UDC 681.327.67'12

BRODOLIN, L. I., VAYNSHTEYN, V. D., DRACHEV, L. A., KAN, A. Z., KUZNETSOV, B. A., MININ, Yu. P., and PETRUNICHEV, V. N.

"Long-Term Photoscopic Memory"

USSR Author's Certificate No 260926, filed 7 Oct 68, published 10 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B325 P)

Translation: A long-term photoscopic memory designed for storing, retrieving, and selecting a symbol image is proposed. The memory contains a light spot commutator -- for example, a cathode ray tube -- a projection objective with telecentric behavior of the beams in the image space, a lense raster information unit, a fast collective, a transmitting cathode ray tube with storage -- for example, the superorthicon type and digital and analog tracking systems for setting the spot on a given address. The memory is distinguished by the fact that to prevent charging the target when retrieving the required microframe, the device contains an electronic image modulator in the transfer section of the transmitting TV-tube. In order to insure a broad range of variation of the capacity of the TV frame and the selection rate, the target of the transmitting TV tube is executed in the form of a metal film-dine with a coefficient of secondary emission

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BRODOLIN, L. I., et al., USSR Author's Certificate No 260926, filed 7 Oct 68, published 10 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika , No 6, Jun 71, Abstract No 6 B325 P)

of the side turned toward the photocathode equal to one. In order to simplify the design and insure the possibility of recording the service information used during operation of the tracking systems in the microframe, the device contains a fiber, vacuum-tight coherent light guide with a cross section equal to the size of the symbol in the focal plane of the collective. The photocathode of the transmitting TV tube is applied to the output end of the light guide, and the input ends of the light guides connected with the photomultipliers of the tracking address system are arranged around the perimeter of the input end. In order to insure the required levels of light flux from the standing light spot, the light spot commutator executed in the form of a cathode ray tube contains a built-in screen which vibrates in its own plane. There is 1 illustration.

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USSR UDC 577.15.037+577.15.033

KUZNETSOV, B. A., Institute of Biochemistry imeni A. N. Bakh, Academy of Sciences USSR, Moscow

"The Nature of Polarographic Waves of Proteins"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 4, Dec 70, pp 986-989

Abstract: The basic factors determining the height of the catalytic waves of hydrogen reduction in polarographic determination of proteins was studied. It was determined that under identical polarographic conditions the catalytic waves of various proteins show a relationship to the sulfur content in the molecule, to the diffusion coefficient, and to molecular weight. Data obtained indicate that it should be possible to develop this method for determination of these factors and of the concentration of protein as well. Analogous relationships were observed for the II catalytic wave, indicating that proteins are flattened out on the mercury electrode.

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UDC 621.165-253.4

KOVAL', G. S., KISEL'MAN, L. A., KUZNETSOV, B. D., and DON, E. A.

"Vibration State of Rotors of the K-300-240 KhTGZ Turbogenerator Set"

Chelyabinsk, V sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk. ugle" (Collection of Works-Assimilation of 300 Mw Power Units Burning the Ekibastuz Region Coal), 1972, pp 99-104 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6C37)

Abstract: Work conducted at the present time for increasing the rigidity of the No 3, 4, 5 bearings of the K-300-240 KhTGZ turbogenerator set will make it possible to improve substantially its vibration state by eliminating the resonance vibrations at about service speed and the coincidence of critical speeds of turbine rotors. Ways of further reduction of rotor vibration are associated with

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USSR

KOVAL', G.S., et al, Chelyabinsk, V sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk. ugle" 1972, pp 99-104 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6C37)

quality rotor balancing at service speed to be performed at the plant and with improvement in generator rotor construction technology, in particular, in removing their thermal instability and inequal rigidity. Maintainance work on electric power stations must be accompanied by a thorough dynamic balancing of rotors on balancers of pendulum type. When designing the fundations and pipe system it is necessary to consider the importance of securing the minimum thermal expansion inequality of foundation columns, for the purpose of stabilizing loads on the turbogenerator bearings. 3 figures, 2 references.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC: 532.529.5/.6

ZUYKOV, Yu. P., KUZNETSOV, B. G.

"Calculation of Some Unsteady Cavitation Flows"

V sb. Chisl. metody mekh. splosh. sredy. T. 2. No 3 (Numerical Methods in the Mechanics of a Continuous Medium--collection of works, Vol 2, No 3), Novosibirsk, 1971, pp 38-46 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B655)

Translation: The authors consider unsteady potential cavitation flow of an ideal incompressible heavy fluid around a flat body located on the horizontal bottom of a rectangular channel. The rate of the oncoming flow at the channel inlet is a given function of time. The boundary of the body may change with time and is given by some function $y = H(t,x)$. The boundary of the cavity formed behind the body and the value of the velocity potential on this boundary at time zero are assumed to be known. The purpose of the research is to follow the development of the cavity boundary with time. This problem is formulated as a problem of determining the velocity potential $\phi(x,y,t)$ which satisfies the Laplace equation along with the conventional initial and boundary conditions in the region occupied by the fluid.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

ZUYKOV, Yu. P., KUZNETSOV, B. G., Chisl. metody mekh. splosh. sredy. T. 2. No 3, Novosibirsk, 1971, pp 38-46

The boundary of the cavity should be found during the solution. Construction of an algorithm for numerical solution of the formulated problem is an extremely laborious procedure due to the fact that it is necessary to plot an approximating net for the variable region $\Omega(t)$ in the given problem. The use of Lagrange variables makes the flow region fixed, but demands considerable expenditures of machine time.

The proposed work utilizes a combined method using both Eulerian and Lagrangian coordinates to describe motion: one family of coordinate lines which coincides with the free boundary is Lagrangian, and the other is Eulerian. In this connection, the problem formulated in x, y variables for the function $\phi(t,x,y)$ in the region with unknown boundary section is formulated in the new variables ξ, η ($\xi = x$) as a problem for the two functions $y(t,\xi,\eta)$ and $\phi(t,\xi,\eta)$ in the rectangle $0 \leqslant \xi \leqslant L$, $0 \leqslant \eta \leqslant H$. The problem is solved on a rectangular grid with constant spacing along the ξ- and η-axes. The paper describes an algorithm for constructing a numerical solution. Examples are given of calculations of cavitation flow around bodies of various shapes. A. N. Dobrovol'skaya.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

UDC 624.072.04:539.374

KUZNETSOV, B. N. (Moscow)

"The Adaptability of Statically Determined Rods at Various Load Combinations"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 1, 1971, pp 21-23

Abstract: An investigation is made of the influence of load recurrence upon the load-carrying capacity of a statically determined rod with a single-valued load cycle and different load combinations. The conclusion is arrived at that the influence of load recurrence upon the load-bearing capacity of a structure at different load combinations is more substantial than in the case of one load combination. The load-bearing capacity of a structure which undergoes different load combinations may decrease very considerably as a consequence of load recurrence. 5 figures, 2 bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR

UDC 681.3

GOGA, G. G., KUZNETSOV, B. S.

"Digital Computer Calculation of Useability of Complex Discrete Logic Devices Considering Structure of the Device"

Tr. Mosk. Aviats. In-ta [Works of Moscow Aviation Institute] No. 194, 1970, pp 169-174 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V621 by V. Mikheyev).

Translation: Useability of logic devices based on discrete elements depends functionally on the content of the information being processed, since, as studies have shown, the probability of appearance of failures when ones are stored and in the mode of switching from "one" to "zero" does not correspond to the probability of appearance of failures when zeros are stored and in switching from "zero" to "one". As a result, the estimate of reliability calculated on the basis of the λ coefficients, which are integral indicators, independent of the type of failure, do not correspond to the reliability of discrete circuits actually appearing in practice. It is therefore suggested that the reliability of discrete logic elements be performed considering the logic function realized by the element, the probability x of appearance of a one (of a zero $\bar{x}=1-x$) signal, the probability that the one signal will be disrupted upon arrival $\beta(0)/1)$, the probability of appearance of a 0 signal which may be taken as a one signal $\nu(1/0)$,

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC 681.3

GOGA, G. G., KUZNETSOV, B. S., Tr. Mosk. Aviats. In-ta, No. 194, 1970, pp. 169-174.

as well as the probability of distortion of the values of the output signal due to failure of the logic element itself $\beta_t(0/1)$ and $\gamma_t(1/0)$ where t indicates the type of logic element). A program is presented, written in autocoder for the Nairi digital computer for the case of four elements with two inputs. It is stated that the method presented in this article can be easily used for the case of multiple-input logic elements.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC: 621.318.57:621.382

KUZNETSOV, B. V., URAL'SKIY, Yu. A.

"A Flip-Flop"

USSR Author's Certificate No 254564, filed 28 Jul 67, published 16 Mar 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A35 P)

Translation: This Author's Certificate introduces a transistorized flip-flop which has additional transistors (emitter followers) in feedback circuits. The bases of these transistors are connected to the collectors of the main transistors, and the emitters are connected through a resistor and AND-OR circuits to the common point of semiconductor diodes in the input AND-OR logic circuit in the opposite arm of the flip-flop. This type of flip-flop has lower dissipated power. One illustration. T. R.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 019 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--THE IMPORTANCE OF MEDIASTINOSCOPY IN DETERMINATION OF THE PULMONARY CANCER SPREAD -U-

AUTHOR-(02)-FEDOROV, B.N., KUZNETSOV, S.V.

K

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 5, PP 17-19

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LUNG, CANCER, DIAGNOSTIC METHODS, LYMPHATIC SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1022 STEP NO--UR/0559/70/104/005/0017/0019

CIRC ACCESSION NO--AP0109173

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 019 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109173

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANALYSIS OF DATA OF 54 MEDIASTINOSCOPIES IN PATIENTS WITH THE ESTABLISHED DIAGNOSIS OF PULMONARY CANCER IS PRESENTED. IT IS CONCLUDED THAT MEDIASTINOSCOPY IS A VALUABLE ADJUNCT IN COMPLEX INVESTIGATION OF PATIENTS WITH CANCER OF THE LUNG, AND IT SHOULD BE INDICATED IN ALL CASES OF PULMONARY CANCER. THE POSSIBILITIES OF MEDIASTINOSCOPY ARE LESS RELIABLE IN CANCER LOCATING IN THE LOWER LOBE OF THE LEFT LUNG, AND IT COULD BE MORE VALUABLE IN TUMOR LOCATION IN THE UPPER PULMONARY LOBES. GROSS CHANGES IN MEDIASTINAL CELLULAR TISSUE WITH ENLARGED MEDIASTINAL LYMPH NODES ARE CONSIDERED AS ONE OF INDIRECT SIGNS OF CANCER INVOLVEMENT OF THE MEDIASTINUM. FACILITY: GOSPITAL'NOY KHIRURGICHESKOY KLINIKI ARKHANGEL'SKOGO MEDITSINSKOGO INSTITUTA NA BAZE ARKHANGEL'SKOY OBLASTNOY KLINICHESKOY BOL'NITSY.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ADSORPTION AND CATALYTIC PROPERTIES OF [illegible]ICON DIOXIDE WITH AN ALUMINUM IMPURITY -U-

AUTHOR-(03)-KISELEV, A.V., KUZNETSOV, B.V., N[illegible], YU.S.

COUNTRY OF INFO--USSR

K

SOURCE--KINET. KATAL. 1970, 11(2), 500-12 (RUSS)

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--[illegible] IMPURITY, [illegible] TRIETHYLAMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0880 STEP NO--UR/0195/70/011/002/0500/0512

CIRC ACCESSION NO--AP0137908

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137908

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEAT OF ADSORPTION OF A SERIES OF SATD. AND AROMATIC HYDROCARBONS, ETOH, TETRAHYDROFURAN, ADN ET SUB3 N ON SILICA GEL CONTG. 0.02-0.38PERCENT AL WAS DETD. CALORIMETRICALLY AND BY GAS CHROMATOG. AL INCREASES ABSORPTION AND CHEM. ACTIVITY OF SILICA GEL AND CAUSES FORMATION OF VERY ACTIVE NUCLEI FOR ADSORPTION OF ORG. BASES AND FOR CATALYTIC CRACKING. IN GENERAL, THE ACTIVITY OF AL TREATED SILICA GEL DEPENDS ON THE METHOD OF CATALYST PREPN. FACILITY: KHIM. FAK., MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SPECTRAL AND ENERGY MANIFESTATION OF THE INTERACTION OF THE HYDROXYL GROUPS OF A SILICA SURFACE WITH TRIETHYLAMINE, PYRIDINE,

AUTHOR-(03)-DAVYDOV, V.YA., KISELEV, A.V., KUZNETSOV, B.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 1-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TRIETHYLAMINE, DIOXANE, FURAN, HYDROXYL RADICAL, ADSORPTION, SILICA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1399 STEP NO--UR/0076/70/044/001/0001/0008

CIRC ACCESSION NO--AP0116846

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116846

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFERENCES OF THE ADSORPTION HEAT (DELTAQ SUBOH) OF ET SUB3 N, PYRIDINE (I), DIOXANE (II), AND FURAN (III) ON A HYDROXYLATED SURFACE OF SILICA GEL WERE MEASURED. THE CHANGES OF THE VIBRATIONAL FREQUENCY (DELTANU SUBOH) OF HYDROXYL GROUPS AFTER ADSORPTION OF ET SUB3 N, I, II, AND III ON SILICA GEL WERE DETD. THE ENERGY OF THE SPECIFIC INTERACTION OF THE SURFACE HYDROXYL GROUPS WITH ADSORBATES DECREASED STRONGLY WHEN ELECTRON D. IN THE ADSORBATE MOL. WAS DISTRIBUTED MORE UNIFORMLY DUE TO THE MOL. CONJUGATION. DELTAQ SUBOH AND DELTANU SUBOH WERE APPROX. PROPORTIONAL FOR WEAK SPECIFIC INTERACTIONS. WHEN THE SPECIFICITY INCREASED, DELTANU SUBOH INCREASED MORE RAPIDLY THAN DELTAQ SUBOH. CHEM. AND PHYS. HETEROGENEITY WAS DISPLAYED MORE DISTINCTLY AT WEAK INTERACTIONS. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THE PROPHYLAXIS OF COMPLICATIONS IN LUXATION OF THE SHOULDER --U-

AUTHOR--KUZNETSOV, E.P.

K

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 3, PP 68-71

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROPHYLAXIS, ORTHOPEDIC SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0637 STEP NO--UR/0589/70/104/003/0068/0071

CIRC ACCESSION NO--AP0102623

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102623

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANALYSIS OF OBSERVATIONS OVER 640 PATIENTS WITH TRAUMATIC DISLOCATION OF THE SHOULDER TREATED USING VARIOUS METHODS HAS DEMONSTRATED THAT 234 PATIENTS (36.5PERCENT) HAD DIFFERENT COMPLICATIONS. AMONG THIS NUMBER THERE WERE 43 PATIENTS (6.7PERCENT) WITH USUAL BRACHIAL DISLOCATION, 26 PATIENTS (4.06PERCENT) WITH THE NERVE TRUNK INJURY, 67 (10.4PERCENT), WITH INVETERATE AND NOT FRESH LUXATIONS, 18 (2.8PERCENT), WITH TRAUMATIC RELUXATION OF SHOULDER AND 80 PATIENTS (12.5PERCENT) HAVING SHOULDER DISLOCATION, ASSOCIATED WITH FRACTURE OF THE BRACHIAL TUBEROSITY. THE METHOD OF COMPLEX TREATMENT IN PATIENTS WITH TRAUMATIC BRACHIAL DISLOCATION IS DESCRIBED, ITS USE ENABLED TO REDUCE 2.5 TIMES THE NUMBER OF COMPLICATIONS.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--NEUTRINO EXPERIMENTS AT SERPUKHOV -U-

AUTHOR--KUZNETSOV, E.P.

K

COUNTRY OF INFO--USSR

SOURCE--CERN-69-28, PP 79-80

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NEUTRINO, NUCLEAR PHYSICS INSTITUTE, ENERGY SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1775 STEP NO--UR/0000/70/000/000/0079/0080

CIRC ACCESSION NO--AT0054613

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

2/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0054613

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEVELOPMENT OF NEUTRINO EXPERIMENTAL FACILITIES AT SERPUKOV IS DESCRIBED. THE NEUTRINO SPECTRA, THE EXPERIMENTAL ARRANGEMENT, AND PHYSICS ARE DISCUSSED.

FACILITY: GOSUDARSTVENNYI KOMITET PO ISPOL'ZOVANIY ATOMNOI ENERGII SSSR, SERPUKHOV. INSTITUT FIZIKI VYSOKIKH ENERGII.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

USSR UDC: 621.385.6:621.3.035.44

KOGEN-DALIN, V. V., KUZNETSOV, E. V., CHERNOVA, I. M., SHAMNOVSKIY, V. L.

"Electrolytic Bath Simulation of Complex Magnetic Systems With Permanent Magnets for Microwave Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology, Scientific and Technical Collection. SHF Electronics), 1971, vyp. 2, pp 43-52 (from RZh-Elektronika i yeye Primeneniye, No 6, Jun 71, Abstract No 6A45)

Translation: The possibility of calculating complex magnetic systems by the method of simulation in an electrolytic bath is demonstrated by a shunt-controlled magnetic system of the "bracket" type. In the calculation on the model, account is taken of the nonlinear properties of the magnetic materials of the permanent magnet and the magnetically soft materials of the armature and shunt. Electric analogs with nonlinear properties are made up from a grid of linear controllable two-terminal networks which are tuned by a special procedure. Recommendations are given on making analog circuits of various sections of complex magnetic systems. A selected example is used to illustrate the possibilities of calculating the systems by simulation in a bath. Bibliography of five titles. Resumé.

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Acc. Nr. AP0038580 Abstracting Service: CHEMICAL ABST. 70 Ref. Code UK0000

K

67370a Preparative fractionation of copolymers of acrylamide with sodium maleate. Myagchenkov, V. A.; Kurenkov, V. F.; Kuznetsov, E. V.; Frenkel, S. Ya. (S. M. Kirov Chem. Tech. Inst., Kazan, USSR). Eur. Polym. J. 1970, 6(1), 53-8 (Eng). Compn. distribution curves were obtained for 4 acrylamide–Na maleate copolymers. Efficient compn. fractionation was obtained partially because of the presence of the ionic groups in the copolymer macromols. The compn. distribution curves obtained under non-isoionic conditions and in a system contg. 15% NaCl indicated that the copolymn. under non-isoionic conditions is anomalous. The addn. of NaCl stabilizes the relative reactivities of the comonomers.

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UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR, Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5, pp 66-72

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Yu. M. Rumyantsev, E. A. Kuznetsov

TEMPERATURE DEPENDENCE OF EPITAXIAL DEPOSITION RATE IN GaAs—J—H SYSTEM

Factors contributing to temperature dependence of chemical vapor processes rate are considered. The maximum on the temperature dependence of the open process rate in GaAs—J—H system has been explained by surface catalytic activity changing resulting crystal phase composition changing.

Kinetic equastions are derived for GaAs crystallisation on GaAs A(III) and B(III) substrates. Activation energy of the process has been obtained as equal to 32±1 and 34±1 *kcal/mol* for A and B orientation respectively.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

KUZNETSOV, Fedor A.

PRIVILEGED

SOLID STATE ELECTRONICS IN THE USSR

Report on a Lecture Tour in the Soviet Union

September 17 to October 16, 1973

Gerald L. Pearson*
Stanford Electronics Laboratories
Stanford University
Stanford, California 94305

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They have problems with their photoresist system since they cannot purchase processing equipment but must develop their own. They have a 1 μm separation limit with light and 0.2 μm with electron beam. I saw some completed integrated circuit wafers with step and repeat on 2" wafers. They had 5 ordinary field effect transistors plus 4 with variable turn on voltages for a total of 9 transistors.

I saw Tektronix 661 and 519 oscilloscopes bought through a third country due to the embargo. Also a Varian LEED system as well as a Varian magnetic resonance system. I inquired about vacuum systems. They have to build their own Vacsorb and Vac Ion systems which go to 10^{-10} and 10^{-11} mm Hg.

We discussed computer development in the USSR. They have many computers but not enough and there is a shortage of applied mathematics programmers. They have small computers in the Semiconductor Institute but programming is a bottle neck. The Mathematics Institute has a large time share computer but it is not available to other institutes.

We had dinner at the Kravchenko apartment with his wife and two daughters. The meal was very good with all sorts of cold dishes, liquors, hot meat dishes, etc. We walked there and back from our hotel.

Friday, October 1

I gave my speech on "III-V Solid Solutions" at the Institute of Inorganic Chemistry in the morning. Simultaneous translation by Fedor A. Kuznetsov with assistance by Alexander Kravchenko. They seemed quite interested with lots of questions. They were on binary compounds but not ternary. We met in the office of Director Akademician A. V. [illegible] who presented me with a book on long life fission product chemistry. He was very jolly and discussed mining in the permafrost area of Siberia. The problems are much the same as in the tundra of Alaska. It is wet in the summer and frozen to a depth of 6 meters in the winter. It is very difficult to mine since the holes fill with water. This institute has 600 people, 100 candidates, 100 engineers, 12 professors, and 1 Academician. I asked to see only the Electronic Materials laboratories which are under the associate director Fedor Kuznetsov (a very common name in Russia, like Smith in US). Three sections are:

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1. Epitaxial layers--Dr. F. Kuznetsov
2. Analytical control--Dr. Ludmila Ledelevich
3. III-V compounds--Dr. Konstantin Mironov

The epitaxial layer group previously worked only on vapor epitaxy but are now starting on liquid systems. The equipment was quite crude for this work. The analytic laboratory uses all types of measuring equipment including chemical, optical, electrical, spectroscopic, mass spectrometry, etc. They have a new method of optical absorption where they use characteristic radiation (monochromatic) at the line peaks and can get very good sensitivity.

Mirinov works on rare earth phosphides but this seems to be only of scientific interest with no technical applications. Mirinov was a very sharp fellow and wants reprints.

Friday night Sinitza took us to the Ballet (Sleeping Beauty) at the Novosibirsk opera house. The music was good and the girls beautiful.

We stopped for ice cream and coffee at the hotel afterwards and saw a typical Friday night gathering of Russians. Lots of drinking, singing, and police to keep order when things began to get out of hand.

Saturday, October 2

Stannislov Sinitza, his wife Ludmille, and son Alexei took us on a tour of the area with car and driver. We saw all sections of the town (very segregated according to education and position), went to the yacht club, to the hydroelectric dam on the Ob River and then for a shoshlik picnic on the bank of the Ob Sea. Cooking was done over a campfire in the woods.

In the evening we had dinner at the Rzhanow home. Since he is an Institute director, he has a private home of 8 rooms (dining, living, kitchen, maids, four bedrooms and two baths). He and his wife are both from a long line of famous Russians with many family heirlooms. The dinner was very elaborate and consisted mainly of Russian dishes. One could see that this family is very happy and have a good relationship. The daughter Helen is in 2nd year university, majoring in Biology, and the son Urei is in the last year of high school. He will major in some science but hasn't decided exactly which one.

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14 Jan 70

GROWTH KINETICS AND MORPHOLOGY OF AUTOEPITAXIAL GERMANIUM FILMS IN THE CHLORIDE METHOD

All-Union Institute [illegible]

[Article by V. S. Kravchenko, A. A. [illegible], V. N. Tretyakov, F. A. Kuznetsov; Monokristally, Poluprovodniki, Sbornik Trudy i Struktura Monokristallicheskikh Sloyev Poluprovodnikov -- Trudy Sbornik, Russian, Part 2, 1969, pp 183-186]

The theoretical studies of experimental studies of the growth of monocrystalline layers of germanium by the chloride method [1-4] cannot be used for other methods without preliminary analysis which must include the investigation of mass transfer phenomena, reaction equilibrium and kinetics. In the given case this analysis is complicated by the fact that along with heterogeneous reactions intermediate reactions take place in the gas phase [5-7], the degree of the occurrence of which essentially affects the growth processes and, in turn, depends on many parameters and structural elements of the reactor. Therefore, the necessary condition of the optimal process and its simulation are a further experimental study of the chemical system Ge-Cl-H. This study, in addition, can permit an approach to the discovery of the mechanism of the reactions on the surface and the growth mechanisms under different conditions. and, perhaps, it will offer the possibility of more purposeful utilization of the growth process of the autoepitaxial layers.

In this paper a study was made of the effect of the temperature, the flow velocity and the concentration of the germanium tetrachloride in the vapor-gas mixture on the growth kinetics and morphology of the films. A vertical reactor 72 mm in diameter was used. The heating was realized by high frequency induction currents. The temperature was measured by a platinum-platinum-rhodium thermocouple, and it was kept constant (variations within the limits of ±2 degrees). The substrates with (111) orientation were used.

Just as any heterogeneous process realized in the flow, the growth process of the germanium films from the gas phase as a function of the simulating stage can be divided into several regions.

For very small flows where the equilibrium can be established on the surface and in the gas phase or under the conditions of complete mixing the process takes place in the so-called quasiequilibrium range [8]. In this case the growth rate is the linear function of the flow velocity and can be calculated by the formula [9]

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

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IR-2. THERMODYNAMIC ANALYSIS OF THE GROWTH PROCESSES OF GERMANIUM ALLOYED WITH TIN BY THE METHOD OF COMBINED GAS-LIQUID EPITAXY

[Article by T. V. Fedorova, N. A. Pominykh, G. A. Kokovin, F. A. Kuznetsov, Novosibirsk; Novosibirsk, III Simposium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 1191]

A thermodynamic analysis was made of the Ge-Sn-Cl-H system considering all possible condensed phases. The results of the analysis are applied to the investigation of various schemes for growing epitaxial layers of germanium via a layer of liquid tin by the combined gas-liquid epitaxy method. The conditions of performing the following steps were calculated: application of the layer of liquid tin to the substrate, growth of the germanium layer through the tin-germanium melt layer, and removal of the liquid layer.

KUZNETSOV, F.A.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6

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IX-1. THERMODYNAMICS OF SYSTEMS WITH SEVERAL DEPOSITED ELEMENTS

[Article by F. A. Kuznetsov; Novosibirsk, III Simposium on Processing [illegible] I Sinteza [illegible] Kristallov I Plenok, Russian, 12-17 June 1971, p 1[illegible]]

The methods of detailed analysis of heterogeneous equilibrium with the application of computers obtained in recent years are used for the case of fixed composition of the condensed phase.

Giving the complete thermodynamic description of systems with one deposited element (systems used to grow germanium and silicon layers) this approach does not permit consideration of the possible versions of the phase composition of the deposits in the systems with a number of deposited elements.

In this paper the problem of the possible set of phase states of the condensates realized during application of the process conditions is analyzed. A study was made of the volume of data required for quantitative calculation of the phase structure of the deposit.

The developed apparatus was used to find the optimal sequence and the conditions of the controlled growth process of the layers by the method of combined gas-liquid epitaxy.

The factors of a nonthermodynamic nature complicating the process are indicated.

KUZNETSOV, F.A.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710011-6"