1/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THERMODYNAMIC AND SPECTRAL PROPERTIES OF P-NITROPHENOL IN AQUEOUS ELECTROLYTE SOLUTIONS -U-

AUTHOR-(04)-NIKOLSKIY, B.P., YUDOVICH, YE.YE., PALCHEVSKIY, V.V., SPEVAK, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 709-11

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMIC CHARACTERISTIC, SPECTRUM, PHENOL, ORGANIC NITRO COMPOUND, ELECTROLYTE, ENTHALPY, ENTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0723 STEP NO--UR/0076/70/044/003/0709/0711

CIRC ACCESSION NO--AP0119630

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119630

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PARTIAL ENTHALPY AND ENTROPY OF DISSOLN. OF P-O SUB2 NC SUB6 H SUB4 OH DECREASED WITH INCREASING CONCN. OF ELECTROLYTE. THE DECREASE OF THE ENDOTHERMIC CONTRIBUTION TO DELTAH DEPENDED ON THE ELECTROLYTE, KBR GREATER THAN KCL GREATER THAN NACL GREATER THAN LICL. THUS, THE DECREASE WAS LARGER THE LESS HYDRATED THE IONS OF THE ELECTROLYTES. THE ENERGY OF THE IST ELECTRONIC TRANSITION DECREASED WITH INCREASING CONCN. OF ELECTROLYTE AND THE EFFECT OF CREASED WITH INCREASING CONCN. OF ELECTROLYTE AND THE EFFECT OF ELECTROLYTES ON THE ENERGY VARIED IN THE ABOVE ORDER. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

Circuit Theory

USSR

UDC: 621.373.001.24:621.372.41

KARACHENTSEV, A. Ya., SPEVAK, V. V.

"Investigation of the Free Oscillatory Process in a Parallel Tank Circuit With Varistor"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 4(21), pp 95-107 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D389)

Translation: The paper gives a qualitative analysis of the conditions of the free oscillatory process in a parallel tank circuit with varistor. It is found that under certain conditions this is an oscillatory-aperiodic process. Functions are found which approximate the aperiodic segment of the process, and relationships are determined which can be used for technical calculation of the most important electrical parameters of a number of circuits with varistors. Eleven illustrations, bibliography of thirteen titles. Resumé.

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USSR

ANAN'YEVSKIY, M. G., BOCHKOV, N. G., SPEVAK, YE. YA., PARFENOV, G. V., and MYL'NIKOV, R. M.

"The Effect of Vanadium, Titanium, and Boron Modification on the Structure, Magnetic Properties, and Aging of Electric Unalloyed Steel"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 1(79) Jan/Feb 73, pp 36-38

Abstract: In order to prevent E0100-E0300 electric steels from magnetic aging, which takes place primarily on account of nitrogen, an attempt was made to modify these steels with vanadium, titanium, and boron. Magnetic properties, aging coefficient, and microstructure of modified steels were studied after 200 hours of heat treatment at 120°C. Addition of 0.02-0.03% Ti (as ferrotitanium) to molten steel almost completely suppressed the magnetic aging while the magnetic reversal losses were $P_{1.5/50} = 9.3$ W/kg. Higher amounts (0.04%) of titanium decreased considerably the size of grains. The aging of steel was completely suppressed with the addition of 0.03-0.06% V (as ferrovanadium) but the magnetic reversal losses were $P_{1.5/50} > 9$ W/kg. High magnetic reversal losses in this case are attributed to small ferrite grains formed in steel (10-9 relative units, control 8-9 relative units).

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USSR

ANAN'YEVSKIY, M. G., et al., Metallurgicheskaya i Gornorudnaya Promyshlennost', No 1(79), Jan/Feb 73, pp 36-38

Boron in amount 0.0025-0.0030% was ineffective with respect to magnetic properties of steel, while it made the steel structure nonuniform. The concentration of nitrogen in steel increased with increasing concentration of Ti and V. For practical purposes the use of Ti as a modifier is recommended.

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USSR

ADO, YU. M., ZHURAVLEV, A. A., LOGUNOV, A. A., MYAE, E. A., NAUMOV, A. A., PISAREVSKIY, V. YE., ROGOZINSKIY, V. G., TUSHABRAMISHVILI, K. Z., SHUKEYLO, I. A., BOYKO, S. N., KOMAR, YE. G., MALYSHEV, I. F., MOZIN, I. V., MONOSZON, N. A., MOZALEVSKIY, I. A., SPEVAKOVA, F. M., STOLOV, A. M., TITOV, V. A., VODOP'YANOV, F. A., KUZ'MIN, A. A., KUZ'MIN, V. F., MINTS, A. L., RUBCHINSKIY, S. M., UVAROV, V. A., GUTNER, B. M., ZALMANZON, V. B., PROKOP'YEV, A. I., and TEMKIN, A. S.

"Some Results of the Overall Adjustment and Start-up of the 70-Gev Proton Synchrotron of the Institute of High-energy Physics"

Moscow, Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

Abstract: The physical part of the plan for the 70-Gev proton synchrotron was executed by the Institute of Theoretical and Experimental Physics. The electromagnet with feed system, the vacuum chamber, and the injection devices were developed at the Scientific Research Institute of Electrophysical Apparatus imeni D. V. Yefremov. The radioelectronic systems for acceleration process control and generation of

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USSR

ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

the accelerating field, as well as the radiotechnical measurement and beam observation systems, were developed by the Radiotechnical Institute of the Academy of Sciences USSR. "Tyazhpromelektroproyekt" [State Planning Institute for the Planning of Electrical Equipment for Heavy Industry] designed the general-purpose electrotechnical devices and cable connections. The plan for the construction complex of the accelerator was developed by the State All-Union Planning Institute. The construction of the accelerator was under the general supervision of the State Committee for the Use of Atomic Energy USSR. The adjustment of individual systems and the overall adjustment and start-up of the accelerator were carried out by the Institute of High-energy Physics and the developers of the accelerator systems. The basic beam work was done by the Institute of High-energy Physics with the participation of the Radiotechnical Institute. The construction of the accelerator was begun in 1960, and all the basic construction and assembly work was completed at the beginning of

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USSR

ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

1967. At the initial stage of construction, before the formation of the Institute of High-energy Physics in 1963, the work was coordinated by the Institute of Theoretical and Experimental Physics. The linear accelerator injector was started on 28 July 1967, the operation of the individual systems was adjusted by September 1967, and the physical start-up of the accelerator was accomplished on 14 October.

A description is given of the work done to adjust the annular electromagnet (including the electromagnet cooling and feed systems), the injection system (consisting of matching channel and injection device), the vacuum system, the radioelectronic system (including the accelerating field generation system, the acceleration process control system, and the radiotechnical measurement system), and the beam observation system (which provides for beam observation in the first revolution and during acceleration). In the physical start-up of the accelerator the main efforts were directed towards obtaining accelerated protons of the planned energy, and the problem of obtaining high

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ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

intensity of the accelerated proton was not raised.

The article gives a listing of the principal parameters of the proton synchrotron, as well as a schedule of the individual stages of the start-up of the accelerator. Photographs include a view of the part of the ring hall in the beam injection area and a general view of the hall of ignitron rectifiers.

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USSR

UDC 621.317.761(088.8)

BOGDANOV, S. YE., SPICHENKOV, M. P., REZNIK, L. YE., BOTVINNIKOV, V. I.

"Device for Measuring the Carrier Frequencies of Shortwave AM Signals"

USSR Author's Certificate No 275223, Filed 16 Dec 68, Published 13 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A289P)

Translation: A device containing a professional superheterodyne receiver and an electronic counter is proposed for measuring the carrier frequencies of shortwave AM signals. It is distinguished by the fact that for automation and improvement of the operation of the measurement process the heterodyne outputs, the second intermediate-frequency amplifier of the receiver and one of the outputs of the standard oscillator are connected to the frequency conversion unit. The second output of the oscillator is connected to the automatic control unit by a counter comprised of a control circuit, divider, and valve, to the second input of which the signal is fed from the frequency conversion unit.

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USSR

UDC 577.153.3

BOLDYREV, A. A., PETUKHOV, V. B., PUTOV, V. B., SPIKKINA, G. D., and TKACHUK, V. A.

"Role of Acetylcholine and Imidazole-Containing Dipeptides in the Control of Cation Transport Through Muscle Membranes"

Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 125-135

Abstract: Acetylcholine in the neuromuscular apparatus has an additional function to its synaptic effect: it acts on the enzymatic properties of extrasynaptic muscular membranes, sarcolemma and sarcoplasmatic reticulum. The effect of acetylcholine in combination with imidazole-containing compounds was studied. In particular, experimental data were collected on the effect of imidazole on contractile activity and the end plate potential of a nerve-muscle preparation from a frog, during rhythmic stimulation of a nerve. Experiments were conducted to determine the dependence of ATP-ase activity of heart muscle sarcolemma in a rabbit on the Na^+ : K^+ ratio, the effect of addition of $CaCl_2$ and EGTA [ethyleneglycol-bis(β-aminoethyl-ether'N,N-tetraacetate] on the hydrolysis rate of ATP and acetyl phosphate of cardiac sarcolemma and the skeletal muscle; the dependence of inhibition of Ca^{2+}-ATP activity on the concentration of acetylcholine or buffer

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USSR

BOLDYREV, A. A., et al., Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 125-135

solution; and the effect of acetylcholine on Ca+ transport in a preparation of sarcoplasmatic reticulum of a rabbit in the presence of acetylcholine. Fatigue or blocking of neuromuscular transmission by competing toxins is reduced and eliminated by imidazole-containing dipeptides. As a result, an increase in amplitude of the end plate potential is observed and its transformation into an action potential is facilitated. Intensified, spontaneous bioelectrical activity at the myoneural junction. Enzymatic activity of sarcolemma and sarcoplasmatic reticulum transport ATP-ase is inhibited by acetylcholine but enhanced by imidazole and its derivatives. The synergistic effect of both dipeptides and acetylcholine is a more complete inhibition of active ion transport. Experimental data are reported on some mechanisms for the transfer of sacolemma excitation to the contraction process. Under the effect of acetylcholine, there may be a change in cation transfer. It is assumed that acetylcholine in combination with imidazole-containing dipeptides regulates the intensity and direction of cation transport through muscular membranes.

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USSR

UDC 669.245.018.44(088.8)

PANASYUK, I. O., BRUSILOVSKIY, B. S., VILKOV, V. I., VORONIN, G. M., YEGOROV, YE. YE., YELKIN, I. S., KLIMOV, L. YA., KOVROVA, YE. A., KONTSEVAYA, YE. M., LYUBINSKAYA, M. A., MILENINA, YE. G., NIKHAYLOV, I. A., RAZUVAYEV, YE. I., SIROTKIN, A. I., SOLDATCHENKO, V. A., SPILITSIN, R. I., SHAPIRO, S. M.

"Nickel-Chromium Base Alloy"

USSR Author's Certificate No 276418, Filed 2 Jun 69, Published 16 Oct 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I766P)

Translation: The heat-resistant alloy has the following composition (in %): C 0.03-0.1, Cr 30-40, W 3-5.5, Mo 2-4, Ti 0.5-1.5, Al 0.5-1.5, Nb 0.5-1.5, Ce 0.01-0.3, B 0.003-0.008, Ni, the rest. The alloy has increased heat resistance and also the following mechanical and physical-chemical properties at 1,100°: σ_B 8 kg/mm^2, δ 65%, $\sigma_{\text{stress-rupture}}$ 1 kg/mm^2, coefficient of linear expansion $15 \cdot 10^{-6}$ deg^{-1}, increase in weight after 100 hours of heating at 1,200° in the air 0.6 g/m^2. It is corrosion-resistant in a moist atmosphere under tropical conditions, in sea water, and in the products of combustion of highly sulfurous fuel.

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USSR

UDC: 534.222.2

ANISIMOV, S.I. and SPINER, O.M., Moscow

"Motion of Nearly-Ideal Gas With Strong Spot Explosion"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 36, Vyp 5, 1972, pp 935-938

Abstract: The problem of spot explosion in a nearly-ideal gas is investigated. The virial expansion of parameter $b\rho$ (molecule volume times gas density) is used as the equation of state. The extension to the case of an ideal gas is analyzed. It is shown that for an adiabatic motion there is near the center of explosion a region of radius $r \sim r_0 \sqrt{b\rho_0}$ in which the nondimensional velocity profile differs from the one for an ideal gas. It is also shown that in a heat-conducting gas there is a gradual transition to the case of an ideal gas rather than an adiabatic motion.

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USSR

FESENKO, Ye. G. et al., Kristallografiya, Jan/Feb 72, pp 153-157

20 deg/hr for the cooling rate, and less than 20 deg/cm for the vertical temperature gradient with an approximate ratio of 1:1 between these parameters. The region of laminar crystal growth is shown by the shaded portion on the phase diagram. It was found that observation of optimum conditions gives fairly large crystals (up to 1.5 cm^2) with thicknesses from 10-15 μ to 1-1.5 mm. The domain structures of the crystals are classified. Etching figures are shown which correspond to 180° domain configurations, as well as to large monodomain regions with stable antiparallel domains in the surface layer. Some of the particulars of the phase transition are discussed. Four figures, bibliography of eighteen titles.

UDC. 548.5

USSR

FESENKO, Ye. G., GAVRILYACHENKO, V. G., SPINKO, R. I., MARTYNENKO, M. A., GRIGOR'YEVA, Ye. A., FERONOV, A. D., Rostov State University

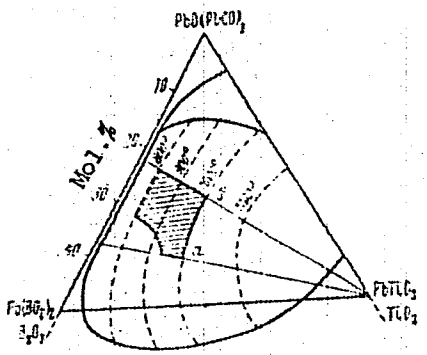
"Growth of Lead Titanate Crystals and Investigation of Their Domain Structure"

Moscow, Kristallografiya, Vol 17, No 1, Jan/Feb 72, pp 153-157

Abstract: A method is described for growing laminar $PbTiO_3$ crystals in the $PbO-TiO_2-B_2O_3$ system, and the results of a study of the domain structure by the optical method and the method of etching are presented. In numerous experiments on crystal growing in this system, it was found that lead titanate sometimes crystallizes in the form of transparent plane-parallel plates with a perfect {100} face. Experiments showed that the yield of perfect laminar crystals depends on the temperature gradient with respect to height in the melt, and the cooling rate. The optimum conditions are less than

USSR

FESENKO, Ye. G. et al., Kristallografiya, Jan/Feb 72, pp 153-157



Phase diagram of the $PbO-B_2O_3-TiO_2$ system and the region of laminar crystal growth (shaded area)

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1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SPONTANEOUS POLARIZATION AND COERCIVE FIELD OF LEAD TITANATE -U-

AUTHOR-(04)-GAVRILYACHENKO, V.G., SPINKO, R.I., MARTYNENKO, M.A., FESENKO, YE.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1532-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LEAD COMPOUND, TITANATE, ELECTRODE, CURIE POINT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0181/70/012/005/1532/1534

PROXY REEL/FRAME--3003/0161

CIRC ACCESSION NO--AP0129417

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 015

CIRC ACCESSION NO--AP0129417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPONTANEOUS POLARIZATION, P SUBS EQUALS 75 MICROCOULOMBS-CM PRIME2 AND THE COERCIVE FIELD, E SUBO EQUALS 6.75 KV-CM. ON REPOLARIZATION IN STRONG FIELDS, ALPHA DOMAINS ARE FORMED, WHICH SPREAD PROGRESSIVELY OVER THE ENTIRE SURFACE OF THE ELCTRODE. THE TEMP. DEPENDENCE OF SPONTANEOUS POLARIZATION SHOWS THAT WITH INCREASING HEATING, P SUBS DECREASES MONOTONICALLY TO SIMILAR TO 50PERCENT OF ITS VALUE AT ROOM TEMP., AND AT THE CURIE POINT THE JUMP IS 40 MICROCOULOMBS-CM PRIME2. FACILITY: ROSTOV.-NA-DONU GOS. UNIV., ROSTOVON DON, USSR.

UNCLASSIFIED

UDC: 621.375.4

USSR

SIVERS, M. A., SPIRIDENKOV, E. M., SERGEYEV, A. Ya.

"A Wide-Band Transistorized Power Amplifier"

Kiev, Izvestiya VUZov, Radioelektronika, Vol 15, No 1, Jan 72, pp 99-102

Abstract: The authors examine the operation of a wide-band transistorized transformer power amplifier free of the nonlinear distortions caused by the scattering inductance of the load transformer. These nonlinear distortions are completely eliminated by ensuring current flow continuously through the transistors. In order to keep the efficiency of the amplifier high, operating conditions are chosen in such a way that each transistor operates in the saturation region during half the period of high frequency oscillations, and in a mode corresponding to the active region of the current-voltage curve of the device during the other half. Common-emitter and common-base versions of such a circuit are given. The proposed circuit ensures an efficiency equivalent to that of a power amplifier for class B operation. An experimental check of the computational procedure showed excellent agreement. The conclusions of the research are applicable to vacuum-tube amplifiers as well. Two figures, bibliography of two titles.

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UDC 539.173.8:546.791

USSR

GVOZDEV, L. A., GYND, YE., IONESKU, S., SABAU, K., and SPIRIDON, S.

"Radiochemical Investigation of the Fission Products of Uranium Irradiated by Accelerated Argon Ions".

Leningrad, Radiokhimiya, Vol 12, No 4, 1970, pp 612-617

Abstract: The authors determined the yields of various products of fission of a nucleus with Z = 110 from the excited state formed as a result of interaction of uranium-238 with argon-40 ($U^{238}+Ar \rightarrow 110 \rightarrow f$). An attempt was also made to evaluate certain characteristics of the fission process for this case. Uranium was irradiated on the inner beam of a multiple-charge ion cyclotron at the Joint Institute of Nuclear Research. The target was U_3O_8 on an aluminum substrate. Bombardment with Ar^{7+} ions at 270 Mev varied from 5 to 12 hours. After irradiation the target was dissolved in nitric acid containing carriers of Ag, Te, Ba, La, Tb and Au. The solution was then treated sequentially to extract the silver, barium, rare earth elements, gold and tellurium. The chemical yield of the elements was determined by weighing or spectrophotometry, and the results were used to calcualte mass yields of the fission products. It was found that the experimental data conform satisfactorily to Gaussian distribution. The half-peak width of this distribution is approximately 60 mass units. The maximum fission product yield is estimated at approximately

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USSR"

GVOZDEV, B. A., et al., Radiokhimiya, Vol 12, No 4, 1970, pp 612-617

20 mb. A comparison of the results with the mass distribution of uranium fission products yielded by irradiation with neon ions shows a somewhat wider mass distribution for argon than for neon. In conclusion the authors thank G. N. FLEROV for formulating the problem, I. ZVARE and YU. TS. OGANESYAN for constructive discussion of the results, and also Z. SHEGLOVSKIY and I. I. CHUBURKOVA for assistance in carrying out the experiments.

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UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 044

TITLE--NATURE OF THE BREAKDOWN OF THIN METALLIC LAYERS BY LASER RADIATION -U-

AUTHOR-(04)-BONCHBRUYEVICH, A.M., IMAS, YA.A., LIBENSON, M.N., SPIRIDONOV, B.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, MAR. 1970, P. 658, 659

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--METAL FILM, ALUMINUM, LASER RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0057/70/040/000/0658/0659

PROXY REEL/FRAME--1994/1255

CIRC ACCESSION NO--AP0115272 UNCLASSIFIED

2/2 044 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115272

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF THEORETICAL AND EXPERIMENTAL STUDIES OF THE THRESHOLD VALUES OF BREAKDOWN INDUCING LIGHT FLUX DENSITIES DURING THE ACTION OF LASER RADIATION ON THIN METALLIC FILMS. AN EQUATION IS DERIVED FOR THE THRESHOLD DENSITY CORRESPONDING TO THE INITIATION OF BREAKDOWN, I.E., HEATING OF THE SURFACE TO MATERIAL'S BOILING POINT AT ATMOSPHERIC PRESSURE. AT THIS TEMPERATURE, THIN LAYERS ARE TOTALLY DESTROYED AND THICK LAYERS IRREVERSIBLY LOSE THEIR REFLECTIVE PROPERTIES. CALCULATIONS ARE COMPARED WITH MEASURED DATA FOR AN ALUMINUM LAYER DEPOSITED ON A GLAS SUBSTRATE.

UNCLASSIFIED

USSR

ROZDIN, I. A., et al, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 7, No 10, Oct 71, pp 1798-1800

anisotropic with an index of refraction >1.76. After having been fired for 3 hrs, In_2TiO_5 will not dissolve in 25% HNO_3 but almost totally decomposes in HCl (1:1) with In going into the solution and Ti remaining in the precipitate. There are no analogs for the In_2O_3-TiO_2 system in reference literature. (3 illustrations, 3 bibliographic references).

2/2

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 027

TITLE--HAFNIUM DIOXIDE,ERBIUM SESQUIOXIDE SYSTEM -U-

AUTHOR-(02)-SPIRIDONOV, F.M., KOMISSAROVA, L.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 875-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--X RAY ANALYSIS, THERMAL ANALYSIS, PHASE DIAGRAM, CRYSTAL STRUCTURE, SOLID SOLUTION, HAFNIUM OXIDE, ERBIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1724 STEP NO--UR/0078/70/015/003/0875/0878

CIRC ACCESSION NO--AP0115553

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115553

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTERACTIONS IN HFO SUB2-ER SUB2 O SUB3 SYSTEM WERE STUDIED BY THERMAL AND X RAY PHASE ANAL.; THE PHASE DIAGRAN OF THE SYSTEM WAS CONSTRUCTED. WIDE FIELDS OF CUBIC SOLID SOLNS. OF THE SYSTEM ARE SEPD. BY A NARROW REGION OF IMMISCIBILITY. HEXAGONAL ER SUB6 HFO SUB11, WHICH EXISTS AT SMALLER THAN 1700DEGREES, TRANSFORMS TO A SOLID SOLN. OF A CUBIC STRUCTURE AT HIGHER TEMPS. THIS TRANSITION IS OF THE ORDER DISORDER TYPE.

UNCLASSIFIED

USSR

BASKAKOV, V. V., KALACHENKO, A. A., SPIRIDONOV, N. G.

"Algorithm and Program for One-Dimensional Trend with Estimation of Regression Line and Construction of Confidence Boundaries"

Mat. Metody v Geol. [Mathematical Methods in Geology -- Collection of Works], No 2, Alma-Ata, 1971, pp 137-152 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V703, by A. Doroshenko).

Translation: An algorithm is described and a program is presented for regression analysis of the results of measurement of a certain quantity Y as a one-dimensional function of X. Based on the set of N measurements by the method of least squares, a smoothing polynomial of power n is constructed. Statistical analysis determines the adequacy of representation of the function by the power n polynomial. To do this, the regularity of alternation of the rules of deviation of experimental values of the dependent variable of the corresponding calculation curve is studied. The basic criterion used to check the hypothesis of proper selection of the hypothetical curve is the difference between the calculated and tabular values of probabilities P(u) that there will be u jumps in the random sequence of n_1 positive deviations and n_2 negative deviations. One supplementary criterion is the ratio of

USSR

Baskakov, V. V., Kalachenko, A. A., Spiridonov, N. G., Mat. Metody v Geol., No 2, Alma-Ata, 1971, pp 137-152.

dispersions of the corresonding quantities. A program written for the Ural-2 computer allows the arithmetic mean, sample dispersions, mean square deviations, variation factor and area between indicated pairs of regression curves to be calculated, and also allows estimation of the reliability of the results produced and calculation of confidence intervals. The program occupies 2134_8 locations of machine memory.

USSR

GENDLER, V. Ye., KALACHENKO, A. A., SPIRIDONOV, N. G.

"Algorithm and Program for Separation of a Sample with Normal Distribution"

Mat. Metody v Geol. [Mathematical Methods of Geology -- Collection of Works], No 2, Alma-Ata, 1971, pp 190-196 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V702, by A. Doroshenko).

Translation: A program is described, allowing screening of elements of a sample distorting the normal distribution on the basis of the condition of normality with respect to asymmetry and excess. Points are screened out which do not fall into the interval $\bar{x}\pm3$. The statement of the problem is as follows. For each of n samples of N points each, the statistics are defined up to the fourth moment inclusively. The normality of the distribution rule of the sample is determined by the asymmetry and excess from the condition of fulfillment of inequalities $|A/\sqrt{6/N}| \leq 3|E/2\sqrt{6/N}| \leq 3$. If the sample does not correspond to the normal distribution, the point with the greatest distance from the interval $x\pm3s$ is eliminated and the condition of normality is tested once more for the remaining elements of the sample. The process continues until the condition of normality of the distribution rule is fulfilled. The program is written for the Ural-2 computer, occupying 610_8 memory locations and permitting up to 1100 sample points.

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USSR

UDC: 621.382

SPIRIDONOV, N. S.

"Carrier Transit Time and Maximum Amplification Frequency of a Drift Transistor"

Kiev, Izvestiya VUZov, Radioelektronika, Vol 15, No 1, Jan 72, pp 22-28

Abstract: The author examines the effect which the section of the retarding field in the base has on the frequency properties of a drift transistor. Formulas are derived for the transit time and maximum frequency of current gain assuming exponential distribution of impurities on the sections of the retarding and accelerating fields in the base region. It is assumed that the mobility of the minority carriers is independent of the impurity concentration. The calculations show that the section of the retarding field has a strong effect on the frequency properties of drift transistors. The transit time of the minority carriers can be increased several times over through the section of the retarding field. However, the question as to whether sections of the retarding field in the base are to be avoided requires special study since the width of the base region has the greatest effect on frequency properties. Four figures, three tables, bibliography of six titles.

1/1

USSR

UDC 669.14.018.8+621.787.4

SPIRIDONOV, V. B., KUZ'MINSKAYA, L. N., GORDEYEV, YU. P.,

"Strengthening of Cr-Ni Steels with Unstable Austenite"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 2-9

Abstract: A study was made of the effect of several factors promoting the formation of a high-strength state, namely: the martensite transformation, deformation of martensite and austenite, as well as "inheritance" of the defect structure of deformed austenite with the martensite being formed. Kh18N9 and Kh16N6 steels were used. Deformation of austenite without formation of martensite causes increased strength properties with an intensity of 0.7-0.9 kgf/mm^2 per 1% strain. Maximum yield and tensile strengths achieved for Kh18N9 steel were (for 30% strain) 45 and 85 kgf/mm^2, respectively (for initial values of 25 and 60 kgf/mm^2, respectively). Defects of the deformed austenite are inherited by the martensite formed upon subsequent cooling to low temperatures at degrees of strain up to 8-10%. Above the indicated degrees of strain the determining factor for strengthening is stabilization of the austenite, i.e., less tendency to the formation of martensite. Deformation of the austenite by rolling at small degrees of strain stabilizes the austenite to a large degree. Martensite transformation of Kh16N6 steel (cooling down to -196°C) causes an increase in the amount

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USSR

SPIRIDONOV, V. B., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 2-9

of martensite from 10 to 70% and leads to a growth in the tensile strength by 30 kgf/mm^2 and tensile strength by 55%. Tensile strain to 4-6% and 40% deformation by rolling of Kh16N6 steel with a predominantly martensite structure leads to the formation of an additional amount of martensite, up to 20-25%, and to increased tensile strengths by 10 kgf/mm^2 (for tension) and 40 kgf/mm^2 (by rolling) and yield strengths by 80-90 kgf/mm^2. The same values of strength properties can be achieved at 3-4% deformation by tension and 20% deformation by rolling. The martensite transformation and subsequent cold working of martensite are the determining factors in the formation of a high-strength state in Cr-Ni steels with unstable austenite. Seven figures, two tables, thirteen bibliographic references.

2/2

USSR UDC 669.14.018.2:621.78

SPIRIDONOV, V. B.

"The Hardening Mechanism of Steels Containing Chromium and Nickel and Martensitic-Aging Nickel Steels"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, 1971, pp 2-6

Abstract: Modern methods making it possible directly or indirectly to expose the character of the reaction of alloying additions with dislocations and also to obtain data on phases separating out by aging were used for investigating the hardening mechanism by againg of carbon-free alloys Fe - Ni, Fe - Ni - Cr, and Fe - Ni - Co. A formulation of the concept of the hardening mechanism of the mentioned steels was established on the basis of an analysis of experimental. It was found that in the first stage of aging the hardening is combined with a "drift" of atoms of alloying elements to dislocations in their stress field and in the second stage with a three-dimensional nucleation and its growth. Four illustrations, one table, eleven bibliographic references.

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1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THE CAUSES OF BULGING OF GAS PIPELINE SECTIONS BUILT IN CENTRAL ASIA -U-

AUTHOR-(02)-SPIRIDONOV, V.V., AYNBINDER, A.B.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, STROITEL'STVO TRUBOPROVODOV, NO 2, FEB 70, PP 14-15

DATE PUBLISHED-----FEB70

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

TOPIC TAGS--NATURAL GAS, PIPELINE TRANSPORTATION SYSTEM, TENSILE STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0381 STEP NO--UR/0095/70/000/002/0014/0015

CIRC ACCESSION NO--AP0119332

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119332

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE PRESENTS AND INVESTIGATION OF CAUSES OF BULGING ON 1020 MM GAS PIPELING IN CERTAIN REGIONS OF CENTRAL ASIA, WHERE THE LARGE PART OF IT IS LAID IN SANDY SOILS, THE CHARACTERISTIC PROPERTIES OF WHICH ARE: 1) A NEARLY TOTAL ABSENCE OF BONDS; 2) A SMALL ANGLE OF INTERNAL FRICTION (Y IS LESS THAN 15DEGREES); AND 3) LOW HUMIDITY (UP TO 5PERCENT IN SUMMER). THE CONSTRUCTION AND AREA CHARACTERISTICS ARE DESCRIBED. THE BULGING OCCURRED ON THREE SECTIONS, LOCATED AT 9, 12, AND 19KM FROM A COMPRESSOR STATION, AND WAS PROCEEDED BY A CHANGE IN OPERATION CONDITIONS AT THE COMPRESSOR STATION, WHERE THE GAS TEMPERATURE AT THE OUTPUT ATTAINED 52DEGREESC AT 55KG-CM PRIME2 PRESSURE. CRIMPS OF 150MM HEIGHT WERE OBSERVED IN THE COMPRESSED ZONE OF THE PIPE SECTION. THIS INDICATED THAT METAL DEFORMATIONS TURNED INTO PLASTIC DEFORMATION AS A RESULT OF LARGE LONGITUDINAL COMPRESSIVE FORCES AND LARGE TRANSVERSE TENSILE STRESSES. PHOTOGRAPHS OF THE BULGING PIPELINE SECTION AND A COMPRESSED PIPE SECTION COVERED BY CRIMPS, AND ALSO A PHOTOGRAPH SHOWING THE TRANSLATION OF PIPE ENDS ARE PRESENTED. A GEODESIC SURVEY WAS CONDUCTED BEFORE AND AFTER THE ELIMINATION OF BULGED SECTIONS IN ORDER TO DETERMINE THE STRAIN STATE OF THE AREA. A SERIES OF RECOMMENDATIONS ARE PRESENTED FOR IMPROVING THE RELIABILITY OF GAS PIPELINE OPERATION. ORIG. ART. HAS: 3 FIGURES.

UNCLASSIFIED

2/2 064 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0127667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TIME DEPENDENCE OF THE REFRACTIVE INDEX DURING PHOTODISSOCIATION IS DEMONSTRATED BY THE INTERFEROMETER TECHNIQUE. IT IS SHOWN THAT A SHOCK WAVE APPEARS IN THE SUBSTANCE CONTAMINATED WITH THE PHOTODISSOCIATION PRODUCTS. THE WAVE IS DUE TO EVAPORATION (RESULTING FROM ABSORPTION OF THE PUMPING LIGHT) OF MOLECULAR IODINE DEPOSITED ON THE CUVETTE WALLS. IT IS SHOWN THAT THE TIME DELAY BETWEEN GENERATION AND THE PUMPING PULSE WEAKLY DEPENDS ON THE PRESSURE (AT HIGH VALUES OF THE LATTER). THIS EFFECT IS ASCRIBED TO INCREASE OF THE SPONTANEOUS EMISSION LINE WIDTH AND NATURALLY LEADS TO AN INCREASE OF THE GENERATION THRESHOLD.

UNCLASSIFIED

USSR

UDC 669.721.042.6

GALKIN, M. N., KATS, E. L., SPIRIDONOV, YE. V.

"Effect of the Conditions of Formation on the Shrinkage Porosity and Tightness of Castings made of Magnesium Alloys"

Usadochn. protessy v splavakh i otlivkakh -- V sb. (Shrinkage Processes in Alloys and Castings -- collection of works), Kiev, Naukova Dumka Press, 1970, pp 296-301 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G223)

Translation: The results of investigations of the temperature fields of castings during hardening were investigated in order to analyze the process of formation and selection of the technological casting parameters. A mathematical description is presented for the two-dimensional temperature field of cylindrical castings during hardening with correlation to the properties and initial parameters of the mold and cast metal. The probability dependence of the casting tightness on the shrinkage porosity is presented. There are 6 illustrations.

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USSR UDC 632.95

SPIRIDONOV, YU. A., SHCHEGLOV, YU. V., SPIRIDONOVA, G. S., MITESHEV, A. I., KHOKHLOV, P. S., BLIZNYUK, N. K., All-Union Scientific Research Institute of Phytopathology

"A Desiccant"

USSR Author's Certificate No 296545, filed 16 Oct 69, published 10 May 71 (from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N457 P)

Translation: Substances of the general formula $ROC(S)SCH_2COCBn(R')_3$ (I), where R = C_2-C_4-alkyl, R' = C_3-C_4-alkyl or aryl are proposed as desiccants. When introduced into the soil in a dose of 10 kg/ha before seeding, compounds I have no noticeable effect on plants, but when the same dose of the compounds is used for treatment in the vegetative stage, they case wilting or death. G. A. Belyayeva.

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Turbine and Engine Design

USSR

UDC 621.438:621.43.056

SPIRIDONOV, Yu. A., and TALANTOV, A. V.

"Effect of Certain Gas Turbine Combustion Chamber Structural Parameters on Circular Irregularity of the Gas Temperature Field"

Kazan', Izvestiya VUZ, Aviatsionnaya Tekhnika, No 4, 1970, pp 80-86

Abstract: A study is reported on a generalization of the effect of separate structural parameters of the combustion chamber mixing region on circular irregularity of the temperature field. The dependence of the temperature field circular irregularity on the total surface of holes of equal diameter in a heating tube, with equal distance between holes, is determined under certain simplifying assumptions and presented in graphs. Empirical formulas for determining the circular irregularity were established on the basis of the available experimental relations. An analysis of the results shows that: 1) for every value of total surface of the holes there exists an optimal equivalent diameter, at which the circular irregularity is minimum; 2) the minimum circular irregularity decreases with the total surface of the holes; 3) there exists an optimal dependence of circular irregularity on distance between the holes. Recommendations are given on the design of

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USSR

SPIRIDONOV, Yu. A., and TALANTOV, A. V., Izvestiya VUZ, Aviatsionnaya Tekhnika, No 4, 1970, pp 80-86

combustion chamber mixing region and on the method of equalizing the gas temperature fields along the circular irregularity. 4 formulas, 4 figures, 3 references.

2/2

USSR UDC 621.783:621.371.332:523.4

LUKIN, D. S., SPIRIDONOV, Yu. G., FOMINYKH, S. I., and SHKOL'NIKOV, V. A.

"Investigating Refraction, Doppler Frequency Shifts, Field Intensity, and Caustics in the Radio Transmissibility of the Martian Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972, pp 32-36 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A428)

Translation: The refraction and field intensity in the atmosphere of Mars are computed over various trajectories of the Martian artificial satellites in the frequency range of 100-2200 MHz. An empirical formula is obtained for the refraction angle in the ionosphere as a function of the frequency. The Doppler shift introduced by the ionosphere and troposphere is given in terms of the position of the satellite. An investigation is made of the effect of horizontal heterogeneities in the Martian ionosphere on the accuracy of measurements of the electron concentration from the data on the eclipsing of radio communications. Five illustrations, bibliography of three. N. S.

USSR

UDC 621.371:551.510.535

LUKIN, D. S. and SPIRIDONOV, Yu. G.

"Use of a Characteristic System for Modeling the Propagation of Radio Waves in the Ionosphere and the Operative Computation of Shortwave Lines of Communication on Analog Machines"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972 pp 61-64 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A364)

Translation: On the basis of earlier papers regarding broadened characteristics of systems determining the trajectory, phase, group delay, and field intensity of electromagnetic waves in a three-dimensional nonuniform magnetoactive medium, an algorithm and a program are constructed in the "Algol" language for numerically solving three-dimensional problems of radio wave propagation with real atmospheres taken into account (dependence of the index of refraction on the coordinates and the magnetic field) on earth

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USSR UDC 51:621.391

SPIRIDONOVA, R. P.

"One Approach to the Determination of an Abstract Model of a Continuum Automaton"

Kiev, Kibernet. tekhnika--Sbornik (Cybernetic Equipment -- Collection of Works), No 8, 1970, pp 4-19 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V431)

Translation: An abstract model is proposed for an automaton that is defined both on a discrete set, and a continuum.

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USSR

UDC 51:621.391

SPIRIDONOVA, R. P.

"One Approach to the Determination of an Abstract Model of a Continual Automaton"

Kibernet. Tekhnika. vyp. 8 [Cybernetic Equipment, No 8 -- Collection of Works], Kiev, 1970, pp 4-19, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V431).

Translation: An abstract model of an automaton is suggested, defined both in a discrete and in a continual set.

USSR

UDC 632.954:213.2

SPIRIDONOV, YU. YA., and GAGUA, G. V., Candidates of biological sciences, All-Union Scientific Research Institute of Plant Pathology

"Means of Increasing the Effectiveness of Herbicides in Humid Subtropical Conditions"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 9 (107), 1972, pp 44-47

Abstract: Experiments were conducted from 1966-1970 on corn crops of the Adzhametskaya white variety in moderately loamy soil in the southern part of the Kolkhid lowland of the Adzharskaya ASSR. In the first experiment the herbicide was applied 2-5 days before sprouting; in the second one compound was applied 2-3 days before sprouting and another 45 days later, in the 4/5 leaf stage of growth, which corresponds to the time of appearance of miliary annual weeds. The standard was simazine in a dosage of 10 kg/ha. All the herbicides were applied in water suspension at a rate of 500 l./ha. The weed mixture on the plots was typical for the region. In experiment 1 the most effective mixtures against miliary weeds contained simazine and either diuron or monuron. Mixtures of simazine with 2,4-D were less effective than simazine alone, since monocotyledonous weeds, resistance to 2,4-D, predominate

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203120019-1"

USSR

SPIRIDONOV, YU. YA., and GAGUA, G. V., Khimiya v Sel'skom Khozyaystve, Vol 10, No 9 (107), 1972, pp 44-47

in the district. Grain harvests in several of the treated plots were four times those in the untreated control plots. The most effective mixtures were simazine, 2.5 kg./ha., and atrazine, 2.5kg/ha.; simazine, 5 kg/ha., and diuron, 2.5 kg/ha.; and simazine, 5. kg/ha., and monuron, 2.5 kg/ha. The authors had shown in an earlier article that symm-triazines in a 5 kg/ha dosage pratically speaking lose their effectiveness by the second month after treatment. Experiment 2 showed that the best results, reducing weed content 80-90%, were obtained by using diuron or monuron at 5 kg/ha., then later treating with 2.5-5 kg/ha. of atrazine or simazine. Use of atrazine of simiazine first in experiment 2 retarded growth and caused partial loss of turgor, consequently reducing yields. The most effective variations were followed by a significant increase in grain yield of simazine alone, and nearly quadruple yields in comparison with the untreated control.

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USSR

UDC 632.954:631.58:632.51

SPIRIDONOV, Yu. Ya., and SPIRIDONOVA, G. S., All-Union Scientific Research Institute of Plant Pathology, Moscow Oblast

"The Effect of Systematic Application of Symmetrical Triazines on Agricultural Phytocenosis"

Moscow, Agrokhimiya, No 2, 1973, pp 118-127

Abstract: Long term effectiveness of triazines was studied from 1965-1971 in Kobuletskiy Rayon of the Adzharian ASSR. Plots of Adzhametskaya White corn were treated in test 1 with atrazine, cimazine, and propazine in annual dosages of 5, 10 and 20 kg/ha. Herbicides had not been used previously on the plots. In test 2 herbicides were applied on the same plots as the preceding year. Plots without hand cultivation and with hand cultivation repeated three times served as controls. The marsh meadow soil of moderate loam with average cultivation, 20-22 cm of top soil, pH 4.9, humus content 2.7-2.9%, and free forms of nitrogen, phosphorus, and potassium in respective quantitites of 10.1, 9.0 and 4.0 mg/100 g of soil. Water table depths was 60-90 cm. Weather conditions during the experimental period were normal, with average precipitation of 200-250 mm monthly, soil temperature of 20-25 C degrees, and relative humidity 80-95%. Results were measured at harvesting

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203120019-1"

USSR

SPIRIDONOV, Yu. Ya., and SPIRIDONOVA, G. S., Agrokhimiya, No 2, 1973, pp 118-127

by weighing plant mass after dividing the corn from the weeds. It was determined that varying the type of herbicide was far more effective in controlling weeds. Herbicide effectiveness diminished rapidly and resistant types of weeds quickly replaced the ones killed. Rapidity of inactivation of the herbicides was in direct dependence on the weed content of the corn plantings, and a year after the conclusion of the 5 year tests, weed levels had returned to 75-90% of those on the uncultivated control plots. Subsequent plantings of oats and soy beans and their treatment with the symmetrical triazines showed no significant aftereffects of the herbicides.

2/2

USSR

UDC 632.954.631.46

SPIRIDONOV, Yu. Ya., and SPIRIDONOVA, G. S., All Union Scientific Research Institute of Phytopathology, Moskovskaya Oblast'

"The Effect of Long Term Application of symm-Triazines on the Biological Activity of Soil"

Moscow, Agrokhimiya, No 3, Mar 73, pp 122-131

Abstract: Systematic application of symm-triazines under field and laboratory conditions in humid, subtropical regions of Western Georgia did not result in any substantial changes in the amounts of soil microflora and their activity. The activity of soil microorganisms depended to a great extent on the contamination of the experimental plots with weeds rather than on the number of soil treatments with herbicides. Under field conditions, five repeated treatments with symazin in doses of 5 and 10 kg/hectare resulted in an increased activity of the catalase and a temporary decrease in the activity of dehydrogenases and proteases in soil. The activity of dehydrogenases and proteolytic enzymes was inhibited in the first 40-70 days after introduction of the herbicides into the soil, and then it became slightly higher than in the controls. In absence of higher plants, the enzyme activity underwent no significant changes even after ten repeated treatments of the soil with atrazin, symazin, and prometrin in doses of from 2 to 8 mg/kg.

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USSR UDC 632.95

SPIRIDONOV, YU. A., SHCHEGLOV, YU. V., SPIRIDONOVA, G. S., MITESHEV, A. I., KHOKHLOV, P. S., BLIZNYUK, N. K., All-Union Scientific Research Institute of Phytopathology

"A Desiccant"

USSR Author's Certificate No 296545, filed 16 Oct 69, published 10 May 71 (from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N457 P)

Translation: Substances of the general formula $ROC(S)SCH_2COOSn(R')_3$ (I), where R = C_2-C_4-alkyl, R' = C_3-C_4-alkyl or aryl are proposed as desiccants. When introduced into the soil in a dose of 10 kg/ha before seeding, compounds I have no noticeable effect on plants, but when the same dose of the compounds is used for treatment in the vegetative stage, they case wilting or death. G. A. Bolyayeva.

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UDC 632.954:631.58:632.51

USSR

SPIRIDONOV, Yu. Ya., and SPIRIDONOVA, G. S., All-Union Scientific Research Institute of Plant Pathology, Moscow Oblast

"The Effect of Systematic Application of Symmetrical Triazines on Agricultural Phytocenosis"

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USSR

SPIRIDONOV, Yu. Ya., and SPIRIDONOVA, G. S., Agrokhimiya, No 2, 1973, pp 118-127

by weighing plant mass after dividing the corn from the weeds. It was determined that varying the type of herbicide was far more effective in controlling weeds. Herbicide effectiveness diminished rapidly and resistant types of weeds quickly replaced the ones killed. Rapidity of inactivation of the herbicides was in direct dependence on the weed content of the corn plantings, and a year after the conclusion of the 5 year tests, weed levels had returned to 75-90% of those on the uncultivated control plots. Subsequent plantings of oats and soy beans and their treatment with the symmetrical triazines showed no significant aftereffects of the herbicides.

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UDC 632.954.631.46

USSR

SPIRIDONOV, Yu. Ya., and SPIRIDONOVA, G. S., All Union Scientific Research Institute of Phytopathology, Moskovskaya Oblast'

"The Effect of Long Term Application of symm-Triazines on the Biological Activity of Soil"

Moscow, Agrokhimiya, No 3, Mar 73, pp 122-131

Abstract: Systematic application of symm-triazines under field and laboratory conditions in humid, subtropical regions of Western Georgia did not result in any substantial changes in the amounts of soil microflora and their activity. The activity of soil microorganisms depended to a great extent on the contamination of the experimental plots with weeds rather than on the number of soil treatments with herbicides. Under field conditions, five repeated treatments with symazin in doses of 5 and 10 kg/hectare resulted in an increased activity of the catalase and a temporary decrease in the activity of dehydrogenases and proteases in soil. The activity of dehydrogenases and proteolytic enzymes was inhibited in the first 40-70 days after introduction of the herbicides into the soil, and then it became slightly higher than in the controls. In absence of higher plants, the enzyme activity underwent no significant changes even after ten repeated treatments of the soil with atrazin, symazin, and prometrin in doses of from 2 to 8 mg/kg.

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UDC: 51

USSR

ZLOTNIK, S. G., LAZEBNIK, A. I., SPIRIDONOVA, G. V.

"Use of Linear Programming With Variable Coefficients for Optimizing the State of a Power Supply System With Regard to Restrictions on Reverse Currents"

Materialy Seminara po kibernet. AN MoldSSR. Mold. territor. gruppa Nats. kom. SSSR po avtomat. upr. (Materials of the Moldavian Territorial Group of the National Commission of the USSR on Automatic Control), 1971, vyp. 35, pp 3-10 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V460)

Translation: An algorithm is considered for optimizing the load distribution in a thermal power supply system which accounts fairly accurately for losses in the network and restrictions on reverse flows. The algorithm is based on using linear programming with variable coefficients. Authors' abstract.

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UDC 389.6:620.113:543.42

USSR

MATYUGINA, I. V., SPIRIDONOVA, M. P., and SHIKHALEVA, T. V.

"Standards for the Spectroscopic Determination of Hydrogen and Oxygen in Titanium Alloys"

Sverdlovsk, VII Uralsk. konf. po spektroskopii (Eighth Ural Conference on Spectroscopy) Vyp. 1, 1971, pp 79-81 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 9, 1972, Abstract No 9.32.35)

Translation: It is reported that the All-Union Scientific Research Institute of Standards, during the years 1965 to 1970 put out standard sets 72, 72a and 72b for the determination of hydrogen in titanium alloy VT-14, and sets 52 and 108 for the determination of oxygen in titanium alloys type VT-6 and titanium VT-1-1. The technology of the preparation of standards with a given concentration of gases and the results of investigations of their homogeneity were reported earlier (1-4). Data concerning the establishment of the hydrogen and oxygen concentrations in the latter sets of standards and analysis of them by the spectroscopic method are reported in the present work. Certification of the hydrogen concentration of set 72-b was based on the data of seven laboratories. The methods used were vacuum-heating, spectral-isotope and spectroscopic (using set 72-a). Certification of the oxygen content of sets

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USSR

MATYUGINA, I. V., et al., VII Uralsk. konf. po spektroskopii, Vyp. 1, 1971, pp 79-81.

52 and 108 was based on the data of eight laboratories. Methods used: vacuum-fusion, isotope dilution of fast neutrons and impulse heating. Regression analysis (5) of set 72-b led to the results of the spectroscopic method with the photographic and photoelectric registration of the hydrogen lines -- H 656.3nm. The regression line was constructed with the coordinates logarithm of hydrogen concentration versus width of the hydrogen absorption line. S for the photographic method of registration, the logarithm of the hydrogen concentration was plotted versus the reading on the photoelectric instrument fototoka N, proportional to the logarithm of the hydrogen line intensity. (3 tables; 6 bibliographic entries)

2/2

R.P. SPALDOVA

UR 0682

AA9029791

Soviet Inventions Illustrated, Section II Electrical, Derwent, 3/

220621 DECODER comprising current paraphise (discharge) switches 1-6, cores 7-12, with a nonrectangular loop in the discharge switches, semiconductor diodes 13-16, load resistors 17-24 in the matrix output circuits, resistors 45-49, of the order of 2-5 kOhm for reference voltage supply to the cathodes of nonselected diodes, load resistors 50-56, for current circuits, output ferrite-transistor units 57-64, gate 65, memory ferrite cores 66-73, with rectangular loop, resistor 74 of the order of 2-5 kOhms for elimination of false information which could appear as a result of charge accumulation at the output transistor bases when the code is applied to the discharge wires 1-6, load resistors 75-82 in the decoder output circuits, and decoder output wires 83-90. In the first step the state "1" is set in the decoder output units 57-64. In the second step the code is applied to the decoder. If, e.g., a code 111 is applied,

35
15
1
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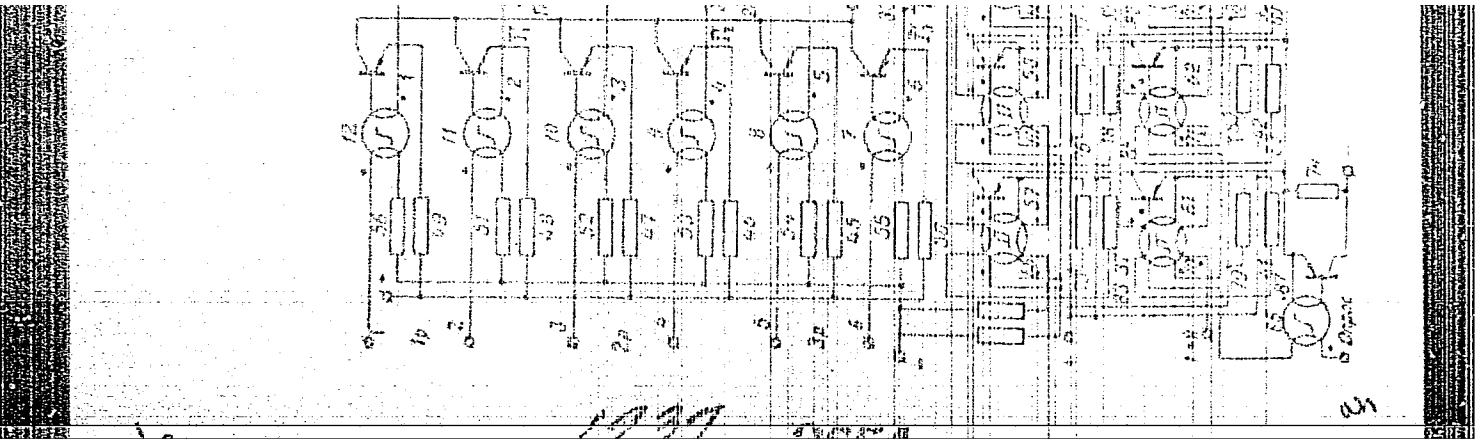
1037 2652

AA9029791

pulses are applied to wires 84,86,88. Then the currents flow in wires 83-90 which set to "0" cores 66-73, but currents do not flow through the transistors in the units 57-64, as the translator in the gate 65 is blocked. In the third step when the interrogation order arrived, the gate 65 is opened and the unit 64 is set to "0", so that current flows through the collector-emitter paths of the transistors in units 64,61.
2.1.67. as 1122874/26-24. SPIRIDONOVA, L.P.
Leningrad Optico-Mechanical Association. (7.10.68.)
Bul.20/28.6.68. Class 42m Int.Cl. G06f.

2/3

1737 2053



AA0 036088

UR 0482

Soviet Inventions Illustrated, Section II Electrical. Derwent,

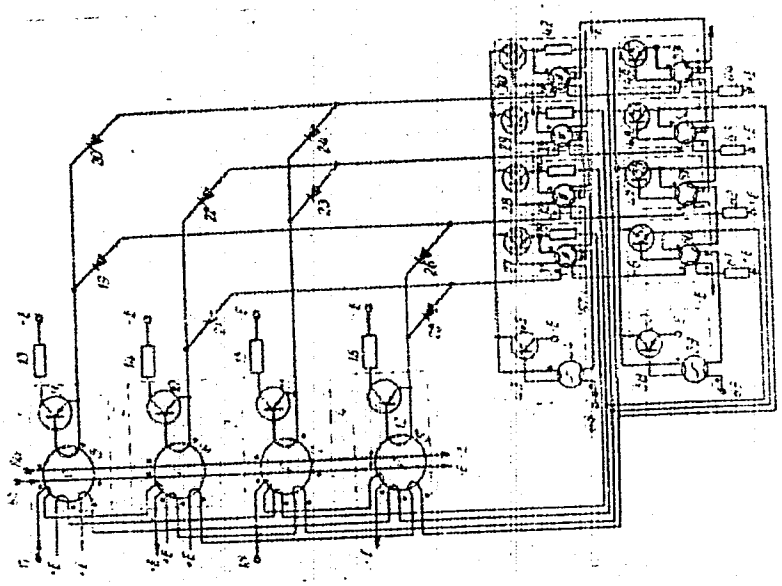
12-69

232605 DECODER. Improved design from Pat. No. 220621. It contains: current paraphase switches 1-4 (with square-loop ferrite cores 5-8, transistor triodes 9-12, resistors 13-16, input busbars 17 and 18, and transistor diodes 19-26, output units of decoder 27-30 (with ferrite rectangular hysteresis loop cores 31-34, triodes 35-38, and resistors 39-491 decoder gating circuit 43, (with non-square loop ferrite core 44 and triode 45, binary counters 46-49 (with square loop ferrite cores 50-531 and triodes 54-471 counter gating circuit 58 (with non-square loop ferrite core 59 and triode 60), resistors 61-64, terminal 65 for zero adjustment, reading terminal 66, setting pulse terminal 67, operation signal terminal 68, and counting input terminal 69. 2.12.67. as 1200356/18-24. R.P. SPIRIDONOVA (9.4.69.) Bul.1/11.12.68. Class 42m^3. Int.Cl. G06f.

19720846

AA9029791

AA036088



19720847

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ELECTROPHILIC HALOGENATION OF OLEFINS. V. KINETICS AND MECHANISM OF BETA METHYLALLYL HALIDE CHLORINATION -U-

AUTHOR-(04)-BODRIKOV, I.V., SPIRIDONOVA, S.V., SMOLYAN, Z.S., SUBBOTIN, A.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 684-90

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATION, ELKENE, EXCHANGE REACTION, REACTION KINETICS, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1958 STEP NO--UR/0366/70/006/004/0684/0690

CIRC ACCESSION NO--AP0125547

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHLORINATION OF H SUB2 C:CMECH SUB2 X (I) (X IS CL, BR, OR I) GIVES THE SUBSTITUTION PRODUCTS H SUB2 C:C(CH SUB2 CL)CH SUB2 X, CLCH SUB2 CME:CHX, AND THE ADDN. PRODUCTS CLCH SUB2 CHECLCH SUB2 X. THE REACTION RATE IS INCREASED BY HCL, WHICH IS LIBERATED IN THE COURSE OF THE REACTION. THE CONSUMPTION OF CL INCREASES IN THE FOLLOWING I SERIES (X GIVEN): I LARGER THAN BR LARGER THAN CL. THE SUBSTITUTION PRODUCTS ADDN. PRODUCTS RATIO INCREASES IN THE REVERSE ORDER. THE SUBSTITUTION PRODUCTS ARE FORMED THROUGH THE INTERMEDIATE CARBONIUM ION AND THE ADDN. PRODUCTS THROUGH A CYCLIC CARBONIUMION. FACILITY: GOR'K. POLITEKH. INST., GORKI, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ELECTRON MICROSCOPIC METHOD FOR INVESTIGATION OF DISPERSE SYSTEMS WITH LIQUID PHASES -U-

AUTHOR-(05)-KILPAKOV, L.V., NIKITINA, S.A., TAUBMAN, A.B., SPIRIDONOVA, V.A., CHALYKH, A.YE.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 229-231

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRON MICROSCOPY, PROTECTIVE COATING, PHYSICS LABORATORY INSTRUMENT, EMULSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1720 STEP NO--UR/0069/70/032/002/0229/0231

CIRC ACCESSION NO--AP0112714

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 026
CIRC ACCESSION NO--AP0112714
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DEVICE HAS BEEN DESIGNED AND A TECHNIQUE DEVELOPED FOR ELECTRON MICROSCOPIC STUDY OF LIQUID SYSTEMS: EMULSIONS AND LATICES. BY MEANS OF THIS METHOD ELECTRON PHOTOMICROGRAPHS HAVE BEEN OBTAINED OF STRUCTURIZED PROTECTIVE FILMS FROM MICROEMULSIONS STABILIZING THE MACROEMULSIONS OF PURE LIQUEDS. IT HAS BEEN SHOWN THAT ELECTRON PHOTOMICROGRAPHS OF LATICES CAN BE OBTAINED IN THE CASE OF INCOMPLETE MONOMER CONVERSION.

UNCLASSIFIED

SPIRIN, A. S.

biochemistry

UNCLASSIFIED

SECTION IV SE: Selected Aerospace Foreign Periodicals

Name: Protein Research Institute, Pushchino

Description: ACS-69 June 1971

(U) During this quarterly reporting period, two new articles were located from the Protein Research Institute at Pushchino. On the basis of one of the articles, which dealt with escherichia coli ribosomes, it was possible to associate one new person, N. I. Smirnov, with the institute (32). The other article, also on escherichia coli, was issued jointly from the Institute of Genetics and Selection of Microorganisms, Moscow, and the Protein Research Institute at Pushchino (33). Previous articles by V. I. Permogorov have been issued from the former institute. No previous facility association could be located for V. D. Vasil'yev, but it is likely that he represents the latter institute. This article probably represents some joint work between the two institutes.

(U) As a ready source of reference, given below is a complete listing of personalities identified with the Protein Research Institute to the present time:

All - Biophysics

Belitsina, N. V.
Bernstein, T. M.
Chirgadze, Yu. N.
Fedorov, B. A.
Finkel'shteyn, A. V.
Glinskaya, O. V.
Lavrilova, L. P.
Mitin, Yu. V.
Permogorov, V. I.
Petitsyn, O. B.
Rashevskaya, Ya. P.
Serdyuk, I. N.
Smirnov, N. I.
Spirin, A. S.
Tikopulo, Ye. I.
Vasil'yev, V. D.

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UNCLASSIFIED

USSR

UDC 547.963.3

SPIRIN, A. S., and GAVRILOVA, L. P.

Ribosoma (The Ribosome), Moscow, "Nauka," 1971, 256 pp

Translation: Annotation: The book reviews aspects of the structure and functioning of intracellular ribonucleo protein particles -- ribosomes. A detailed treatment is presented of current views on the mechanism of protein synthesis in cells, the interaction of information RNA and adaptor RNA with ribosomes during protein synthesis, and the dynamic nature of work of the ribosome particle.

An objective presentation of modern views on a broad range of questions related to ribosomes and biosynthesis of proteins is given. A subjective logical analysis is also given of the whole body of experimental data used for formulating a large number of conceptions, hypotheses, and problems for further work. Therefore, the book may be useful to a broad range of biologists, physicists, and chemists interested in problems of molecular biology as well as to narrow specialists such as biochemists and biophysicists working directly in the area of protein biosynthesis and the quaternary structure of biopolymers.

There are seven tables, 27 illustrations, and 32 pages of bibliography.
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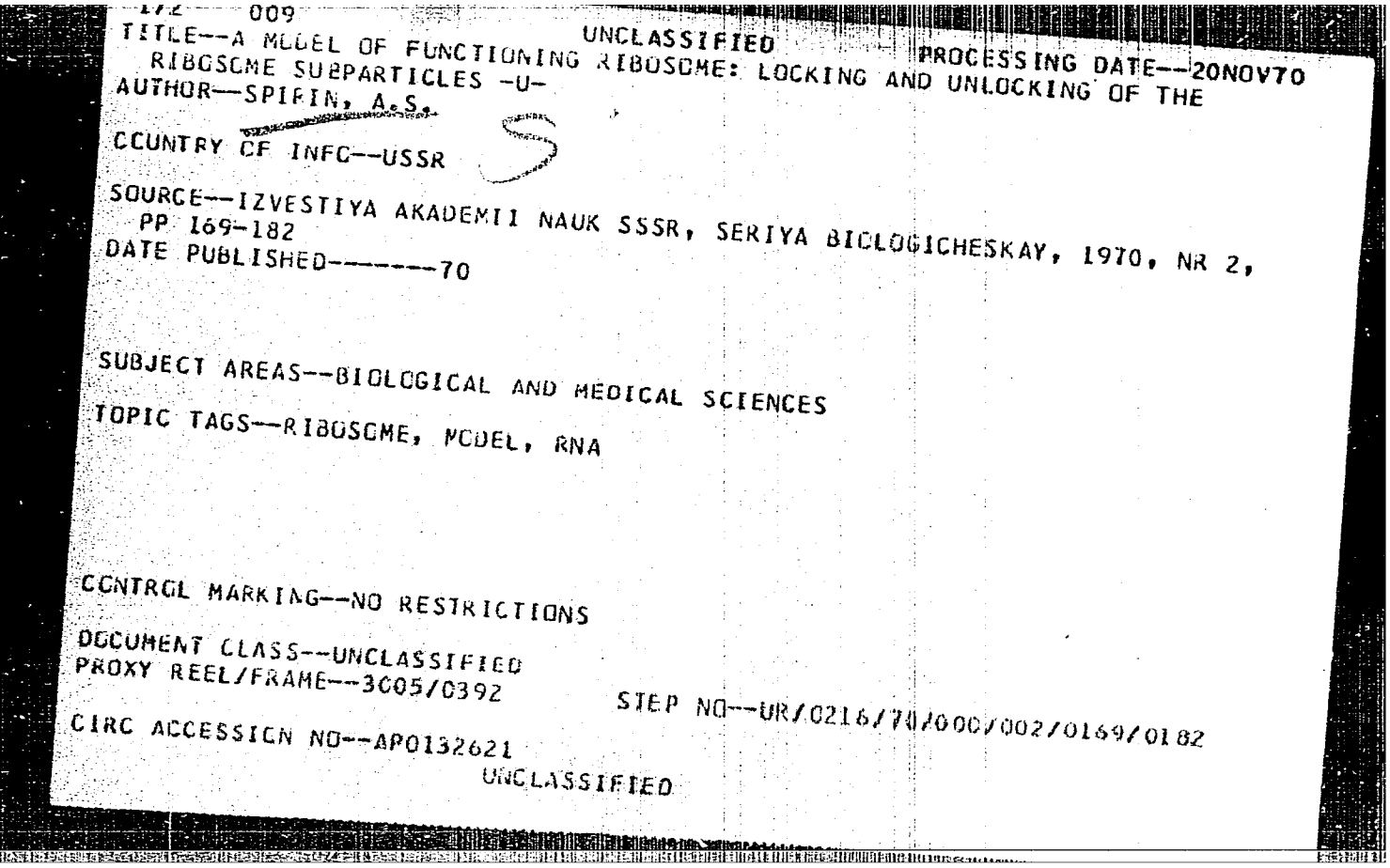
CSO: 1840-W

- END -



1/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--A MODEL OF FUNCTIONING RIBOSOME: LOCKING AND UNLOCKING OF THE RIBOSOME SUBPARTICLES -U-
AUTHOR--SPIRIN, A.S.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAY, 1970, NR 2, PP 169-182
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RIBOSOME, MODEL, RNA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0392 STEP NO--UR/0216/70/000/002/0169/0182

CIRC ACCESSION NO--AP0132621
UNCLASSIFIED

2/2 0C9 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132621

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING MODEL OF THE FUNCTIONING RIBOSOME IS PROPOSED: (1) THE AMINOACYLTRNA BINDING SITE (A SITE) AND PEPTIDYL-TRNA BINDING SITE (P SITE) ARE LOCALIZED ON THE ADJACENT (CONTACTING, FACING EACH OTHER) SURFACES OF RIBOSOMAL SUBPARTICLES, THE 30 S AND 50 S RESPECTIVELY; (2) THE MRNA BINDING SITE IS ALSO ON THE CONTACTING SURFACE OF THE 30 S SUBPARTICLE, AND THE MRNA CHAIN CAN SLIDE ALONG IT, BETWEEN THE 30 S AND 50 S SUBPARTICLES; (3) THE TIGHT ASSOCIATION OF THE SUBPARTICLES ALLOWS THE REACTION OF TRANSFER OF THE PEPTIDYL FROM THE RNA RESIDUE OF PEPTIDYL-TRNA TO THE AMINOACYL RESIDUE OF AMINOACYL-TRNA IN THE PEPTIDYL-TRANSFERASE CENTRE OF THE 50 S; (4) THE GTP DEPENDENT UNLOCKING OF THE RIBOSOME (SLIGHT DRAWING APART OF THE SUBPARTICLES BY TURNING AROUND THE HINGE AXIS) LEADS TO THE DRAWING OUT OF THE TRNA RESIDUE FROM THE A SITE WITH THE SUBSEQUENT TRANSLOCATION INTO THE P SITE; THE TRNA RESIDUE DRAWS AFTER ITSELF MRNA TRIPLET (THE CONJUGATED TRANSLOCATION OF MRNA BY A TRIPLET THE ASSOCIATED WITH IT, (5), THE PERIODICAL LOCKING AND UNLOCKING OF THE SUBPARTICLES IS THE ONLY DRIVING MECHANISM OF THE TRANSLATION PROCESS.

FACILITY: INSTITUTE OF PROTEIN RESEARCH, ACADEMY OF SCIENCES USSR, POUSHCHINO, MOSCOW REGION. FACILITY: A. N. BACH INSTITUTE OF BIOCHEMISTRY, ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--PULSE METHOD FOR STUDYING THE THERMAL ACTIVITY OF DIELECTRIC LIQUIDS -U-

AUTHOR--SPIRIN, G.G., POLYAKOV, YU.A., SOLOMONOV, S.D.

COUNTRY OF INFO--USSR

SOURCE--INZH.,FIZ. ZH. 1970, 18(2), 253-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--DIELECTRIC PROPERTY, HEAT CAPACITY, ETHYL ALCOHOL, WATER, MATERIAL MIXING, MEASUREMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0580 STEP NO--UR/0170/70/018/002/0253/0258

CIRC ACCESSION NO--AP0107177

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107177

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON IMMERSING A THIN PLATE TEMP. SENSOR FORMED BY A METALLIC LAYER SUPPORTED BY A DIELEC. PLATE INTO A DIELEC. LIQ., A CONST. HEAT FLUX IS GENERATED AFTER INTRODUCTION OF A RECTANGULAR CURRENT PULSE. BY KEEPING THE INTERVAL OF THE PULSE AT 100-1000 MUSEC, THE HEAT CAPACITY OF THE BEARER PLATE CAN BE NEGLECTED AND THE EQUATION OF THERMAL CONDUCTION CAN BE APPLIED AND SOLVED. THE WIRING DIAGRAM OF THE MEASURING BRIDGE IS GIVEN, AS WELL AS THE CHANGE IN THERMAL ACTIVITY IN MIXING OF ETOH AND H SUB2 O. THE MEASUREMENT EXACTNESS DEPENDS ON INPUT SIGNAL AMPLITUDE; FOR AMPLITUDES OF 30-50 MM, IT IS 2-4PERCENT.

UNCLASSIFIED

USSR

VLASOV, A. B., SPIRIN, V. A., CHIRKIN, N. M. UDC: 621.372.8

"Wide-Band Excitation of Hypersound by Quasistatic Decelerating Systems"

Kiev, IVUZ: Radioelektronika, Vol 15, No 3, Mar. 72, PP 315-319

Abstract: The paper analyzes the possibilities of using quasistatic decelerating systems for excitation of hypersound in an acoustic line made up of a set of piezoelectric crystals, each crystal being excited by the corresponding cell of the decelerating system. It is shown that the band filter and low-frequency filter types of decelerating systems can be used for excitation of hypersonic oscillations in a "discrete" acoustic line, and that wide-band delay lines can be made on this basis.

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UDC: 621.347.5

USSR

VLASOV, A. B., SPIRIN, V. A., and CHIRKIN, N. M.

"Hypersonic Delay Lines for Ultra-Broadband Video Signals"

Kiev, Izvestiya VUZ SSSR--Radioelektronika, No 10, 1972, pp 1298-1300

Abstract: This brief communication is related to an earlier article (Vlasov, A. B., et al, O shirokopolosnom vozbuzhdenii giperzvukovykh voln v p'yezokristallakh s pomoshch'yu kvazistaticheskikh zamedlyayushchikh sistem -- Broadband Excitation of Hypersonic Waves in Piezoelectric Crystals Using Quasi-Statistical Delay Systems -- Izv. AN BSSR, Seriya fiz.-tekhn. nauk, No 4, 1970) which described quasi-stationary delay systems on the type of a low-frequency filter for uniform hypersonic excitation in $LiNbO_3$ piezoelectric crystals. The present communication describes experiments to check the possibility of passing broadband pulses differing in shape, duration and rise time through the hypersonic delay line described in the earlier article. The functional diagram of the equipment used for the experiments is given together with oscillograms of the pulses. The experimental results indicate that the delay line may be used as a solid-state delay for ultra-broadband video signals

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USSR

UDC: 621.347.5

VLASOV, A. B., et al, Izvestiya VUZ SSSR--Radioelektronika, No 10, pp 1298-1300

or as functional nodes for fast-acting computer devices.

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USSR

UDC 539.1.074.3

BELLE, YU. S., LEBEDEV, O. V., SPIRIN, V. D.

"The Background of Scintillation Detectors and Ways of Decreasing It"

Khar'kov, Monokristally, Stsintillyatory i Organicheskiye Lyuminofory -- Sbornik (Monocrystals, Scintillators, and Organic Luminophores -- Collection of Works), No 5, 1970, pp 148-155 (from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 12, 1970, Abstract No 12.32.1534)

Translation: Research has been conducted on the nature and contribution of various background sources for a detector with an NaI (Tl) crystal with dimensions of 150x100 mm. On the basis of measurements of the contents of potassium and radium in the glass of photoelectric multiplier 1B, photoelectric multiplier 2B, photoelectric multiplier 49, photoelectric multiplier 52, and photoelectric multipliers 56 of various years' models, it was established that the admixture of radium in sodium glass is responsible for 70-80% of the background from these photoelectric

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Circuit Theory

USSR

UDC 621.396.621.33

TUZOV, G. I., SPIRIN, V. V., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Nonlinear Dynamics of a System of Filtration of a Pseudorandom Signal With Phase Keying"

Moscow, Radiotekhnika, Vol 26, No 7, Jul 71, pp 79-82

Abstract: A method of numerical integration is used to determine the locking band of the phase AFC subsystem in a tracking receiver as a function of the parameters of the system and the initial conditions. Classical determination of the lock-in band which characterizes the region of initial misalignments where a holding mode is maintained under any initial conditions does not completely meet the specific requirements of the given system. In this system, there are regions of initial frequency misalignments where signal lock-in may or may not take place, depending on the initial delay and phase. The amplification factor of the delay-tracking system affects the lock-in band and transient processes in the phase AFC tank circuit. Conditions are determined for increasing the lock-in band and shortening the time of establishing synchronous operation in the system for practically any initial delay and

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203120019-1"

USSR

TUZOV, G. I., SPIRIN, V. V., Radiotekhnika, Vol 26, No 7, Jul 71, pp 79-82

phase. In the phase AFC subsystem, the lock-in band, as well as the nature and time of the transient process are considerably dependent on the true phase and on the initial mismatch with respect to true delay. The extent of the lock-in band and the dynamics of the system are independent of the sign of the initial mismatch in delay.

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USSR

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BOOK UDC: 621.382.2

AKCHURIN, Eduard Aleksandrovich, RUD', Viktor Vasil'yevich, SPIRIN, Vladimir Yakovlevich

TUNNEL'NYYE DIODY V TEKHNIKE SVYAZI (Tunnel Diodes in Communications Engineering), Moscow, "Svyaz'", 1971, 137 pp, illus, biblio, 13 850 copies printed

The book investigates basic tunnel diode devices used in communications technology (amplifiers, frequency converters, self-excited oscillators, etc.), giving particular attention to questions of stability of the characteristics of the devices.

Written for engineers as well as graduates and undergraduate upperclassmen in radio engineering.

Contents

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USSR

AKCHURIN, E. A. et al., TUNNEL'NYYE DIODY V TEKHNIKE SVYAZI, Moscow, "Svyaz'", 1971

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AKCHURIN, E. A. et al., TUNNEL'NYYE DIODY V TEKHNIKE SVYAZI, Moscow, "Svyaz'", 1971

USSR

UDC: 621.396.622:621.372.622

SPIRIN, V. Ya.

"Amplitude Characteristic of a Frequency Converter Based on a Tunnel Diode"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Works of Educational Institutes of Communications. Ministry of Communications of the USSR), 1970, vyp. 49, pp 30-36 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D19)

Translation: The author analyzes the relationship between the amplitude characteristic of a tunnel-diode frequency converter, gain, heterodyne voltage and the position of the operating point on the voltage-current curve of the tunnel diode. Resumé.

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USSR

UDC: 621.382.233(38)

AKCHURIN, E. A., RUD', V. V., SPIRIN, V. Ya.

"Tunnel Diodes in Communications Technology"

Tunnel'nyye diody v tekhnike svyazi (cf. English above), Moscow, "Svyaz'", 1971, 137 pp, ill. 50 k. (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A10 K)

Translation: The authors investigate fundamental tunnel-diode devices used in communications technology (amplifiers, frequency converters, self-excited oscillators, etc.). Particular attention is given to problems of the stability of the characteristics of these devices. The book is written for engineers, graduate students and advanced undergraduate students majoring in radio engineering. There are 149 illustrations, 6 tables, and a biliography of 44 titles. Annotation.

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UDC 678.675'126.019.3:538.16

USSR

FURMAN, YE. G., ABRAMOVA, T. M., DAR'YEVA, E. P., SPIRINA, I. A., FOMENKO, A. S.,

"Radiation-Chemical Transformations of Polycaproamide in the Presence of Secondary Aromatic Amines"

Moscow, Plasticheskiye Massy, No 1, Jan 72, pp 12-15

Abstract: The paper presents the results of a study of the effect which esters of 4-hydroxydiphenylamine and certain other secondary aromatic amines, as well as substituted phenols have on process of radiation and radiation-oxidation destruction of polycaproamide. Seventeen of these additives were studied in quantities of 0.03 mole/kg. Studies were made of the influence of the additives on accumulation of free radicals, gas release, fragmentation of the polymer chain during radiolysis and radiation oxidation of polycaproamide, as well as their effect on accumulation of peroxide and carboxyl compounds as a function of temperature and concentration of the additive accompanying radiation oxidation of the polymer. The elec ron paramagnetic resonance method was used to determine the structure and stability of the radicals formed when secondary aromatic amines interact with the peroxide radicals which arise during radiation oxidation of the polycaproamide and its low-

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USSR

FURMAN, YE. G., et al., Plasticheskiye Massy, No 1, Jan 72, pp 12-15

molecular analog -- N-butylpropionamide. It is found that secondary arylamines have a protective effect during radiation oxidation of polyamides, and that this effect is due to the interaction between peroxide radicals and amines, resulting in the breaking of chains and leading to stable nitrate radicals instead of reactive peroxide radicals. The authors thank S. I. Burmistrov for furnishing some of the specimens. Five figures, two tables, bibliography of eleven titles.

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USSR

UDC 621.643:66-987.004.1

KRUTASOVA, E. I., SPIRINA, L. S.

"Effect of Stress Concentrators Upon the Reliability of Steam Conduits Made of 15Kh1M1F Steel"

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 198-208 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6 C76)

Abstract: The results of short and long-term tests of the strength and plastic properties of the 15Kh1M1F steel showed that said steel is sensitive to stress concentrators. The presence of a spiral cut lowers the level of lasting plasticity up to 3-4% at

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USSR

KRUTASOVA, E.I., et al, Chelyabinsk, V. Sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk. ugle", 1972, pp 198-208

570°C, while the lasting strength by 25-40%. Steam conduits from said steel can be used reliably on units, after elimination of defects, acting as stress concentrators both in the base metal and in welded junctions. In order to get rid of brittle failure in the steam conduits metal during operation, it is necessary to change heat treatement conditions for pipes in order to increase the deformation capacity of 15KhlM1F steel. 5 figures, 3 tables.

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Acc. Nr: AP0047392

Abstracting Service: GEOPHYSICAL ABST. 5/70

Ref. Code: 4R0065

91892t Mass-spectrometric study of petroleum sulfides of 170–310° fractions of Arlan petroleum. Khmel'nitskii, R. A.; Brodskii, E. S.; Chertkov, Ya. B.; Spirkin, V. G. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(1), 55–7 (Russ). The sulfides were sepd. by selective extn. with an aq. H_2SO_4 soln. (Chertkov, Ya. B.; Spirkin, V. G.; Demishev, V. N., 1967). Their group compn. was detd. with a MKh-1303 spectrometer at an accelerating voltage of 2kV, ionizing-electron energy 50 eV, temp. of the ion source, analyzer, and inlet system 250°. The main sulfide fraction contained thioalkanes 6.4, alkylthiocyclanes 45.0, alkylthiobicyclanes 24.9, alkylthiotricyclanes 12.3, alkylcycloalkylsulfides 0.7, thiophenes 3.8, paraffinic-naphthenic hydrocarbons 4.3, and C_nH_{4n}, indan, and Tetralin derivs. ≤2.5 mole %. The characteristics and compn. of the sulfides are tabulated.

GGJR

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REEL/FRAME
19790918

USSR

UDC 620.197.6

TIMONOVA, M. A., STOLYAROVA, L. N., and SPIRYANINA, G. I.,

"Stannating of Magnesium Alloys"

Moscow, Zashchita Metallov, Vol 7, No 5, 1971, pp 621-623

Abstract: Coatings used to prevent contact corrosion of magnesium can be deposited in a stannate electrolyte. The starting material was a solution containing the stannate of an alkali metal. Additives used in galvanic tin plating were tested. Ground specimens made of ML5 magnesium alloy were used. Stannating was carried out an elevated temperature (80-90°). At room temperature no coatings are formed on magnesium and steel, and at 60-70° the adhesion to magnesium was low. In openings made in the center of the magnesium alloy strips, steel cylinders were placed. In the range of concentrations tested (K_2SnO_3 and $Na_4P_2O_7$ up to 100 g/liter, NaOH up to 25 g/liter, and $NaC_2H_3O_2$ up to 20 g/liter), the greatest effect on coating thickness was shown by the K_2SnO_3 and NaoH concentrations. The tests led to the following recommendation for the solution to be used in stannating magnesium alloys (ML5, ML10, ML12, and so on) (g/liter): K_2SnO_3 80-90; NaOH 7.5-10, $NaC_2H_3O_2$ 8-12; and $Na_4P_2O_7$ 45-50. The stannating conditions are as follows: tempera-

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USSR

TIMONOVA, M. A., et al., Zashchita Metallov, Vol 7, No 5, 1971, pp 621-623

ture 80-90° and duration 20-25 minutes. On the magnesium alloy the coating consisted of magnesium stannate and magnesium bydroxide (26.7% Mg and 59.6% Sn) but pure tin was deposited on steel. The coating thickness on the magnesium alloy was 3-5, and on the steels -- 5 microns. The growth in thickness of the coating slows down with time and practically ceases after 10 minutes. The adhesion of paint and lacquer cotaings to the stannate coating was tested for different drying conditions. It was found that the initial adhesion of paint or lacquer coatings -- both for hot and cold drying conditions -- to stannated magnesium alloy is good. When moisture is introduced into the environment, the adhesion of the paint or varnish coating in the case of hot drying is reduced much less than for cold drying.

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USSR

Magnesium

UDC: 669.721.5:620.193

MUKHINA, I. Yu., TIMONOVA, M. A., SPIRYAKINA, G. N., Moscow

"Influence of Phase Composition on Corrosion Behavior of Magnesium Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 208-212.

Abstract: The influence of aluminum and manganese on the corrosion behavior of magnesium has been studied extensively. The positive influence of the addition of manganese results from an increase in the hydrogen overvoltage on the alloy and the formation of a protective film. It is assumed that the phase $Mg_{17}Al_{12}$ is an ineffective cathode. The role of other phase components when aluminum, manganese and iron are present in alloys remains unclear. This work was intended to study the influence of phases formed in the systems Mg-Al, Mg-Mn, Mg-Al-Mn containing iron as an impurity on the corrosion and electrochemical behavior of the alloys (containing from 0.42 to 9.3% Al, from 0 to 1.32% Mn and from 0.001 to 0.03% Fe) in a 3% solution of sodium chloride and in moist air. The phases fall in the following order as to stable potential: $Mn_{17}Al_2 < \beta_{Mn} < Mn_5Al_8 < Fe_2Al_5$. The cathode effectiveness consequently

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USSR

Mukhina, I. Yu., Timonova, M. A., Spiryakina, G. N., Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 208-212.

increases in the same order. The sharp reduction in corrosion resistance of Mg-Al alloys containing hundredths of one percent of iron results from the formation of phases in the system Fe-Al ($FeAl + Fe_2Al_5$), which are effective cathodes. The increase in the corrosion resistance of technical magnesium as manganese is introduced results from the inhibition of the cathode process upon formation of Fe-Mn solid solutions and the phase $\beta_{Mn(Fe)}$. The increase in the corrosion resistance of Mg-Al-Mn alloys containing hundredths of one percent of iron when up to one percent Mn is added results from the supression of the formation of phases of aluminum with iron and the formation of a new phase -- β_{Mn}, which has a negative potential and high hydrogen overvoltage.

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USSR

UDC 669.24/.25.053.4.094

SPITCHENKO, V. S., KARAMULLIN, S. A., TSEFT, A. L., ROMANTEYEV, Yu. P.

"Principles of Sulfuric Acid Leaching of Oxidized Nickel Ores"

Nauch. tr. Kazakhsk. Politekhn. In-t. [Scientific Works of Kazakh Polytechnical Institute], Alma-Ata, 1971, pp 521-525, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G392 by G. Svodtseva).

Translation: Ni- and Co-containing minerals, α-kerolite, β- kerolite, nontronite, and psilomelane were taken for investigation. The consumption of acid was significantly greater than the required quantity for dissolution of all acid-soluble components in the mineral. The dissolution of Ni and Co from the ore and its component minerals occurs in the kinetic area. The similarity of the "apparent" activation energies of dissolution of Ni from the ore (14,460 cal/mol) and β-kerolite (14,300 cal/mol) and Co from the ore (12,820 cal/mol) and psilomelane (13,120 cal/mol) confirm the results of mineralogical studies, which indicated that the basic mineral containing Ni in the ore is β-kerolite, while the basic mineral containing Co is psilomelane. Three figures, 4 biblio. references.

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1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PRINCIPLE FEATURES OF THE ACTION OF RADIOMIMETICS ON THE CONDENSATION AND PROPERTIES OF SUPERMOLECULAR DEOXYRIBONUCLEOPROTEIN

AUTHOR-(03)-MARTYNOV, E.V., SPITKOVSKIY, D.M., TSEYTLIN, P.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 3-8

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THYMUS GLAND, NUCLOPROTEIN, ORGNAIC PHOSPHORUS COMPOUND, ORGANIC ACID, IMIDE, AMIDE, X RAY IRRADIATION

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTION OF 8ETHOXYCAFFEINE (I) AND PHOSPHAZIN(DI(ETHYLENEIMIDE),2,PYRIMIDYLAMIDOPHOSPHORIC ACID) (II) ON DEOXYRIBONUCLEOPROTEINS EXTD. IN 0.7M NACL SOLN. FROM CALF THYMUS HAS BEEN EVALUATED. NUCLEOPROTEIN GELS WERE INCUBATED WITH I AND (ORO II (0.001M SOLNS) FOR 24-26 HR AT 4DEGREES. THE LENGTH OF NUCLEOPROTEIN FIBERS FORMED FROM THE PREPNS. PRELIMINARY TREATED WITH II WAS INCREASED BY 10-15PERCENT, WHILE IT WAS DECREASED BY 15-20PERCENT AFTER TREATMENT WITH I, IN COMPARISON WITH CONTROL FIBERS (10 CM). THE TEMP. OF THE TRANSITION OF THE FIBERS FROM THE HIGHLY ELASTIC INTO THE VISCOSE STATE WAS INCREASED TO 60-65DEGREES AFTER TREATMENT WITH I AND DECREASED TO 35-40DEGREES AFTER TREATMENT WITH II (50-55DEGREES IN CONTROL FIBERS). THE EFFECT OF II WAS LESS INTENSIVE IN EXPTS. WITH DEPROTEINIZED DEOXYRIBONUCLEOPROTEINS (N-P RATIO OF 3.2-2.8). II POSSESSED A RADIOMIMETIC ACTION WEAKENING INTERMOL. INTERACTION IN SUPERMOL. DEOXYRIBONUCLEOPROTEIN SYSTEMS. THE PREPNS. DID NOT CHANGE THE STRUCTURE OF INDIVIDUAL MOLS. OF DNA AND DEOXYRIBONUCLEOPROTEIN ACTING IN LOCO WHERE WEAK INTERMOL. BONDS OCCURRED. SYNERGISM OF THE ACTION OF X RAYS AND II WAS NOTED IN EXPTS. WITH DEOXYRIBONUCLEOPROTEINS TREATED WITH I AND 90R) II AND THEN X IRRADIATED WITH A DOSE OF 200 R. FACILITY: INST. EKSP. BIOL. MOSCOW, USSR.

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STREKOVA, V. Yu. and SPITKOVSKIY, D. M., Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, and Institute of Medical Genetics, Academy of Medical Sciences USSR

"Analysis of Possible Impairments of Chromosome Structure in a Constant Magnetic Field in a Model of Condensed Submolecular DNP Systems"

Moscow, Fiziologiya Rasteniy, Vol 18, No 1, Jan/Feb 71, pp 192-196

Abstract: The location of moving, charged, free macromolecules of high-molecular-weight changes significantly in powerful magnetic fields. If such molecules are part of a single submolecular system, the theological properties of the system should differ from those in a control. To test this assumption, nuclear nucleoproteins from calf thymus were exposed to a heterogeneous magnetic field of 12,000 oe. A relationship was noted between the nature of the reaction and the protein content of the nucleoprotein complex. At high nitrogen protein ratios (4.6 to 4.9), the relative relaxation of DNP structures was less than in the control (25 and 30.2%, respectively); at low nitrogen/protein ratios (3.7 to 4.2), it was greater than in the control (49.2 and 45.6%, respectively). The diameter of a DNP strand was larger than in the control. It would thus appear that interference with structure formation in the nucleoprotein complex of chromosomes is

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STREKOVA, V. Yu. and SPITKOVSKIY, D. M., Fiziologiya Rasteniy, Vol 18, No 1, Jan/Feb 71, pp 192-196

one of the possible mechanisms of action of a magnetic field on mitosis. The magnetic field presumably orients the macromolecules and their segments perpendicular to it, i.e., parallel to the axis of the DNP strand, causing it to swell (increasing the diameter).

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TITLE--MECHANISM OF ELECTRICAL CONDUCTIVITY IN A CESIUM IODIDE CRYSTAL -U-

AUTHOR-(03)-PASHKOVSKIY, M.V., SPITKOVSKIY, I.M., TKACHUK, A.D.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE WAS INVESTIGATED OF ELEC. COND. OF CSI SINGLE CRYSTALS CONTG. COMBINED CATIONIC AND ANIONIC IMPURITIES, AS WELL AS THE EFFECT OF HIGH TEMP. ANNEALING IN VACUUM AND IN O ON THE COND. OF CSI WITH CATIONIC IMPURITIES, AND THERMAL CYCLE ON SPECIMENS WITH ANIONIC IMPURITIES. THE RESULTS CAN BE WELL EXPLAINED IN TERMS OF AN ANIONIC MECHANISM OF COND. IN CSI. FACILITY: L'VOV. GOS. UNIV.IM. FRANKO, LVOV, USSR.

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SPITKOVSKIY, V.M.

Radioastronomy

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OPTICAL MODELING OF THE RADIATION PATTERN OF A VARIABLE PROFILE ANTENNA OPERATING IN THE HARTMAN DIAPHRAGM MODE

[Article by A.N. Korzhavin and V.M. Spitkovskiy of the Leningrad Branch of the Special Astrophysical Observatory of the USSR Academy of Sciences, Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Radiofizika, Russian, Vol 16, No 5, 1973, submitted 31 October 1972, pp 661-664]

Methods of optical modeling of wavelike processes have received the widest dissemination recently [1-3]. The basis of these methods -- the laser (OKG) -- has become one of the most popular and widespread instruments of laboratory practice. The beam of coherent light which the laser generates has proved to be adequate in power to provide quantitative measurements in appropriate optical models. The extremely small relative size of an experimental facility makes optical methods irreplaceable when the directivity properties of such narrow-beam antennas as variable-profile reflector radiotelescopes must be studied. The Large Pulkovo Radiotelescope[5] and RATAN-600[6] radiotelescope, which is being built, are examples of such antennas.

Thanks to the structural features of such devices (the main antenna reflector is sectionalized, with three degrees of freedom of travel for each section), which have been given the name variable-profile antenna (APP), they can be operated in various modes. However, these "nonstandard" operating modes can be subjected to an adequately detailed preliminary study only in optical models, since the principal APP time is devoted to making radio observations under the astrophysical program.

In particular, study of APP operation in the Hartmann diaphragm mode is of interest when, during antenna installation, the central portion of the variable profile reflector at the source of radio-frequency radiation is eliminated[7]. In this case it becomes possible to determine the position of the

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"A Method of Determining the Position of the Focus in Unidirectional Antennas With an Aperture Wider Than 10^4 Wavelengths"

USSR Author's Certificate No 261486, filed 23 Oct 68, published 22 May 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B91 P)

Translation: The proposed method, which is applicable in the centimeter and millimeter wavelength ranges, is a modification of the Hartman method. As a distinguishing feature of the method, some of the reflecting elements are taken out of the central section of the reflector; transit of a selected extraterrestrial source of radio emission through the radiation pattern of the antenna is registered for two positions of the reflector. One illustration. N. S.