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USSR

VDOVENKO, M., et al., Radiokhimiya, Vol XIII, No 3, 1971, pp 416-421

but concentrations and impurities may have certain vitiating effects on the analysis; these can be avoided by precautions specified in the paper.

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USSR

UDC 541.28

SKOVORODKIN, N. V., SOROKINA, A. V., BUGORKOV, S. S., KRIVOKHATSKIY, A. S., and PETRZHAK, K. A.

"Radiochemical Determination of the Yields of Rare Earth Elements in the Fission of ^{239}Pu and ^{241}Pu by Slow Neutrons. I. Yields of Rare Earth Elements with Half-lives of Less Than 10 Days"

Leningrad, Radiokhimiya 12, No 3, 1970, pp 487-492

Abstract: ^{239}Pu and ^{241}Pu were purified with Dowex-1x8 (200-400 mesh) anion-exchange resin and used as targets. All cumulative yields are expressed in terms of the ^{144}Ce cumulative yields. Yields are reported for the following rare earth isotopes: ^{141}La, ^{143}Ce, ^{145}Pr, ^{149}Nd, ^{149}Pm, ^{151}Pm, ^{153}Sm, ^{156}Sm, ^{157}Eu, ^{159}Gd, and ^{161}Tb.

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USSR

UDC 621.375.9

SKOVORODKO, P. A., YAKOBI, Yu. A., Novosibirsk

"Inverse Population and Emission Density in a Q-Switched CO_2 Laser"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, Nov/Dec 72, pp 18-23

Abstract: Processes which take place in a CO_2 laser with Q-switching are numerically analyzed on the basis of a system of kinetic equations for laser level populations and the density of radiant energy in the cavity. It is shown that the process of laser Q-switching is oscillatory. The time of relaxation of emission density to the steady state depends on the difference between losses in the terminal and initial states and varies for a CO_2 laser over a range of 0.1-1 ms; this corresponds in order of magnitude to the relaxation time of the upper laser level. The authors thank R. I. Soloukhin for constant interest and assistance with the work.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC: 8.74

KIR'YANOV, B. F., MARCHENKO, T. V., SKREBNEV, A. A., KHABIBULLIN, N. F.

"On the Problem of Generating Pseudorandom Numbers by a Shift Register With Logic Feedback"

Tr. n.-i. i proyekt. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo (Works of the Scientific Research and Design Institute on Introducing Computer Technology Into the National Economy), 1971, vyp. 8, pp 94-101 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V501)

[No abstract]

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

KONONOV, S.P., SKREBNEV, B.A.

UDC 621.374.32

"Characteristics Of Quasi-Resonant Pulse System"

Izv. VUZ: Elektromekhanika, No 3, Mar 1972, pp 324-326

Abstract: In connection with the power supply of periodically discharged capacitance storage devices in pulse systems, quasi-resonant charging is investigated where the frequency of the source does not match the natural frequency of the oscillations of the charging circuit. An analysis shows that the parameters of the pseudo-steady state quasi-resonance: predischarge voltage, effective power, and efficiency; and the equivalent power factors of the capacitance storage device and all circuits may not be worse and in many cases may be better than in a resonance regime. Using the dependences found, it is possible to select soundly the operating conditions of the system, to determine its parameters, and to establish the behavior of the system during departures from the normal regime. 3 fig. 2 ref. One reference is concerned with components and elements of radar stations . Received, 22 Dec 1970; after further improvement, 23 July 1971.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

KONSTANTINOV, B. P. (Deceased), BREDOV, M. M., KOLCHIN, A. A., LEBEDEV, V. V. and SKREBTSOV, G. P., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR

"Investigation of Proton Fluxes in the Range 1.5-50 Mev on the 'Zond-4' and 'Zond-5' Automatic Interplanetary Station"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No. 11, Nov 70, pp 2250-2254

Abstract: A brief description of the equipment used and the data obtained on "Zond-4" and "Zond-5" is presented. "Zond-4" was launched toward the moon on 2 March 1968 and "Zond-5" on 15 September 1968. Two proton detectors were used, one detecting protons in the ranges 1.5-10 Mev and 10-21 Mev and the other to detect protons in the ranges 30-35 Mev and 45-50 Mev. No other particles besides protons were recorded. Measurements beginning at a distance of 3.5 R_E are summarized, concentrating on data from "Zond-5". It was noted that "Zond-5", in accordance with the flight program, sometimes changed orientation and maneuvered in space;

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USSR

KONSTANTINOV, B. P., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 11, pp 2250-2254

the average counting intensity in all channels remained approximately the same, thus making it possible to speak of the "average intensity" of the proton flux. The magnitudes of the average intensities of proton fluxes obtained were: 1.5-10 Mev, $I = 0.5 \cdot 10^3$ $m^{-2} \cdot str^{-1} \cdot sec^{-1}$; 10-20 Mev, $I = 40$ $m^{-2} \cdot str^{-1} \cdot sec^{-1}$; 30-35 Mev, $dI/dE = 35$ $m^{-2} \cdot str^{-1} \cdot sec^{-1} \cdot Mev^{-1}$; and 45-50 Mev, $dI/dE = 50$ $m^{-2} \cdot str^{-1} \cdot sec^{-1} \cdot Mev^{-1}$. A table is given comparing the intensities of proton fluxes in the range 1-10 Mev obtained with U.S. and Soviet space probes from 1964 to 1969.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

SKRELIN, A. L.

JPRS 60572
19 Nov 73

(4)

EXPERIMENTAL STUDY OF DISTORTION OF A LASER LIGHT PULSE DURING PROPAGATION IN THE SEA

[Article by I. I. Kalinin, V. N. Pelevin, A. L. Skrelin, and D. M. Sherbaf; Leningrad, Optika Okeana i Atmosfery, Russian, Izdatel'stvo Nauka, 1972, pp 168-174]

The development of pulsed lasers has not only intensified interest in the nonstationary problem of scattering but has also put in the hands of investigators a tool for studying multiple light scattering itself. The possibility has appeared, by using a laser with a burst lasting units of tens of nanoseconds and a receiver with high time resolution, of splitting a light signal propagating between two points of a medium into component elements differing in the length of the path of photons within the medium or in the number of acts of scattering experienced.

In [1, 2] the advisability was pointed out of representing the matrix of radiation transfer P^{12}_{ik} from point 1 to point 2 of a scattering medium in the form of the sum of the matrices w^{12}_{ik} (l), corresponding to the various lengths of the photon path from point to point 2:

$$P^{12}_{ik} = \int_0^\infty w^{12}_{ik}(l)\,dl.$$

Such an approach permits decomposing the transfer matrix by degrees of probability of quantum survival and facilitates solution of the transfer equation, done by the method of successive calculation of scattering of increasing multiplicity.

The development of pulsed technology along the path of reduction of the signal length to the limit beyond which it would be possible to receive it as a δ-pulse can lead, if suitable polarizers and analyzers are used, to obtaining the components of the w^{12}_{ik} (l) transfer matrix experimentally.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

Optics and Spectroscopy

USSR

IVANOV, A. P.; SKRELIN, A. L.

"Determination of the Index of Atmospheric Attenuation by a Method of Non-stationary Dispersion"

Minsk, Zhurnal Prikladnoy Spektroskopii; December, 1970; pp 1053-8

ABSTRACT: Three methods of measuring the index of atmospheric attenuation by means of an analysis of the behavior of a nonstationary dispersion are presented. The first method is based on a comparison of oscillograms of reflected light under conditions of clean and dirty air.

The second method suggests the possibility of using, with the given geometry of the experiment, the equation $I(t) \sim t^{-2}\exp(-\varepsilon ct)$: where $I(t)$ is the accepted signal, t is the time, ε is the index of attenuation, c is the speed of light. For various ε's values of t are found beginning with which -- with relative errors of 0.1, 0.2, 0.5, and 1.0 -- the effect of t^{-2} on the measurement of the index of attenuation can be ignored. ε was experimentally measured by means of these methods. These data practically coincided with data obtained on a stationary transmissometer.

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USSR

IVANOV, A. P.; et al, Zhurnal Prikladnoy Spektroskopii; December, 1970; pp 1053-8

With the third method it is possible, by a process of concentration or dispersion of a vapor, to record the instant at which the index of attenuation attains a given predetermined value. In this method it is suggested that 3 receivers be located at various distances from the radiator so that the variation with time of the amplitude of the signals received by them will be different. This method can, for example, be used to record the visibility at airports.

The article includes 4 figures. There are 11 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 621.373.826:550.3

IVANOV, A. P., KARGIN, B. A., KUZNETSOV, S. V., and SKRELIN, A. L.

"Propagation of Short Light Pulses in the Upper Layers of the Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 333-336 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D353)

Translation: Results are given of an analysis, by the Monte-Carlo method, of the radiation of a laser scattered back by the upper layers of a nonuniform atmosphere. The material obtained was used to estimate the signal/noise ratio in the observation of distant objects. Bibliography of one. A. L.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 621.771:621.783

USTIMENKO, V. A., KOLOGRIVOV, N. P., KRYLOVSKIY, A. P., SKREMENTOV, V. M., TKACHEV, A. V., and CHERVYAKOV, V. V.

"Rolling of Sheets Plated With OKh23N28M3D3T Steel"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-Oct 70, pp 81-82

Abstract: A description is given of new technological process of rolling corrosion-resistant sandwich sheets plated with OKh23N28M3D3T (EI943) complex alloy steel. The sheets are used for manufacturing containers for stocking and transporting highpurity acids. The chemical compositions of the basic metal (20K steel) and the plating metal are given. Data on the strength properties of the two steels are also given. The shearing strength along the welding plane substantially exceeds the minimum GOST 10885-64 value (15 kg/mm^2). The high adhesion strength of the layers was confirmed by bending tests. The results show the feasibility of using this technology for the mass production of large-size sheets with a plating layer which completely satisfy the requirements of GOST 10885-64.

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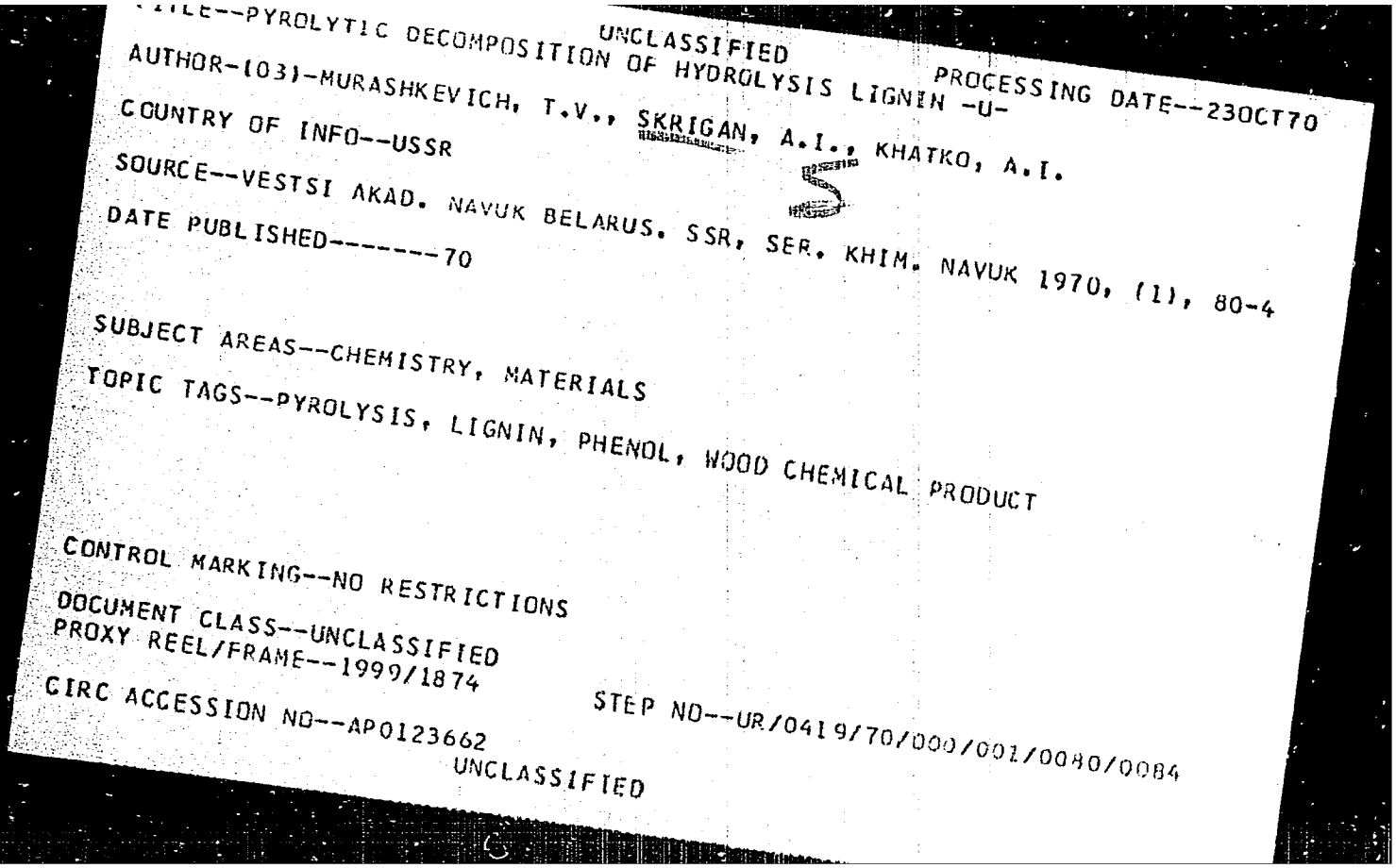

UNCLASSIFIED

TITLE--PYROLYTIC DECOMPOSITION OF HYDROLYSIS LIGNIN -U-

PROCESSING DATE--23OCT70

AUTHOR-(03)-MURASHKEVICH, T.V., SKRIGAN, A.I., KHATKO, A.I.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1), 80-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PYROLYSIS, LIGNIN, PHENOL, WOOD CHEMICAL PRODUCT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1874

STEP NO--UR/0419/70/000/001/0080/0084

CIRC ACCESSION NO--AP0123662

UNCLASSIFIED

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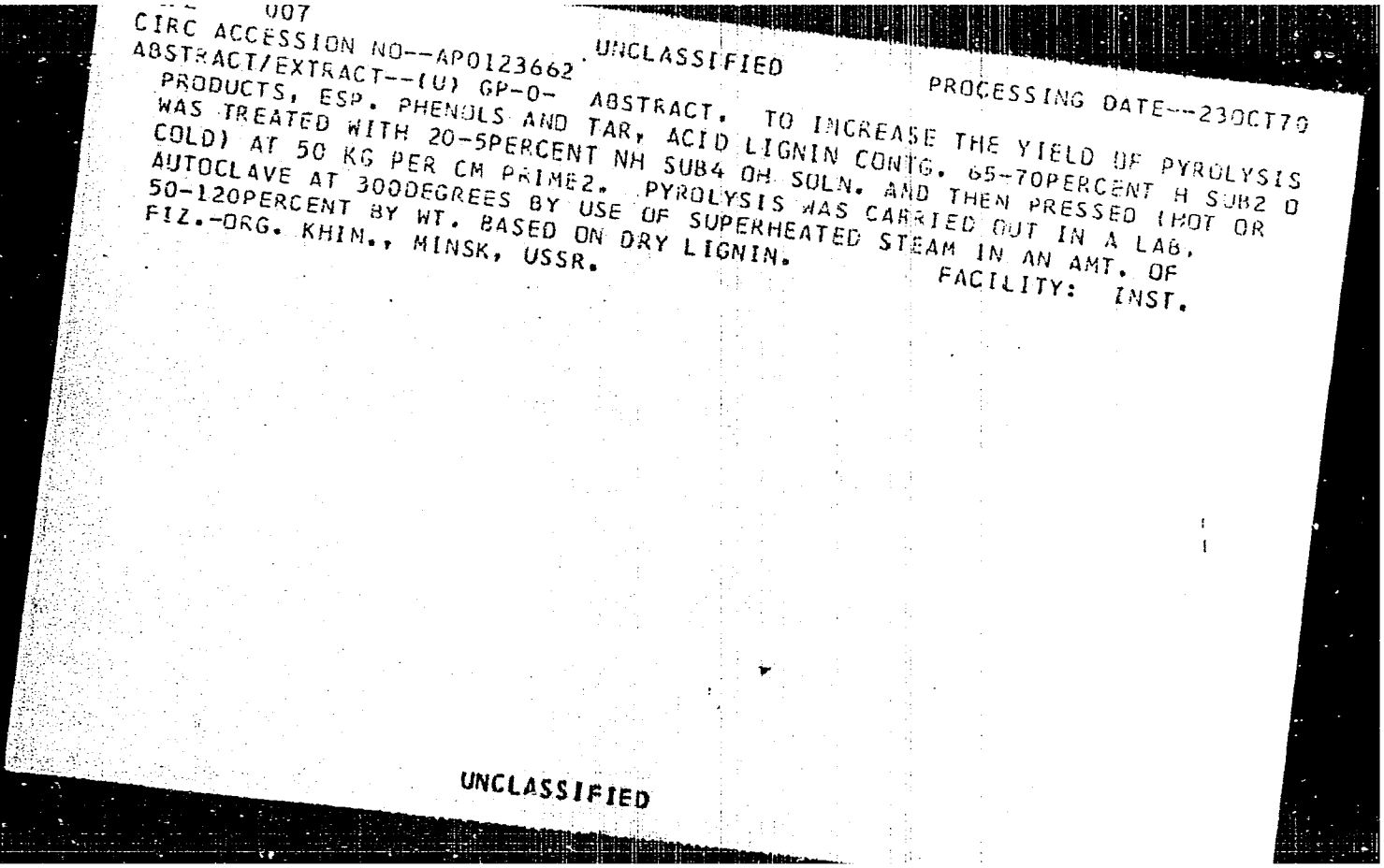

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CIRC ACCESSION NO--AP0123662 PROCESSING DATE--23OCT79

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO INCREASE THE YIELD OF PYROLYSIS PRODUCTS, ESP. PHENOLS AND TAR, ACID LIGNIN CONTG. 65-70PERCENT H SUB2 O WAS TREATED WITH 20-5PERCENT NH SUB4 OH SOLN. AND THEN PRESSED (HOT OR COLD) AT 50 KG PER CM PRIME2. PYROLYSIS WAS CARRIED OUT IN A LAB. AUTOCLAVE AT 300DEGREES BY USE OF SUPERHEATED STEAM IN AN AMT. OF 50-120PERCENT BY WT. BASED ON DRY LIGNIN.

FACILITY: INST. FIZ.-ORG. KHIM., MINSK, USSR.

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2/2 015 UNCLASSIFIED

CIRC ACCESSION NO--AP0102063 PROCESSING DATE--10OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDITION IS FOUND UNDER WHICH THE LINEAR CONTINUOUS MAPPING W SUB(1): L SUB2 (M) YIELDS L PRIME NEGATIVE SUB2 (H), WHERE L SUB2 (M) IS THE SPACE OF GENERALIZED FUNCTIONALS ON THE PHASE SPACE M AND L SUB2 (H) IS THE SET OF GILBERT SCHMIDT OPERATORS ON THE FOCK SPACE H, DIFFERS FROM THE WEYL QUANTIZATION BY THE NUMERICAL FACTOR ONLY.

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USSR

DERBENEV, Ya. S., KONDRATENKO, A. M., SKRINSKIY, A. N., Institute of Nuclear Physics, Siberian Department, Academy of Sciences, USSR

"The Dynamics of Particle Polarization Near Spin Resonances"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 4, 1971, pp 1216-1226

Abstract: The motion of particle spin in storage rings (accelerators) is investigated. The methods and results of specified works on the study of spin resonances are generalized for the case of an arbitrary closed orbit. In addition to first-approximation resonances, resonances of higher orders are considered, for which rules for the selection of resonating harmonics are obtained. The major part of the work is devoted to the passage of resonances. The concept of an effective zone and an adiabatic zone is introduced. A complete solution of the single-passage problem, which consolidates the particular solutions of cited works is presented. On this basis the problem of the periodic passage of resonance is solved with use of the general nature of spin motion in a periodic field. 1 figure. 17 bibliographic entries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

DERBENEV, Ya. S., KONDRATENKO, A. M., and SKRINSKIY, A. N., Corresponding Member of the Academy of Sciences USSR, Institute of Nuclear Physics of the Siberian Department of the Academy of Sciences USSR, Novosibirsk

"On the Motion of the Spin of Particles in an Accumulator With an Arbitrary Field"

Moscow, Doklady Akademii Nauk SSSR, Vol 192, No 6, 21 Jun 70, pp 1255-1258

Abstract: Certain general results of practical interest are presented concerning a study of the motion of spin in accumulators (or accelerators) with an arbitrary electromagnetic field, since studies of the behavior of the polarization of particles in accelerators are ordinarily limited to the case of a magnetic field that is almost constant in direction. It is shown that there is a periodic orbit $n(\theta)$, having the sense of direction of polarization of the periodic solution, around which the spin rotates, maintaining the projection in this direction. The spin turns around n through the same angle $2\pi\gamma$ in a period of motion in orbit, independent of the place of observation and initial conditions. Of practical importance is the fact that the angular velocity makes it possible to produce the necessary orientation of n relative

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USSR

DERBENEV, Ya. S., et al, Doklady Akademii Nauk SSSR, Vol 192, No 6, 21 Jun 70, pp 1255-1258

to the velocity and field at a given point in the orbit. It is pointed out, in conclusion, that the existence of a stable periodic motion of the spin indicates that the beam polarization of an accumulator with an arbitrary electromagnetic field under a closed orbit is stable in the same degree as in an accelerator with a magnetic field that is almost constant in direction, thus opening up broad possibilities for the control of polarization in accumulators.

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6679 (SLAC-Trans-105) PRELIMINARY RESULTS OF A STUDY OF THE ρ-MESON RESONANCE USING COLLIDING ELECTRON-POSITRON BEAMS. Balakin, V. E.; Budker, G. I.; Korshunov, Yu. V.; Mishnev, S. I.; Pakhtusova, E. V.; Pestov, Yu. N.; Sidorov, V. A.; Skrinskii, A. N.; Tumaikin, G. I.; Khazin-Yadernoi Fiziki). Translated by T. Watt for Stanford Linear Accelerator Center, Calif., from Russian Preprint No. 327. 12p. Dep. CFSTI.

The results are reported of a preliminary analysis of approximately 100,000 photographs from a spark-chamber study of the ρ-meson, using the electron-positron storage ring VEPP-2. The measurements were carried out for nine energy values between 508 and 514 MeV. Two types of events were analyzed: elastic electron-positron scattering and charged kaln pair production. A least-squares fit of the results to the Breit-Wigner curve yielded the following values for the resonance parameters: $\Gamma = 4.1 \pm 0.5$ MeV and $\sigma_0 = 2.3 \pm 0.3$ μb. The total resonance cross section for the formation of the ρ-meson was found to be $6p = 4.8 \pm 0.6$ μb. (L.B.S.)

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

UDC: 532.526

USSR

DOLINSKAYA, M. M., and SKRIPACHEV, V. V.

"Laminar Incompressible Boundary Layer Over a Heated Plate"

Kiev, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 120-123

Abstract: The case is considered of an incompressible fluid flowing along a heated plate. The effect of heating on the characteristics of the boundary layer is analyzed.

The viscosity is a function of the temperature, the effects of the temperature on the density, conductivity and specific heat are neglected.

Equation (1.4) give the characteristics of the subject boundary layer using nondimensional variables. Numerical solutions of these equations were obtained by means of computers.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

DOLINSKAYA, M. M., et al. Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 120-123

Fig. 1 gives the velocity profiles and the temperature profiles in the boundary layer with the differential temperatures of 0, 20°C and 40°C.

The coefficient of friction decreases with the increase of temperature due to the decrease of viscosity as shown on Fig. 3.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

SKRIPACHEV, V. V.

JPRS 55982
15 May 72

STABILITY OF THE LAMINAR BOUNDARY LAYER ON A DEFORMABLE PLATE

[Article by L. V. Kondrat'yeva and V. V. Skripachev, Kiev; Kiev, Gidromekhanika, Russian, No 5, 1971, Izd-vo 'Naukova Dumka', pp 45-48]

We will examine the stability of Blasius flow near a deformable plate. We will select the origin of coordinates on the leading edge of the plate; we will direct the x-axis along the oncoming flow and we will direct the y-axis perpendicular to it. All parameters will henceforth be considered dimensionless. As the scales we will select the velocity U of the oncoming flow and the boundary layer thickness

$$\delta = 6\sqrt{\frac{\nu x}{U}}.$$

In a linear formulation the problem of the stability of boundary layer flow is reduced to determining the nontrivial solution of the differential equation for the dimensionless stream function φ /2/

$$(U-c)(\varphi'' - \alpha^2\varphi) - U''\varphi = \frac{1}{i\alpha R}(\varphi^{IV} - 2\alpha^2\varphi'' + \alpha^4\varphi), \qquad (1)$$

satisfying the boundary conditions

$$\varphi'(1) + \alpha\varphi(1) = 0, \quad \varphi(\infty) < \infty; \qquad (2)$$

$$\varphi(0)U'(0) + c\varphi'(0) = 0, \quad \varphi(0) = c K \hat{P}(0) \qquad (2a)$$

under the condition of proportionality of pressure P' and lateral deformation η:

$$\hat{\eta} = K\hat{P}(0);$$

$$\eta = \hat{\eta}e^{i\alpha(x-ct)}, \quad p' = \hat{P}e^{i\alpha(x-ct)}. \qquad (3)$$

The pressure amplitude $\hat{P}(0)$ can be determined from the linearized equation of momentum in projection onto the x-axis

$$\hat{P}(0) = \frac{1}{i\alpha R}[\varphi'''(0) - \alpha^2\varphi'(0)]. \qquad (4)$$

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1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--JAHN TELLER EFFECT IN THE NICR SUB2 O SUB4 SPINEL -U-

AUTHOR-(03)-VISHNEVSKIY, I.I., ALAPIN, B.G., SKRIPAK, V.N.

S

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 314-18

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CRYSTAL LATTICE STRUCTURE, NICKEL COMPOUND, CHROMIUM COMPOUND, OXIDE, THERMAL CONDUCTIVITY, THERMAL EXPANSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0566 STEP NO--UR/0363/70/006/002/0314/0318

CIRC ACCESSION NO--AP0105551

UNCLASSIFIED

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2/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGE IN THE NICR SUB2 O SUB4 STRUCTURE, AS WELL AS IN ITS THERMAL COND. AND THERMAL EXPANSION, DURING THE TRANSITION FROM THE TETRAGONAL TO THE CUBIC PHASE WAS STUDIED. THE SAMPLES WERE PREPD. BY CONVENTIONAL CERAMIC TECHNOLOGY. THE TRANSFORMATION OF NICR SUB2 O SUB4 FROM THE TETRAGONAL TO THE CUBIC PHASE IS A 1ST ORDER TRANSITION, AND IT PROCEEDS AT 3000EGREES K. THE CHANGE IN THE SP. VOL. WAS SMALLER THAN 0.001. THE THERMAL COND. FOR NICR SUB2 O SUB4 WAS MEASURED AT 130-900DEGREES K, AND THE THERMAL EXPANSION WAS MEASURED AT 350, 2000DEGREES K. THE MIN. ON THE CURVE SHOWING THE TEMP. DEPENDENCE OF THERMAL COND. NEAR THE TRANSITION TEMP. IS CAUSED BY THE PHONON LATTICE INTERACTION DURING A CHANGE IN THE SYMMETRY OF THE CRYSTAL LATTICE.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

- USSR

UDC 612.014.426

MIKHAYLOVA-LUKASHEVA, V. D., SKRIPAL', A. V., MEL'NIKOV, V. P., KOROTKIY, V. P., NAYMITENKO, L. V., Gerontology Section of the Belorussian SSR Academy of Sciences

"Study of the Effect of Weak Electromagnetic Field Gradients on Man"

Minsk, Doklady Akademii nauk, BSSR, 1972, Vol 16, No 12, pp 1147-1149

Abstract: The gerontology section jointly with the Electronics Laboratory of the Academy of Sciences Belorussian SSR has begun studies of the effect of weak electromagnetic field gradients on the functional activity of a number of systems of the organism of man and various animals. To detect the reaction of man and animals to weak electromagnetic fields, pulses of exponential shape were used with a frequency corresponding to the rhythms of the physiological processes characterizing the functional state of the organism (f = 0.5-30 hertz) and a frequency of 200-400 hertz corresponding to the rhythms of the excited receptors. The goal was to detect the reaction to the weak electromagnetic field gradients not only of the coherent electromagnetic radiation but also energy gradients of the interference type, white noise, which was created in the 50 hertz to 6 megahertz band. Electroencephalograms, electrocardiograms, phonocardiograms, rheovasograms, plethysmograms and recordings of the arterial pressure and respiration were taken. Electromagnetic energy

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

MIKHAYLOVA-LUKASHEVA, V. D., Doklady Akademii nauk, BSSR, 1972, Vol 16, No 12, pp 1147-1149

gradients from 0 to $27 \cdot 10^{-24}$ joules were created. The experimental setup and means of calculating the gradients are described in detail in this paper and the variations in the physiological functions will be discussed in later reports.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR UDC: 681.3

MALYUTINA, G. Ya., SKRIPAL', V. I., TOMILOV, B. Ye.

"Determination of the Density Function for the Distribution of Computer Recovery Time"

V sb. Nadezhnost' upravlyayushchikh vychisl. sistem. Ch. 1 (Reliability of Control Computer Systems--collection of works, Part 1), Kiev, 1970, pp 29-41 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V684)

Translation: It is proposed that a method of stochastic approximation, specifically the classical Robbins-Monroe method, be used for determining the density function for distribution of recovery time on the Ural-11-14 digital computer. The essence of this method is outlined in detail, and an interpretation is presented for distribution density functions on the interval $(0,\infty)$. The advantages of the given method over conventional methods of statistical processing of experimental data are mentioned.
V. Mikheyev.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR UDC 519.281

SKRIPCHAK, D. A., SOROKER, L. V.

"Development of Method for Producing a Multidimensional Model of the Floatation Process"

Tekhn. Kibernetika. Vyp. 15 [Engineering Cybernetics, No 15 Collection of Works], Kiev, 1970, pp 58-62, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V196 by A. Zaslavskiy).

Translation: Two groups of parameters can be distinguished in the performance of the process of floatation: uncontrollable parameters (properties of the ore process) and controllable parameters (parameters of the production process). In order to control the process, it is convenient to represent the controllable parameters as functions of the uncontrollable parameters; this representation must satisfy the conditions of optimality of the production process. A method is suggested for solution of this problem on the basis of results of complete factor experimentation.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

UDC 546:26-162

USSR

SKRIPCHENKO, G. B.

"Approximation of the Texture Distribution Curve of Carbon-Graphite Materials"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 148-150

Abstract: Calculations are made of the texture indexes of various carbon-graphite materials. It is shown that the texture of the material determines the anisotropy of its physical-mechanical and chemical properties. A quantitative estimate of the texture distribution curve permits an approach to calculation of the anisotropy of the properties of the material.

In general form the normalized texture distribution curves of all carbon-graphite materials are described by the binomial

$$I(\Phi) = A + (I(0) - A)\phi(\Phi)$$

Where A is the proportion of crystallites with isotropic orientation which can therefore serve as the measure of isotropy of the material; and 1 - A is the proportion of the material with anisotropic arrangement of the crystallites. The function $\phi(\Phi)$ characterizes the angular dependence of the texture. It is approximated by the gaussian curve $\phi(\Phi) = \exp(-\Phi^2/2\sigma^2)$

or the cosine curve $\phi(\Phi) = \cos^n\Phi$.

In this representation all the carbon-graphite materials are separated into

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

SKRIPCHENKO, G. B., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 148-150

materials with residual isotropy $0 \leq A < 1$ (for completely isotropic materials $I(\Phi) = A = 1$) and completely anisotropic materials $A = 0$. In the latter case, it is frequently more convenient to normalize the distribution curves more simply

$$I(0) = I_{max} = 1.$$

The approximation functions $\exp(-\Phi^2/2\sigma^2)$ and $\cos^n\Phi$ are close, as demonstrated by expanding $\ln \Phi = n \ln \cos \Phi$ in the series

$$\ln \phi = n \ln \cos \phi = n \left[-\frac{\phi^2}{2} - \frac{\phi^4}{12} - \frac{\phi^6}{45} - \ldots \right]$$

If we limit ourselves to the first term in the expansion, then we obtain

$$\phi = \cos^n \phi \simeq \exp(-n\phi^2/2) \text{ or } n = \sigma^{-2}.$$

It is pointed out that this approximation is satisfactory for $n \leq 5$ up to $\Phi = 60^\circ$.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR UDC: 620:18;539.26

PLUTALOVA, L. A., SKRIPCHENKO, G. B., and GRIGORENKO, L. P., Scientific Research Institute of Mechanical Engineering, Moscow

"Effect of Pressure on the Structure of Graphite Materials in the Process of Intensive Wear"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 1, Jan-Feb 70, pp 49-54

Abstract: A study was made of structural changes occurring in graphite materials during intensive wear. The basic parameters determining the value of "critical" pressure are the structure and strength of the graphite material, the material of the counterpart, and the composition of the gas medium. It has been shown that the wear products undergo extensive destruction down to the complete amorphous phase. The greatest structural distortions were observed at pressures close to critical when the normal process of work changes to intensive wear. With respect to the ratio of intensity maxima, it is suggested that in the products of wear there are 10% of the crystalline phase, about 40% of finely-disperse crystallites consisting of 2-3 layers, and the remaining 50%--completely amorphous carbon. As the specific pressure of friction increases, distortions in wear products decrease. It is noted that the nature of destruction depends on the surface state of the graphite specimen.

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1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ORGANOSILICON AMINES USED AS CORROSION INHIBITORS -U-

AUTHOR-(05)-SHREYBER, G.K., SAAKIYAN, L.S., LOSEV, V.B., ALKHAMEDAN, KH., SKRIPCHENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(1) 200-2

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CORROSION INHIBITOR, ORGANOSILICON COMPOUND, AMINE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/0300 STEP NO--UR/0080/70/043/001/0200/0201

CIRC ACCESSION NO--AP0053285

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

CIRC ACCESSION NO--AP0053285

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CORROSION INHIBITING ACTIVITIES OF THE TITLE COMPDS., RSI(OET) SUB3 (I), WHERE R EQUALS H SUB2 N(CH SUB2) SUB3 PRIME NEGATIVE, ET SUB2 N(CH SUB2) SUB3 PRIME NEGATIVE, ET SUB2 NCH SUB2 PRIME NEGATIVE, PHNHCH SUB2 PRIME NEGATIVE, H SUB2 N(CH SUB2) SUB6 NHCH SUB2 PRIME NEGATIVE, H SUB2 N(C SUB2 H SUB4 NH) SUB2 (CH SUB2) SUB3 PRIME NEGATIVE, AND H SUB2 N(C SUB2 H SUB4 NH) SUB2 CH SUB2 PRIME NEGATIVE, WERE DETD. (THE RESULTS ARE GIVEN IN TABULAR FORM AS PERCENT PROTECTIVE ACTION) AT VARIOUS TEMPS. AND CONCNS. OF I. I CONTG. POLYAMINE GROUPS WERE MOST EFFECTIVE.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC:536.24.02.082

SIMBIRSKIY, D. F., OLEYNIK, A. V., SKRIPKA, A. I.

"The Problem of Determination of Boundary Conditions on the Surfaces of Bodies with Variable Thermal Effects"

Samoletostr. i Tekhn. Vozd. Flota. Resp. Nezhved. Temat. Nauch.-Tekhn. Sb. [Aircraft Building and Air Force Technology, Republic Interdepartmental Thematic Scientific and Technical Collection], No 24, 1971, pp 14-22 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1016 from the resume)

Translation: A method is suggested for local values of heat fluxes and heat transfer factors, suitable for the most general cases of heat exchange of parts with the surrounding medium (unstable modes, operating blades of turbines, significant heat exchange, etc.). The method is based on the use of surface film thermocouples, yielding the values of temperatures on the surfaces of parts with high accuracy. Film thermocouples introduce no distortions to the heat exchange conditions and the temperature field of a part and are practically non-inertial measuring devices. A transition is made from first order boundary conditions (temperatures on the surface) to second and third order boundary

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR UDC: 536.24.02.082

SIMBIRSKIY, D. F., OLEYNIK, A. V., SKRIPKA, A. I., Samoletostr. i Tekhn. Vozd. Flota. Resp. Nezhved. Temat. Nauch.-Tekhn. Sb. [Aircraft Building and Air Force Technology, Republic Interdepartmental Thematic Scientific and Technical Collection], No 24, 1971, pp 14-22 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1016 from the resume)

conditions by solving the reverse problem of heat conductivity. 5 figures; 6 biblio refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MECHANISM OF ARENESULFONAMIDE CATALYSIS OF THE REACTION OF AROMATIC AMINES WITH CARBOXYLIC ACID HALIDES -U-

AUTHOR-(03)-LITVINENKO, L.M., SAVELOVA, V.A., SKRIPKA, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 886-94

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SULFONAMIDE, CATALYST ACTIVITY, AROMATIC AMINE, CARBOXYLIC ACID, HALOGENATED ORGANIC COMPOUND, CHLORINATED AROMATIC COMPOUND, ANILINE, BENZOYL CHLORIDE, CHEMICAL KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1512 STEP NO--UR/0079/70/040/004/0886/0894

CIRC ACCESSION NO--AP0135173

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135173

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE TABULATED FOR ACYLATION OF M,CLC SUB6 H SUB4 NH SUB2 WITH BZCL AND AC SUB2 O, AND OF P,MEOC SUB6 H SUB4 NH SUB2 BY BZF, IN C SUB6 H SUB6 IN THE PRESENCE OF RC SUB6 H SUB4 SO SUB2 NR SUB2. THE UNSUBSTITUTED SULFONAMIDES OR THOSE WITH A SINGLE ALIPHATIC OR AROMATIC SUBSTITUTENT AT THE N ATOM ARE EFFECTIVE CATALYSTS FOR THE REACTION, THOSE WITH 2 ALIPHATIC SUBSTITUTENTS ARE BUT FEEBLY ACTIVE, AND THOSE WITH 1 ALIPHATIC AND 1 AROMATIC SUBSTITUENT ARE TOTALLY INEFFECTIVE. IN RC SUB6 H SUB4 SO SUB2 NHC SUB6 H SUB4 R A WIDE RANGE OF VARIATIONS OF THE R GROUPS HAD BUT LITTLE EFFECT ON THE CATALYTIC CAPABILITY. RHE RESULTS SUGGEST A BIFUNCTIONAL CATALYSIS BY THE SULFONAMIDES IN THESE CAYLATIONS, PROBABLY VIA FORMATION OF CYCLIC INTERMEDIATES OF TRIMOLECULAR TYPE IWHT THE 2 REACTANTS, IN WHICH THE O ATOM OF THE SO S8U2 AND THE NH GROUP TAKE PART IN A FORM OF HYDROGEN BONDING. FACILITY: DONETS, OTD. FIZ.-ORO. KHIM., INST. FIZ. KHIM. IM. PISARZHEVSKOGO, DONETSK, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR UDC: 621.373.4(088.8)

DEMCHENKO, K. M., SKRIPKA, L. M., ANDONOV, Ye. V., KAULIN, Ye. P., ROGOV, P. V., and KHUKOV, A. M.

"Test Signal Formation Device for Tuning Electronic Equipment"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a^4, 8/01, (H 03 b 23/00), No. 270825, Application 27.01.69, Publication 1.09.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A406P)

Translation: A device is proposed for forming a test signal for tuning electronic equipment, containing a frequency wobbulator, a modulator, fixed stable frequency oscillators, an automatic gain control circuit, a marker generator, and a control device. The device is distinguished in that, for the purpose of simplifying the equipment for formation of powerful undistorted signals consisting of pulses of HF oscillations at low resistance loads, the fixed frequency oscillators mentioned above are connected through a summing circuit to the frequency wobbulator. B. L.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 629.78.002.3

BELITSKIY, M. Ye., BATURIN, G. T., GAYDARENKO, A. L., GERMANCHUK, F. K., SKRIPKA, V. F.

"Study of the Chemical Stability of Certain Nonmetallic Components of Friction Materials at High Temperatures"

Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii (Collection of Scientific Works of the Kiev Institute of Civil Aviation Engineers), 1971, No. 2, pp 64-67 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.189)

Translation: Studies of the chemical stability of widely used, promising nonmetallic components and solid lubricants of friction metalloceramic materials are described. Recommendations are made as to their application as high-temperature solid lubricants for friction materials of heavy-load braking devices: boron nitride, 2-calcium fluoride and synthetic mica. 6 ill., 1 table, 7 ref. Resume.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR UDC 539.319

SKRIPKA, V. I. and ULITKO, A. F., Institute of Mechanics, Ukrainian SSR

"The Equilibrium of a Paraboloid of Revolution Loaded at the Peak by a Concentrated Axial Force"

Kiev, Prikladnaya Mekhanika, Vol 9, No 5, May 1973, pp 10-15

Abstract: A numerical analysis is conducted of the stress distribution in an elastic, homogeneous, isotropic paraboloid of revolution loaded at the peak by a concentrated axial force. The analysis is based upon formulas for the exact solution of an axisymmetrical boundary-value problem for a paraboloid of revolution. An investigation is made of the particular nature of the stressed state under a concentrated force. Asymptotic expressions are obtained for stresses at infinity in an elastic paraboloid. 1 figure. 1 table. 5 references.

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AP9049780

UR 0377

PRIMARY SOURCE: Geliotekhnika, 1969, Nr 1, pp 20-24

V. V. Novicov, L. N. Skrlpkar

Adjusting of a Concentrator with Parabolic Facets

An adjusting method is described for a concentrator mirror made of parabolic facets. The possibility of adjusting a facet mirror, made for a Cassigren concentrator. The optimal facet zones are determined giving the maximal light flux.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/3 025 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ON MECHANISMS OF DEVELOPMENT OF HYPERCORTICISM IN TREATMENT WITH CORTICOSTEROIDS OF PATIENTS WITH CERTAIN INFECTIOUS ALLERGIC DERMATOSES

AUTHOR-(03)-SKRIPKIN, YU.K., SHARAPOVA, G.YA., NARYZHNYUK, N.D.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 6, PP 12-16

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SKIN DISEASE, ALLERGIC DISEASE, URINE, CHROMATOGRAPHIC ANALYSIS, CORTICOSTEROID, SYNDROME, DRUG TREATMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1351 STEP NO--UR/0206/70/000/006/0012/0016

CIRC ACCESSION NO--AP0133304

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/3 025 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133304

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENT OF 17 OCS IN THE BLOOD WAS DETERMINED BY SILBER PORTER'S METHOD MODIFIED BY N. A. YUDAEV AND YU. A. PANKOV, IN THE URINEBY THE SAME METHOD MODIFIED BY M. A. KREKHOVA, THE CONTENT OF INDIVIDUAL CORTICOSTEROID COMPOUNDS IN SEPARATE FRACTIONS OF 17 OCS OF THE URINE WAS STUDIED BY PAPER CHROMATOGRAPHY METHOD OF BUSH MODIFIED BY M. A. KREKHOVA. STUDIES WERE CARRIED OUT IN 29 APPARENTLY NORMAL SUBJECTS (CONTROL GROUP) AND IN 42 PATIENTS WITH DERMATOSES IN THE ETIOPHATHOGENESIS OF WHICH A CONSIDERABLE ROLE BELONGED TO THE FACTOR OF INFECTIOUS ALLERGY (LUPUS ERYTHEMATOSUS, PSORIATIC ARTHRITIS, PEMPHIGUS VULGARIS). AMONG THE 42 PATIENTS 23 SHOWED MANIFESTATIONS OF KUSHING'S SYNDROME (GROUP I), I SUBJECTS HAD BEEN TREATED WITH CORTICOSTEROIDS FOR A LONG TIME BUT SHOWED NO MANIFESTATION OF MEDICINAL HYPERCORTICISM (GROUP 3); 11 PATIENTS HAD NOT BEEN TREATED WITH CORTICOSTEROID HORMONES (GROUP 2). THE PATIENTS WITH DERMATOSES OF THE INFECTIOUS ALLERGIC GENESIS BOTH PREVIOUSLY UNTREATED WITH CORTICOSTEROIDS AND EXAMINED IN THE PERIOD OF TREATMENT WITH THESE HORMONES WERE CHARACTERIZED BY INCREASED EXCRETION IN THE URINE OF UNCONJUGATED 17 OCS DUE TO RECEIVED DEXAMETHAZONE, TRIAMSINOLONE OR PREDNISOLONE, AND REDUCED EXCRETION OF GLJCURONIDES (DUE TO REDUCED EXCRETION OF ENDOGENOUS CORTICOSTEROIDS) MUCH MORE MARKED IN PATIENTS WITH KUSHING'S SYNDROME MANIFESTATIONS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

3/3 025 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133304

ABSTRACT/EXTRACT--A COMPARISON OF THE RESULTS OF LOADING WITH CORTISONE AND CORTISOLE OF PATIENTS WITH DERMATOSES IN WHOM TREATMENT WITH CORTICOSTEROIDS HAD GIVEN NO COMPLICATION WITH THOSE IN WHOM THIS THERAPY HAD BEEN ACCOMPANIED BY MANIFESTATIONS OF HYPERCORTICISM PERMITS A CONCLUSION THAT THE LATTER SHOW DISORDERS OF INACTIVATION OF BIOLOGICALLY ACTIVE CORTICOSTEROIDS. FACILITY: KAFEDRA KOZHNYKH BOLEZNEY II MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. N. I. PIROGOVA I BIOKHIMICHESKAYA LABORATORIYA. FACILITY: MOSKOVSKOGO OBLASTNOGO NAUCHNO ISSLED. KLINICHESKOGO INSTITUTA.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--LUMINESCENT CHROMATOGRAPHIC ANALYSIS OF PARAFFINIC AND NAPHTHENIC HYDROCARBONS -U-

AUTHOR-(03)-ZHOROV, YU.M., PANCHENKOV, G.M., SKRIPKINA, N.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(4), 55-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENCE, CHROMATOGRAPHY, ALKANE, NAPHTHENE, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1704 STEP NO--UR/0065/70/015/004/0055/0056

CIRC ACCESSION NO--AP0125325

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125325

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LUMINESCENT CHROMATOG. ANAL. METHOD WAS COMBINED WITH THE ANILINE POINT METHOD FOR THE SEP. DETN. OF PARAFFINIC AND NAPHTHENIC HYDROCARBONS, DETG. SIMULTANEOUSLY OTHER COMPONENTS OF THE MIXT. AROMATIC HYDROCARBONS WERE DETD. BY USING 1,3 DIPHENYLBUTADIENE AS INDICATOR. THE MEAN SQUARE DETN. ERROR WAS 1.5PERCENT. FACILITY: NMINKHGP, MOSCOW, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

SKRIPKINA, P.A.

JPRS 59208

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XVI-4. DYNAMICS OF CONDENSATION AND STRUCTURAL TRANSFORMATION OF THIN InSb FILMS

[Article by P. A. Skripkina, G. I. Vasin, V. L. Petrosyan, S. I. Stenin, Novosibirsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 223]

The method of impulsive evaporation and the study of the dynamics of the condensation process of InSb film by continuous measurement of the conductivity and electron diffraction analysis on reflection was developed.

The process parameters such as the vapor dispersion rate (v ~ 1/sec), the time (Δt ~ 0.2 0.8 sec) and the condensation temperature ($\Delta T \leq 400°C$) were defined. The variation of the stoichiometric composition with respect to film thickness (Sb-In) was observed during the deposition process.

The formation of the film structure from amorphous in the initial stages to polycrystalline or texture in the final stage takes place in the condensation process. The final stage depends sharply on the substrate temperature.

The films obtained had electron mobilities from 50 to $(1-5)\cdot10^3$ cm^2/v-sec in the thickness range of 300-2,000 Å. The correlation of the structural and electrophysical parameters is detected, and it is demonstrated that the scattering of the charge carriers takes place basically on the structural defects -- the grain and dislocation boundaries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 669.76:539.216.2:5317.311.3

PETROSYAN, V. I., MOLIN, V. N., DAGMAN, E. I., TAGVER, B. A., SKRIPKINA, P. A., and ALEKSANDROV, L. N., Institute of Semiconductor Physics, Siberian Department of the Academy of Sciences USSR

"Characteristics of Quantum Size Effects in Thin Untextured Polycrystalline Films of Bismuth Produced by the Electric Explosion Method"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 725-730

Abstract: Possibilities of the occurrence of quantum size effects (QSE), their peculiarities in untextured polycrystalline bismuth films, and the role of crystallographic anisotropy in QSE were investigated on the basis of oscillation (period ~200 Å) dependences of the specific resistance ρ and the Hall constant R on the thickness in untextured polycrystalline foils. The foils were produced by the electric explosion method in the thickness interval of 50-700 Å. In contrast to previous findings, the Hall constant was found to be negative. The experimental results are discussed by reference to diagrams showing temperature dependences of ρ and R and densities of electron and hole conditions as functions of the film thickness. Control measurements made on the same films, annealed at 70°C, on which the texture

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

PETROSYAN, V. I., et al., Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 725-730

originated, demonstrated that the derived characteristics are related to a polycrystallinity. Three figures, six formulas, eight bibliographic refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PECULIARITIES OF FORMATION AND PROPERTIES OF SEMICONDUCTOR FILMS DEPOSITED BY ELECTRICAL EXPLOSION -U-

AUTHOR-(05)-ALEKSANDROV, L.N., DAGMAN, E.I., ZELEVINSKAYA, V.I., PETROSYAN, V.I., SKRIPKINA, P.A.

COUNTRY OF INFO--USSR

SOURCE--THIN SOLID FILMS 1970, 5(1), 1-6

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--THIN FILM SEMICONDUCTOR, TEMPERATURE DISTRIBUTION, CRYSTALLIZATION, INDIUM ANTIMONIDE, INDIUM ARSENIDE, ELECTRON DIFFRACTION, ELECTRON MOBILITY, CRYSTAL GROWING, ELECTRIC DISCHARGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1221 STEP NO--NE/0000/70/005/001/0001/0006

CIRC ACCESSION NO--AP0124875

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 032 UNCLASSIFIED

IRC ACCESSION NO--AP0124875 PROCESSING DATE--30OCT70

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CALCN. AND EXPTL. INVESTIGATION OF THE TEMP. DISTRIBUTION IN THIN FILMS DEPOSITED BY THE ELEC. EXPLOSION METHOD WERE MADE. AS A RESULT OF RELEASING THE CONDENSATION ENERGY, CRYSTN. PROCESSES OCCUR FROM THE MELT. FILMS OF INSB AND INAS DEPOSITED ON ISOLATED NONORIENTED SUBSTRATES WERE INVESTIGATED BY ELECTRON DIFFRACTION, AND THEIR MOBILITY, CARRIER CONCN., AND COND. WERE MEASURED. THE UNUSUALLY SMALL VALUES OF MOBILITY ARE DISCUSSED IN TERMS OF THE DIMENSIONAL EFFECT IN VERY THIN FILMS. FACILITY: INST. SEMICOND. PHYS., NOVOSIBIRSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC: 621.315.592

MOLIN, V. N., VASIL, O. I., SKRIPKINA, P. A., ASEYEV, A. L., PETROSYAN, V. I., STENIN, S. I., and TAVGER, B. A., Institute of Semiconductor Physics, Novosibirsk

"Connections of the Electrophysical Characteristics and Structure of Dimension-Quantized InSb Films"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1447-1451

Abstract: The purpose of this paper is to establish a connection between the structure and the electrical characteristics of InSb films with quantum dimensional effects. In the form of wedges, the specimens were prepared by pulse sputtering in a vacuum of 10^{-5} mm Hg on mica sheets measuring 10X80 mm. The specimens were given two types of structure by two modes of annealing. A photograph of these structures is reproduced, and curves are plotted for the mobility as a function of the thickness of the InSb films for the two structural types and for nonstoichiometric films with excess Sb, for the mobility as a function of the polycrystalline film temperature and the textured film temperature. The authors express their gratitude to E. I. Dagman and L. M. Rodnikova for their assistance.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--LUBRICATING COOLING LIQUID FOR COLD WORKING OF METALS -U-

AUTHOR-(05)-NIKITIN, YU.I., SKRIPKO, G.F., SOKHIN, S.M., POGORELYY, B.V., KOMOLAYEVA, L.V.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,799
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PATENT, METALWORKING LUBRICANT, COLD WORKING, CHEMICAL COMPOSITION, BORATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0844 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0131437
UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 021

CIRC ACCESSION NO--AA0131437

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LUBRICATING COOLING LIQ. HAS THE FOLLOWING COMPN.: CALCD. SODA 0.1-0.8, H SUB2 O SOL. CELLULOSE ESTER SALT 0.03-0.3, NH SUB4 CL 0.05-0.1, NA TETRABORATE 0.2-0.5, NANO SUB3 0.1-0.3, PARAFFIN OIL 0.1-0.5, AND H SUB2 O 97.5-99.42PERCENT.

FACILITY: UKRAINIAN SCIENTIFIC RESEARCH INSTITUTE OF INSTRUMENTS AND SYNTHETIC EXTRAHARD MATERIALS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--EXCRETION OF CATECHOLAMINES IN PATIENTS WITH THYROTOXICOSIS AND EUTHYROID GOITER BEFORE AND FOLLOWING SURGICAL TREATMENT -U-

AUTHOR--SKRIPNICHENKO, D.F., RAKOVSKAYA, G.G.

27
3
32

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 2, PP 37-41

DATE PUBLISHED----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CATECHOLAMINE, GOITER, SURGERY, ADRENALINE, NORADRENALINE, ADRENAL GLAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/0399 STEP NO--UR/0475/70/000/002/0037/0041

CIRC ACCESSION NO--AP0051916

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

Acc. Nr: AP0051916 Ref. Code: UR0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 2, pp 37-41

EXCRETION OF CATECHOLAMINES IN PATIENTS WITH THYROTOXICOSIS AND EUTHYROID GOITER BEFORE AND FOLLOWING SURGICAL TREATMENT

D. F. Skripnichenko and *G. G. Rakovskaya* (Kiev)

The excretion of catecholamines (adrenaline and noradrenaline) was studied at admission, after preoperative preparation and in the postoperative period in 133 patients with thyrotoxic and euthyroid goiter.

Sympathico-adrenal function proved increased in thyrotoxic patients manifested in an elevation of catecholamine excretion paralleling the severity of thyrotoxicosis and regularly decreasing following antithyroid therapy and subtotal strumectomy.

Patients with euthyroid forms of goiter did not show any significant changes in excretion of catecholamines.

Examination of catecholamine excretion in patients with thyrotoxicosis is valuable in evaluating the severity of thyrotoxicosis and efficiency of treatment.

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19820399

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INFLUENCE OF THE SHORT TERM ACTION OF ULTRASOUND DURING TEMPERING ON THE PROPERTIES OF STEEL R6M3F2 -U-

AUTHOR-(02)-CHACHIN, V.N., SKRIPNICHENKO, A.L.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD NAUVK BELARUS. SSR, SER. FIZ.-TEKH. NAUVK 1970, (1), 92-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ULTRASONIC EFFECT, MECHANICAL STRENGTH, MAGNETIC EFFECT, ALLOY STEEL, STEEL TEMPERING, AUSTENITIC STEEL, STEEL HARDNESS, MARTENSITIC STEEL/(U)D16T ALLOY, (U)R6M3F2 STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0574 STEP NO--UR/0201/70/000/001/0092/0095

CIRC ACCESSION NO--AP0105559

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 · 028 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105559

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MAGNETIC AND STRENGTH CHARACTERISTICS WERE DETD. OF THE TITLE STEEL PREPD. BY CONVENTIONAL TECHNIQUES. THE TEMPERING TEMP. UNDER STD. CONDITIONS AND WITH ULTRASOUND WAS 560DEGREES. THE INTRODUCTION OF ULTRASOUND INTO KNO SUB3 MELT, IN WHICH THE SAMPLES WERE TEMPERED, WAS ACCOMPLISHED BY A CYLINDRICAL CONCENTRATOR OF ALLOY 016T. THE HARDNESS OF THE STEEL TESTED AFTER TEMPERING WAS 836 HV. THE INCREASED HARDNESS OF THIS STEEL AFTER TEMPERING IS ASSOCD. WITH THE DISPERSION HARDENING BY MARTENSITE AT 560DEGREES, OWING TO THE FORMATION OF FINELY DISPERSED CARBIDES AND A DECREASE IN RESIDUAL AUSTENITE. THE INTRODUCTION OF ULTRASOUND SPEEDS UP THESE PROCESSES, AND IT CAUSES THE GIVEN HARDNESS TO BE REACHED APPROX. TWICE AS FAST AS DURING CONVETIONAL TEMPERING. THE INCREASE IN MAGNETIC SATN. IS CAUSED BY THE DECOMPN. OF THE RESIDUAL AUSTENITE, SINCE AUSTENITE IS THE NONMAGNETIC STRUCTURAL COMPONENT. INTRODUCTION OF ULTRASOUND RESULTS IN REDUCED AMT. OF RESIDUAL AUSTENITE. THE CHANGE IN ELEC. RESISTIVITY OF STEEL R6M3F2 AS DEPENDENT ON THE DURATION OF TEMPERING WITH ULTRASOUND AND ON ADDNL. TEMPERING UNDER STD. CONDITIONS WAS ALSO STUDIED, AS WAS THE CHANGE IN IMPACT STRENGTH AND FLEXURE STRENGTH AS DEPENDENT ON THE SAME PARAMETERS SHORT TERM ULTRASONIC ACTION AND THE SUBSEQUENT ADDNL. TEMPERING UNDER STD. CONDITIONS INTENSIFY THE CHANGES WHICH OCCUR IN STEEL R6M3F2 DURING TEMPERING.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

UNCLASSIFIED PROCESSING DATE--11SEP70

1/2 036

TITLE--EFFECT OF LIQUID MEDIA ON THE DEFORMATION OF SURFACE LAYERS OF A POLYMER METAL PAIR DURING BEARING CONTACT -U-

AUTHOR--NAZARENKO, P.V., SKRIPNIK, F.I.

COUNTRY OF INFO--USSR

SOURCE--MEKH. POLIM. 1970, 6(1) 147-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PROPULSION AND FUELS

TOPIC TAGS--FRICTION COEFFICIENT, ZINC, LUBRICATING OIL, LITHIUM FLUORIDE, AVIATION GASOLINE, JET FUEL, ALCOHOL, GLYCEROL, AIRCRAFT LUBRICANT, JTASTIC DEFORMATION, POLYURETHAN RESIN, PLASTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0374/70/006/001/0147/0149

PROXY REEL/FRAME--1989/1529

CIRC ACCESSION NO--AP0107949

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 036 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AR0107949

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEFORMATION (EPSILON) OF POLYURETHANE (I) RINGS IN FRICTIONAL CONTACT WITH A RIGID SUPPORT (LIF OR CRYST. ZN) DEPENDS ON THE TYPE OF LUBRICANT. WHEN AVIATION OILS WERE USED AS THE LUBRICANTS MAX. EPSILON WAS SMALLER THAN OR EQUALS TO 0.3PERCENT; WITH THE AVIATION FUELS OR ALC., GLYCEROL MIXTS. MAX. EPSILON WAS 0.53-0.83PERCENT. THERE IS AN INCREASE OF EPSILON TO A LIMITING (MAX.) VALUE WITH THE DISTANCE TRAVELLED BY THE RING ON THE SUPPORT. THE FIRCTION COEFF. (MU) ALSO INCREASES WITH THE DISTANCE TRAVELLED TO A MAX. LEVEL. THE TYPE OF LUBRICANT HAS AN EFFECT ON MU. THE LARGEST MU VALUE (0.45) WAS OBTAINED WITH GASOLINE AS THE LUBRICANT. LIF AND ZN ALSO DEFORM DURING FRICTION AGAINST I. THE DEFORMATION EXTENDS 10-20 MU M BELOW THEIR SURFACE AT 0.3 KG FRICTIONAL LOAD.

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UDC 77

USSR

AVRAMENKO, L. F., VILENSKIY, YU. B., IVANOV, B. M., OL'SHEVSKAYA, I. A., POCHINOK, V. YA., SKRIPNIK, L. I., FEDOROVA, L. N., FEDOROVA, I. P.

"Synthesis of Tetrazoles, Triazoles, Triazenes, and Azo Compounds and a Study of Them as Additives to Silver Halide Photographic Emulsions. I. Synthesis, Structure, Chemical Properties, and Photographic Activity"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14, pp 5-11 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1333)

Translation: Data on the synthesis, structure, and properties of over 300 organic compounds intended for stabilizing and defogging or depressing additives in AgHal emulsions are presented; in certain cases these substances were also optical sensitizers. Among the 40 tetrazoles not all were stabilizers of the photoemulsions; there was also established a difference in the chemical behavior in similar reactions. This duality is explained by the existence of azido-tetrazole tautomerism in many condensed tetrazoles; stabilization is caused by adsorption by ions

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of the AgHal lattice of these azido forms in which there is an increased electron density on the heterocyclic N atom. Many stabilizers were observed among the triazoles, and not only condensed triazoles; among these many could be converted into cyanin dyes by combining stabilizers and optical sensitizers. It is shown that it is necessary for a stabilizer that three N atoms enter into the ring, as in triazoles: a considerable number of stabilizers of AgCl-emulsion was also found among the triazenes. These compounds are simultaneously optical sensitizers, defoggers, and depressers; in AgBr-emulsions only the last two properties are retained, in view of differences in the formation of ion-dipole compounds of AgCl and AgBr lattices with a polar triazene molecule. Of the azo compounds only nonsymmetric substances with heterocyclic radicals were photographically active. 31 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

UDC 77

USSR

AVRAMENKO, L. F., VILENSKIY, YU. B., IVANOV, B. M., OLISHEVSKAYA, I. A., POCHINOK, V. YA., SKRIPNIK, L. I., FEDOROVA, L. N., FEDOROVA, I. P.

"Synthesis of Tetrazoles, Triazoles, Triazenes, and Azo Compounds and a Study of Them as Additives to Silver Halide Photographic Emulsions. II. Photographic Study of Material"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14, pp 12-23 (From RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1334)

Translation: Three indices are introduced to evaluate quantitatively various types of photographic activity of materials synthesized previously: (see RZh-Fizika, No12(I), Dec 70, Abstract No 12D1333): stabilizing, depressing, and defogging effects and certain combinations of these parameters in the kinetic curves for sensitivity and fogging in the second aging before and after introduction of the substances tested. If the substance was at the same time an optical sensitizer, the value of the depressing index was negative. Besides the testing of substances in AgCl- and AgBr(I)-emulsions, the kinetics of their adsorption by AgHal, the absorption spectrum in solution and after adsorption by AgHal, and the sensitization spectrum was studied. A correlation

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

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AVRAMENKO, L.F., et al, Uspekhi nauchn. fotogr., 1970, Vol 14, pp 12-23

was found for condensed tetrazoles between the stabilizer and the irreversible adsorption of material and between the depressing and defogging agents and reversible adsorption; irreversible adsorption on a small portion of the AgHal surface was sufficient for total stabilization. The same was true for the stabilization of triazenes. Depression of fogging was apparently always associated with the slowing down of the appearance of reversibly adsorbed substances, although in many cases there simultaneously occurred desensitization or slowing down of aging. Certain connections were established between photographic activity and the structure and substitutes in molecules of triazoles and optical sensitizers on the basis of their quaternary salts and also in molecules of heterocyclic azo compounds. The formation of iono-dipole or coordinated compounds of the material with AgHal was necessary for stabilization, which requires the coincidence of their dipole distances; the latter partially explains the differences in the behavior of materials in AgCl- and AgBr(I)-emulsions. One must take into account, however, that in view of the large homeopolarity of the bond in AgBr, even in AgCl, the latter requires more polar stabilizers. 12 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/2 014 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--EFFECT OF FORMATION CONDITION ON THE MOLECULAR ORIENTATION OF KAPRON FIBERS -U-

AUTHOR-(02)-NOSOV, M.P., SKRIPNIK, S.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (1) 4-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAPRONE, SYNTHETIC FIBER, TEXTILE ENGINEERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0482 STEP NO--UR/0183/70/000/001/0004/0007

CIRC ACCESSION NO--AP0107087

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 014 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0107087

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EQUATION RELATING THE BIREFRINGENCE (DELTA N) OF UNSTRETCHED KAPRON (I) FIBERS, RATE OF FLOW OF I MELTS THROUGH THE SPINNERET, SPINNING RATE, AND DIAM. OF I FIBER WAS DERIVED FROM EXPTL. EVIDENCE AND LITERATURE DATA. THE PRELIMINARY ORIENTATION OF I FIBERS WAS AFFECTED BY HEAT TRANSFER EFFECTS DURING FIBER FORMATIONS. THE PROBABLE CAUSE FOR THE STATISTICAL VARIATION OF DELTA N IN I FIBERS WAS THE NONUNIFORM BLOWING (I.E., AIR VELOCITY PAST THE FIBERS IN THE CENTER IS LESS THAN THAT PAST THE OUTER FIBERS) OF DISCRETE FIBERS DURING YARN FORMATION.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 622.323(477)6)

SKRIPNIK, V. A., ZHELEZNOV, P. A., KLYAROVSKIY, G. V., and KISEL', V. A.

"Prospects for Development of Lelyakov Petroleum Deposits With Consideration of Liquid Overflow Between the P_{1+2} and P_3 Strata"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 6, Nov-Dec 70, pp 30-33

Abstract: Three levels of oil deposits are being exploited in Lelyakov area: P_{1+2}, P_3, and K_1. P_{1+2} yields 1.5-30 t/day, P_3 -- 15-210 tons per day, while K_1 is only of secondary importance. Oil overflows from P_3 level to P_{1+2} where there is no clay barrier between them, and in wells exploiting both levels. The pressure in P_{1+2} layer is about 26-30 kG/cm^2 lower than in P_3. Lelyakov deposits are among the richest ones in Ukraine. It is proposed to increase the yield to about 200-250 t/day by drilling more wells, and preventing the overflow from P_3 to P_{1+2} by building up the pressure in P_{1+2} through the input of water. It has been calculated that approximately 3 million m^3 of water per year will be needed to keep the pressure in P_{1+2} at 160 kG/cm^2.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 536.53:536.423

PAVLOV, P. A., SKRIPOV, V. P.

"An Experimental Installation for the Study of Explosive Boiling"

Moscow, Izmeritel'naya Tekhnika, No 10, Oct 70, pp 42-44

Abstract: A platinum wire, 0.02 mm in diameter, is used as a quick-response temperature sensor in an installation for studying boiling at fluctuation centers with massive heat release. An electronic circuit with oscillographic presentation was assembled, which made it possible to measure the temperature of the wire at the moment of explosive boiling (T*). The measurement error does not exceed several degrees. The experiments were conducted at different pressures. Good agreement was obtained between T* and the temperature of intensive fluctuation nucleus formation, calculated according to kinetic theory. Simultaneously with the oscillographic measurements, at atmospheric pressure the wire is photographed through a microscope. 2 figures, 1 table, 6 bibliographic entries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SOME PROBLEMS ASSOCIATED WITH THE BOUNDEDNESS OF SOLUTIONS -U-

AUTHOR--SKRIPNIK, V.P.

COUNTRY OF INFO--USSR

SOURCE--UKRAINSKII MATEMATICHESKII ZHURNAL, VOL. 22, NO. 2, 1970, P. 203-213

DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, CHEMISTRY

TOPIC TAGS--BOUNDARY VALUE PROBLEM, LINEAR DIFFERENTIAL EQUATION, NONLINEAR DIFFERENTIAL EQUATION, SOLUTION PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0567 STEP NO--UR/0041/70/022/002/0203/0213

CIRC ACCESSION NO--AP0121239

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0121239 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF SYSTEM UNRESOLVED WITH RESPECT TO THE HIGHER DERIVATIVES, INCLUDING CASES WHERE MATRICES COMPOSED OF DERIVATIVES ARE DEGENERATE. THEOREMS CONCERNING THE BOUNDEDNESS OF SOLUTIONS (AND THE DERIVATIVES OF THE SOLUTIONS) ARE FORMULATED AND PROVED. BOUNDEDNESS CRITERIA ARE OBTAINED WHICH DEPEND ON THE CHARACTERISTIC NUMBERS OF THE SYSTEM MATRICES AND ON THE LINEAR GROUPS. THE RESULTS OBTAINED ARE IN A CERTAIN SENSE A GENERALIZATION OF SKRIPNIK'S (1961, 1962) BOUNDEDNESS CRITERIA FOR SOLUTIONS TO SYSTEM OF NONLINEAR AND LINEAR DIFFERENTIAL EQUATIONS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC: 621.317.77

KUCHERENKO, G. N., SKRIPNIK, Yu. A., and YAKOVLEV, B. F.

"Experimentally Estimating the Accuracy of Electronic Phasemeters"

V sb. Vopr. uluchsheniya tekhn. parametrov vypryamit. i tranzist. priborov (Problems of Improving the Technical Parameters of Rectifiers and Transistorized Devices--collection of works) Leningrad, 1970, pp 213-216 (from R2h-Radiotekhnika, No. 3, March 71, Abstract No. 3A361)

Translation: An indication is given of the high accuracy of phasemeters as checked by phase rotators and by the "self-checking" principle. A description is given of the method of "equal segments" based on the physical compatibility of 0° and 360° values, i.e., on the use of the natural standard of the 360° phase shift. The accuracy of the verification of this method is determined basically by random errors in indications of zero and readout values on the readout device. Bibliography of two. E. L.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC: 621.317.725(088.8)

SKRIPNIK, Yu. A., NIZHENSKIY, A. D., TSAREVA, N. M., Institute of Electrodynamics, Academy of Sciences of the UkrSSR

"A Selective Microvoltmeter With Fixed Passband"

USSR Author's Certificate No 259264, filed 7 Jun 68, published 23 Apr 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A276 P)

Translation: In conventional circuits of selective microvoltmeters, the voltmeter readings are considerably dependent on the frequency of the input signal, temperature and the warm-up time of the instrument, which leads to appreciable measurement errors. The proposed device differs from existing instruments in the fact that the heterodyne inputs of the balance mixers of the amplification and conversion channel are interconnected and also connected to the heterodyne input of the balance mixer in the comparison channel; the output of the DC comparison channel is connected to the amplification control circuit of the difference frequency amplifier in the amplification and conversion channel. This type of connection prevents measurement error due to variations in temperature and in the warm-up time of the instrument. Resumé.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 539.67

DARINSKIY, B. M., and SKRIPNIKOV, V. A.

"Internal Friction in Substitute Solid Solutions"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, 1970, Izd-vo "Nauka," pp 47-54

Abstract: An investigation is made of the dependence of the tensor defect of elastic moduli on concentration and orientation in a high-temperature approximation for body-centered, face-centered, and hexagonal close-packed lattices by methods of statistical mechanics. The interaction in all coordination spheres is taken into account. The frequency dependence of the modulus defect is discussed. 5 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC:539.12.173

ABDULLAYEV, R.S., GURVICH, L.G., ZAKHAROV, G.E., POLYAK, YU.V. and SKRIPNIKOV, YU.S.

"Experimental Determination of Energy Release due to Radiation in Certain Construction Materials"

Tashkent, Sb. Dozimetriya i Radiats. Protsessy v Dozimetr. Sistemakh (Symposium on Dosimetry and Radiation Processes in Dosimetric Systems), 1972, pp 197-200 (from Referationyy Zhurnal-Yadernyye Reaktory, 1973, Abstract No 3.50.78)

Translation: Investigation results are presented on static temperature distribution inside a sphere located in the radiation field of a reactor, specific heat release for various metals was determined. Calculation of specific heat release was based on the assumption of uniform and exponential distribution of heat release sources through the depth of the material. Measurement of temperature field inside the sphere provided data on absorption on gamma-radiation by lead. 1 illustration. 2 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

BEL'SKIY, G. Ye., SKRIPNIKOVA, R. A.

"Design of Non-Centrally Compressed Metal Rods with Various Curves of Initial Moments"

Novye Metody Rascheta Stroit. Konstruktsiy [New Methods of Design of Structures -- Collection of Works], Moscow, Stroyizdat Press, 1971, pp 191-195, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V555 by the author's).

Translation: Results are presented from investigation of the load-bearing ability of non-centrally compressed rods with various terminal eccentricities. Rods of materials following the Prandtl diagram are studied; the variability of regidity along the length of the rod due to the development of plastic deformations is considered. A table is presented of relative corrections to the basic case of non-central compression, allowing rather simple design of metal rods with various curves of initial moments. It is noted that in many cases, the load-bearing ability of such elements can be increased (up to 35-40% depending on type of curve of initial moments) in comparison with calculation according to the applicable norms.

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USSR UDC 621.382.002

KLETCHENKOV, I.I., SKRIPOV, F.A., CHIERUK, A.N.

"Study Of The Protective Properties Of Organosilicon Compound"

V sb. Vopr. mikroelektroniki (Problems Of Microelectronics-Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 181-189 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B492)

Translation: The results are presented of a study of the electrical properties of an organosilicon compound based on Vaseline and of tests on the stability of the amplification factor β of a type P-416 transistor with protection by this compound. An evaluation of the effectiveness of the protection was conducted by a method developed at the Department of Dielectrics and Semiconductors of the Kiev Polytechnical Institute. It is shown that organosilicon Vaseline is a promising protective material because of the technological nature of the process of deposition at the p-n junction, the high electrical properties, and the hydrophobic nature. A mixture of it with zeolite does not entirely answer the requirements for high stability of the parameters of the semiconductors. Zeolite considerably impairs the electrical properties of the compound and increases the absorption of moisture. 5 ill. I.M.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC: 535.36+535.518

KOLPAKOV, Yu. D. and SKRIPOV, V. P.

"Measuring the Degree of Depolarization of Dispersed Light Near the Carbon Dioxide Critical Point Using a Helium-Neon Laser"

Leningrad, Optika i Spektroskopiya, Vol. 29, No. 4, 1970, pp 761-764

Abstract: It is asserted that there is little experimental work on the degree of depolarization of the scattered light near the critical point, since the observation results are complicated by multiple scattering. The authors, however, suggest a method of reducing the multiple scattering in a stratified solution in which the components have closely similar indices of refraction. In the experiments described in this paper, the light originated in a helium-neon laser LG-34K, with a wavelength of 0.633 μm and an angular divergence of 0.5'. The experimental apparatus has been described in detail in earlier articles published in the journal named above (Yu. D. Kolpakov and V. P. Skripov, 19, 1965, p 392; 24, 1968, p249). The measurement of the degree of depolarization was conducted in a narrow temperature interval in the neighborhood of the CO_2 critical point, the critical temperature being 31.06° C and the critical pressure 74.0 bars.

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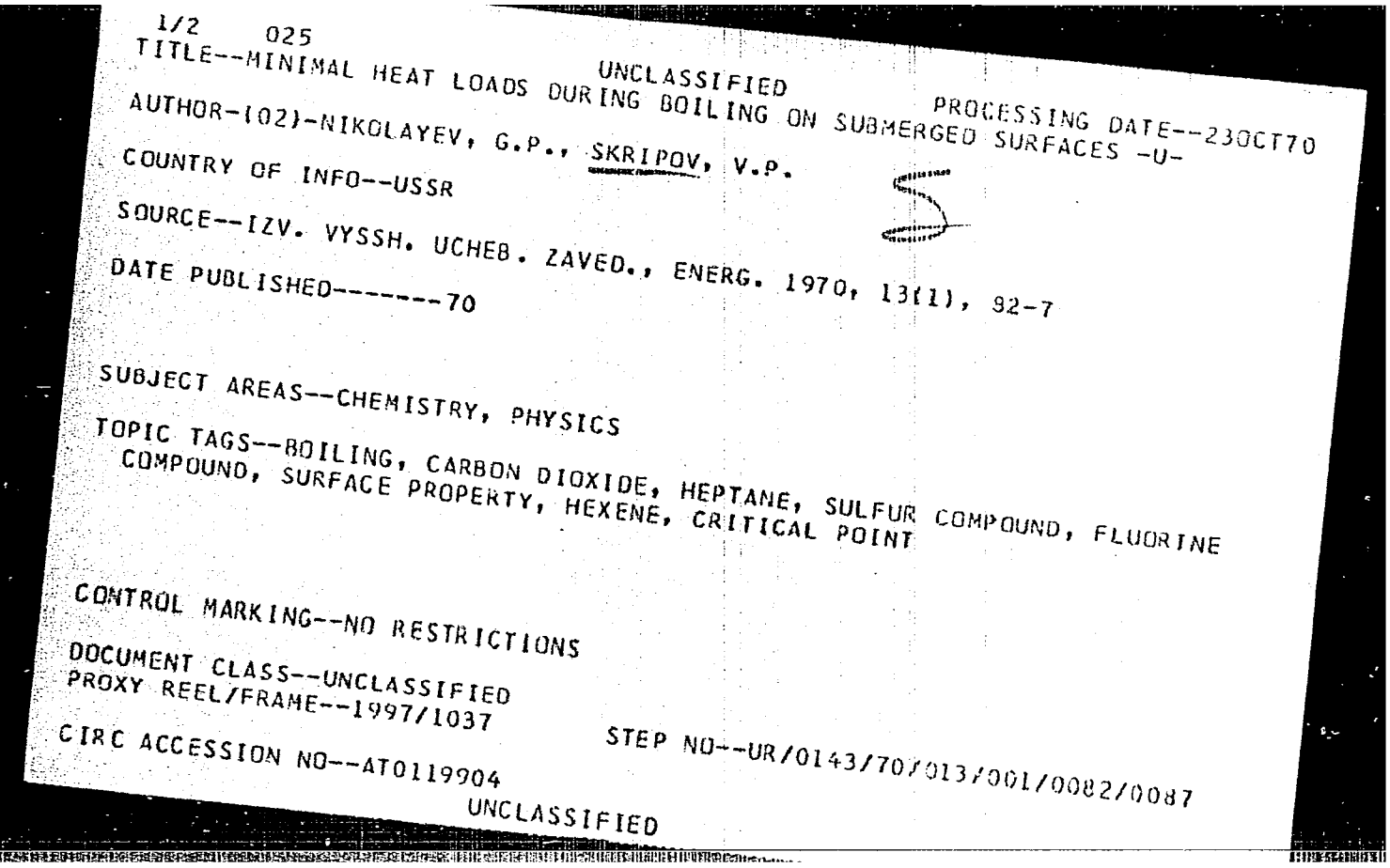

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--MINIMAL HEAT LOADS DURING BOILING ON SUBMERGED SURFACES -U-

AUTHOR-(02)-NIKOLAYEV, G.P., SKRIPOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., ENERG. 1970, 13(1), 92-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--BOILING, CARBON DIOXIDE, HEPTANE, SULFUR COMPOUND, FLUORINE COMPOUND, SURFACE PROPERTY, HEXENE, CRITICAL POINT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1037

STEP NO--UR/0143/70/013/001/0082/0087

CIRC ACCESSION NO--AT0119904

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119904

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MIN. HEAT LOADS DURING BOILING ON SUBMERGED SURFACES CLOSE TO CRIT. REGION WERE MEASURED FOR CO SUB2, SF SUB6, C SUB7 H SUB16, AND C SUB6 H SUB12 AND THE VALUES OBTAINED WERE COMPARED WITH VALUES OBTAINED BY CALCN. ACCORDING TO SEVERAL PUBLISHED FORMULAS. FACILITY: URAL. POLITEKH. INST. IM. KIROVA. SVERDLOVSK, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8"

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USSR

UDC 541.12.017

DAVYDOV, Yu. P., YEFREMENKOV, V. M., and SKRIPTSOVA, A. V.

"Polymerization of U(VI) Hydroxocomplexes in Solutions"

Leningrad, Radiokhimiya, Vol 15, No 3, 1973, pp 452-454

Abstract: The polymerization of U(VI) hydroxocomplexes was studied by the dialysis method proposed in earlier work by Davydov (DAN BSSR, Vol 15, No 1, 43, 1971). Solutions of $^{238}UO_2(NO_3)_2$ and $^{233}UO_2(NO_3)_2$ in HNO_3 at various values of pH were subjected to dialysis, using a cellophane membrane. The concentration of U in the solutions was determined on the basis of the alpha-radiation emitted by ^{233}U. At pH 4.0 and 5.0 no U was retained by the membrane in the concentration range of $UO_2(NO_3)_2$ that was subjected to study (10^{-6}-10^{-4}M) -- hence, only monomeric forms of uranyl were present. At pH 6.0 the degree of polymerization (the average number of U atoms per molecule) was constant in the entire concentration range and equal to 1.7. At pH 6.5 the degree of polymerization of U hydroxocomplexes was considerably higher at low concentrations of U ($1X10^{-5}$M) than that at pH 6.0. With increasing concentrations of U, the degree of polymerization decreased. At pH 7.0 and concentrations $\geq 1X10^{-5}$M, a precipitate of uranium hydroxide formed. Dialysis of the supernatant solution showed that polymeric forms were present in it to a considerable extent in

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

DAVYDOV, Yu. P., et al., Radiokhimiya, Vol 15, No 3, 1973, pp 452-454

addition to the monomeric form. The results of experiments in which $UO_2(NO_3)_2$ solutions were subjected to ultrafiltration confirmed those obtained by the dialysis method.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC: 621.318.58

SKRITSKIY, L. G., BUDYANOV, V. P., KALMAKOV, A. A., KRIVONOSOV, A. I., MILANOVICH, V. A., SHEVELEV, V. Ya., Moscow Construction Engineering Institute imeni V. V. Kuybyshev

"A Photo Relay"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 16, Jun 71, Author's Certificate No 303672, Division H, filed 18 Jun 69, published 13 May 71, pp 189-190

Translation: This Author's Certificate introduces a photo relay which contains interconnected photoreceiver, two groups of stabilitrons with different stabilization voltages and two transistors. Connected in the collector circuit of the first of the transistors is the winding of an electromagnetic actuating relay. As a distinguishing feature of the patent, tuning is facilitated and the accuracy with which the electromagnetic relay operates as a function of the light flux is increased by connecting the cathodes of all stabilitrons through switches to the centertap of a photoresistive voltage divider, connecting the anodes of stabilitrons with lower stabilization voltage to the base of the first transistor, and connecting the anodes of stabilitrons with higher stabilization voltage to the base of the second transistor. The collector-emitter junction of this transistor shunts the winding of the electromagnetic relay.

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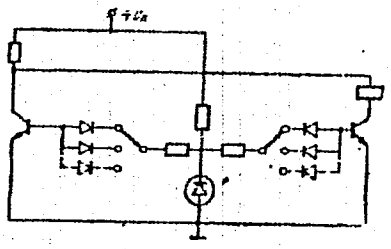
SKRITSKIY, L. G., USSR Author's Certificate No 303672



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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

72 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TLE--MATHEMATICAL PLANNING USING THE EPOXIDATION OF UNSATURATED COMPOUNDS USING UREA PEROXIDE TO OBTAIN THE MAXIMUM EPOXY NUMBER -U-

THOR-(05)-MALINOVSKIY, M.S., DUBROV, YU.I., VEDENOV, G.N., KARTSYNEL, N.B., SKRODSKAYA, T.S.

UNTRY OF INFO--USSR

URCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (2), 29-31

TE PUBLISHED--------70

BJECT AREAS--CHEMISTRY, MATERIALS

PIC TAGS--UREA DERIVATIVE, PEROXIDE, PHTHALIC ANHYDRIDE, ETHANOL, EPOXIDE, VEGETABLE OIL

NTROL MARKING--NO RESTRICTIONS

CUMENT CLASS--UNCLASSIFIED

OXY FICHE NO----FD70/605019/B08 STEP NO--UR/0303/70/000/002/0029/0031

RC ACCESSION NO--AP0140903

UNCLASSIFIED

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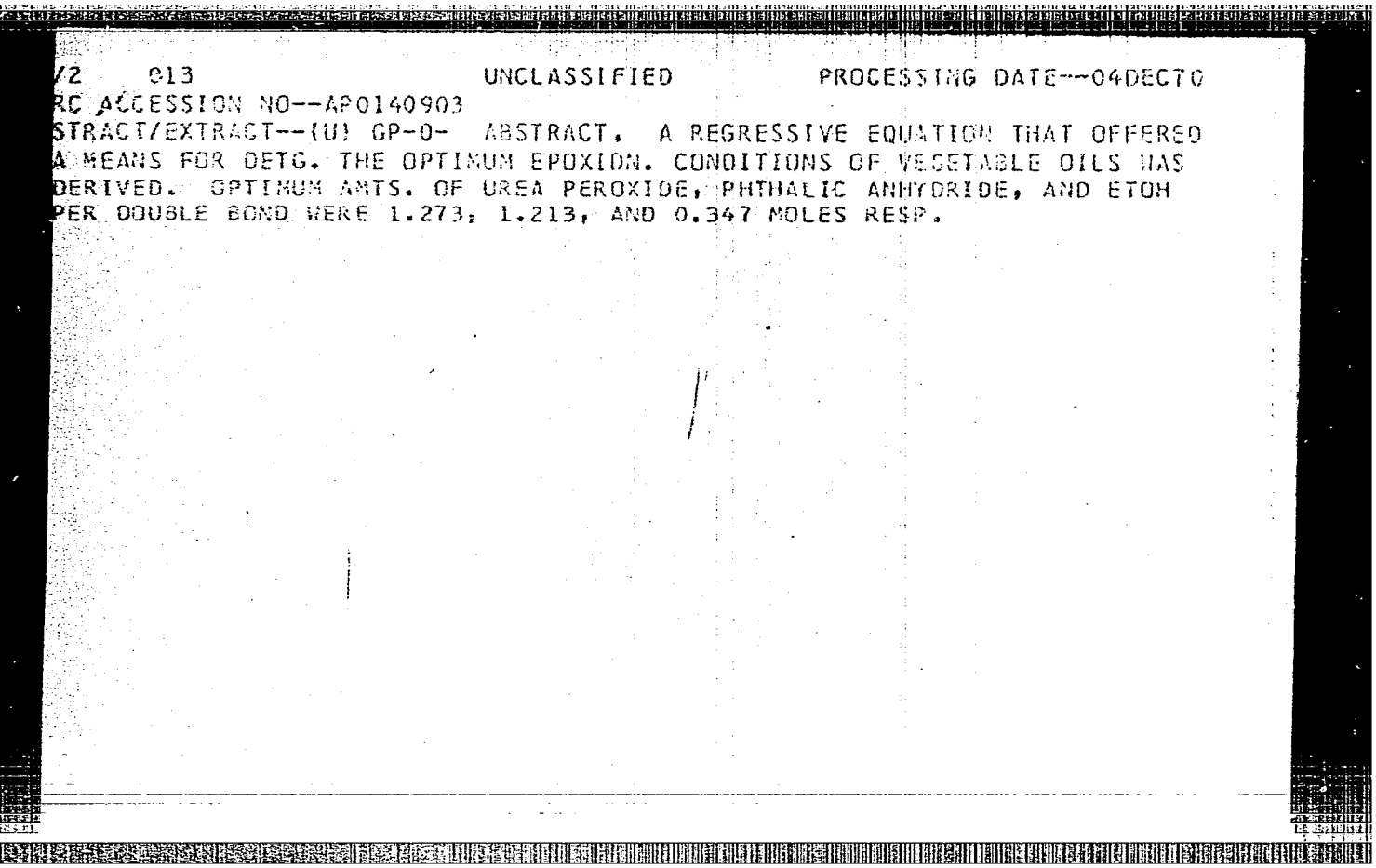

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/2    013                    UNCLASSIFIED          PROCESSING DATE--04DEC70
RC ACCESSION NO--AP0140903
STRACT/EXTRACT--(U) GP-0-  ABSTRACT.  A REGRESSIVE EQUATION THAT OFFERED
A MEANS FOR DETG. THE OPTIMUM EPOXION. CONDITIONS OF VEGETABLE OILS WAS
DERIVED.  OPTIMUM AMTS. OF UREA PEROXIDE, PHTHALIC ANHYDRIDE, AND ETOH
PER DOUBLE BOND WERE 1.273, 1.213, AND 0.347 MOLES RESP.
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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC: 621.373.531.3

SKROMYATNIKOV, V. P.

"A Sawtooth Generator Based on Transistors Connected in a Circuit Equivalent to a Four-Layer Diode"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Technology. Scientific and Technical Collection. Monitoring and Measuring Equipment), 1970, vyp. 2 (20), pp 130-132 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G283)

Translation: The author describes a circuit whose operation approaches that of a thyratron oscillator. It is based on a pair of transistors connected in a circuit equivalent to a thyristor (T1 base -T2 collector -T2 base - T1 collector). A sawtooth is formed as a result of the limitation on the charge of the capactior connected between the emitters of both transistors. The duration of the sawtooth is determined by the time constant of the network made up of this capacitor and a resistor in the emitter circuit of T2, while the amplitude is determined by the ratio of the supply voltage to the transistor actuating voltage (for a given linearity and duration). Bibliography of seven titles. N.S.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

SKROTSKIY, B. V.

UDC 550.838.002.56

A QUANTUM FLUXMETER FOR MEASURING WEAK AND VERY WEAK MAGNETIC FIELDS WITH A SUPERCONDUCTING QUANTUM INTERFERENCE SENSOR

[Article by Ye. N. Pestov and B. V. Skrotskiy; Leningrad, Geofizicheskaya Apparatura, Russian, No 45, 1971, pp 24-28]

Either the phenomenon of quantizing magnetic flux in an SC circuit [Pestov, Skrotskiy, 1970] or a phenomenon sensitive to it of the coherent electron fluxes interference [Dmitrenko, 1968; Zimmerman, Silver, 1966] may be considered the basis of the operation of magnetometers with superconducting sensors (SC).

It is well known that a magnetic flux passing through an SC circuit is quantized; that is to say, it is an N-time integer of the flux quantum $\Phi_0 = 2.07 \times 10^{-7}$ maxwells. If the external field flux Φ coupled with the SC circuit is different from $N\Phi_0$, a surface current I_s appears in the circuit, generating a flux LI_s that strictly balances this difference:

$$LI_s + \Phi = N\Phi_0, \quad (1)$$

where L is the surface inductance of the SC circuit with area F.

Upon varying the external field $H = \Phi/F$, which we are going to consider as uniform within the circuit limits, current I_s oscillates, varying from zero to $I_{max} = \Phi_0/L$.

The diameter of the wire of which the circuit is made (a turn) is so selected as to have current I_s producing on its surface a magnetic field considerably smaller than the critical at which the SC begins to disintegrate.

If a contraction is produced in the circuit loop by decreasing the wire diameter sharply at any point of the turn (for example, in sections 1, 2 of Fig. 1, a) the SC may disintegrate at these points even at I_s currents, compensating

JPRS 57099
25 May 72

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1/2 035 UNCLASSIFIED

TITLE--PHYSICAL PRINCIPLES OF QUANTUM GYROSCOPICS -U-

PROCESSING DATE--30OCT7(

AUTHOR-(02)-POMERANTSEV, N.N., SKROTSKIY, G.V.

COUNTRY OF INFO--USSR

SOURCE--USPEKHI FIZICHESKIKH NAUK, VOL. 199, MAR. 1970, P. 361-394

DATE PUBLISHED----MAR70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--GYROSCOPE, QUANTUM DEVICE, PHOTON, GYRO THEODOLITE, DIRECTION FINDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1393 STEP NO--UR/0053/70/100/000/0361/0394

CIRC ACCESSION NO--AP0126931

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

2/2 035 UNCLASSIFIED PROCESSING DATE--30OCT7(

CIRC ACCESSION NO--AP0126931

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REVIEW OF THE CURRENT STATE OF THE ART IN THE FIELD OF QUANTUM GYROSCOPICS A BRANCH OF QUANTUM ELECTRONICS DEALING WITH DEVICES WHICH UTILIZE THE GYROSCOPIC PROPERTIES OF PARTICLES WHICH FORM THE WORKING BODIES OF THEIR SENSORS. PHYSICAL PHENOMENA WHICH MAY BE USEFUL FOR THE CREATION OF NUCLEAR MAGNEITC THEODOLITES, NUCLEAR GYROSCOPES, ELECTRON GYROSCOPES AND DIRECTION FINDERS WITH OR WITHOUT OPTICAL PUMPING, AND PHOTON GYROSCOPES ARE CONSIDERED. ESSENTIAL IN ALL THESE DEVICES IS THE UTILIZATION OF COHERENT ENSEMBLES OF THE MECHANICAL OR MAGNETIC PROPERTIES OF ATOMIC NUCLEI, ATOMS, ELECTRONS, OR PHOTONS. THE PHOTON RING GYROSCOPE IS NOTED AS ONE OF THE MOST PROMISING DEVICES OF THIS TYPE.

FACILITY: MOSKOVSKII FIZIKO TEKHNICHESKII INSTITUT, MOSCOW, USSR.

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USSR

VOLKOV, A. M.; SKROTSKIY, G. V.

"Effects Appearing in the Capture Zone of a Ring Laser"

Leningrad, Optika i Spektroskopiya; November, 1970; pp 965-9

ABSTRACT: For a ring laser operating partly in an isotropic medium the authors find relationships determining the dependence of the difference in phase of counterwaves and the rotation angle of the plane of light polarization on its rotational angular velocity. The effect of the stationary gravitational field caused by a rotating mass on the difference in phase of counterwaves and the rotation of the polarization plane is studied. It is shown that a static gravitational field in the first approximation does not change the state of light polarization in a ring laser.

The article includes 8 equations. There are 7 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

SKROTSKIY, G. V.

JPRS 59393

29 June 1973

APPLICATION OF DYNAMIC NUCLEAR POLARIZATION TO INCREASE THE SENSITIVITY AND SPEED OF NUCLEAR PRECESSION MAGNETOMETERS

[Article by G. V. Skrotskiy, A. P. Skromnov, V. N. Skrotskiy, and A. I. Filatov; Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 42, 1970, pp 10-17]

Despite the successful development of quantum optical magnetometers for different purposes, nuclear magnetometers continue to firmly hold their own for measurements on the earth, in outer space, and in the sea and are also used extensively for the solution of many geological problems /Rotshteyn and Tsirel', 1963/.

Nuclear precession magnetometers (NPM) have a number of essential advantages, not only in comparison with induction and ferroprobe magnetometers but also with respect to optical magnetometers. Nuclear precession magnetometers ensure high accuracy in absolute and relative measurements, do not require special temperature stabilization of the signal, do not have drift in the metering level of the signal, and their readings are practically independent of the orientation of the device's pickup in space relative to the direction of the field being measured. In addition, NPM are reliable and operationally stable, are small and light, and are convenient to use /Waters and Phillips, 1956; Rynkov and Skrotskiy, 1961; Pomerantsev, Rynkov, and Skrotskiy, 1967/.

The standard operating conditions of NPM are ensured by prior magnetization or polarization of the actuating material of the pickup. Polarization is usually realized by passing a direct current through the coil of the pickup. This current creates a rather strong constant magnetic field, which is called the polarizing field, in the volume of the actuating material. Under the influence of this field, the actuating material is magnetized after a certain time. After nonadiabatic switching off of the polarizing field, free precession of the nuclear magnetic moments of the actuating material that are oriented by this field develops about the direction of the measured magnetic field. The precessing moments induce an EMF in the coil

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that created the magnetizing field or in another, separate coil. The fre-
quency of this EMF is associated in a simple manner with the magnitude of
the measured external field.

The advantage of the use of this method of polarization in NPM,
which was first proposed by Packard and Varian in 1953, is explained not
so much by the exceptional simplicity of its realization as by the high re-
liability of the operation of the scheme as a whole. The scheme of the de-
vice includes a pickup containing the actuating material, an amplifier of
the free precession signals, a measuring-recording device, a source of po-
larizing voltage, and a commutating device that ensures periodic switching
of the pickup from the polarizing voltage source to the input of the pre-
cession signal amplifier.

However, in addition to the enumerated virtues, NPM with polariza-
tion of the actuating material by a strong constant magnetic field have a
number of deficiencies. The major deficiency, which is due to the method
used to create polarization of the actuating material, consists in the un-
avoidable cyclic character of the operation of the magnetometer. As a re-
sult, a pause, during which the field is not measured, develops during time
intervals that are of the order of or greater than the spin-lattice relaxa-
tion time. In the actuating materials that are currently being used, the
time expended in polarization several times exceeds the measurement time and
amounts to one to several seconds.

A certain time, which is greater, the more accurately the frequency
must be measured, is needed for the measurement of the precession frequency.
The method of free precession therefore makes it possible to measure the
magnetic field strength, averaged for the measurement time, and for this
reason does not make it possible to detect changes in the magnetic field
that occur during the measurement. An increase in the rate of operation of
the magnetometers inevitably results in a loss in the accuracy of the mea-
surements. These peculiarities of NPM are not always acceptable for practi-
cal purposes (Rotshteyn and Tsirel', 1963; Amosov, Rotshteyn, and Tsirel',
1969).

The low magnitude of the nuclear precession signal should also be
included among the inadequacies of nuclear precession magnetometers. In
order to ensure the necessary signal-noise ratio and to obtain high sensiti-
vity (and, consequently, accuracy in the measurements), it is necessary to
use an extremely large volume of actuating material and a strong polarizing
field. However, even these measures are not always effective. When the
volume of the pickup is increased, the nonuniformity of the measured field
begins to have a stronger effect, and this leads to rapid attenuation of the
precession signal and to an increase in the error in the measurements. How-
ever, the polarizing field strength can be increased only up to definite
values. Substantial technical difficulties associated with the necessity
for ensuring the nonadiabatic switching off of this field and also with the
thermal operation of the pickup develop at strong (above 500 Oe) fields. In

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203030003-8

USSR

UDC 621.375.82

MOSYAKIN, Yu. S., SKROTSKIY, G. V.

"A Hologram as an Optical Element. (Survey)"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 3, Moscow, "Sov. radio," 1972, pp 3-12 (from RZh-Fizika, No 1, Jan 73, Abstract No 1D976)

Translation: Problems associated with the development and application of holographic optical elements are discussed. Existing optical elements do not always fully satisfy the requirements of coherent optics. The properties and application of analogs of lens-holographic zone plates are discussed. Hologram multipliers can be developed on the basis of such hologram lenses. Holographic diffraction grids and certain devices in which they are used are described. Holographic elements operating without the use of additional optical attachments, in which their advantages aremost clearly evident, are considered. The possibility of developing complex holographic devices carrying out functions which were impossible to achieve by means of classical optics is discussed. Authors' abstract.

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SKRYABIN, A. S.

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UDC: 612.017.1.014.482

SPECIFIC IMMUNITY TO SMALL DOSES OF GAMMA RAYS IN DOGS AFTER 2-4-YEAR EXPOSURE (IMMUNOLOGICAL AND IMMUNOCYTOCHEMICAL ANALYSIS)

[Article by I.V. Konstantinova, A.S. Skryabin, V.M. Zemskov, Yu.K. Veysfeyler, I. Tokay, I. V. Vasil'yev, [illegible] Markelov; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 10, 1971, pp 22-29]

Galactic cosmic irradiation the cumulative dosage of which, according to estimates, could constitute 50-100 rem [roentgen equivalent man] over a one-year flight and acute recurrent exposure to solar corpuscular irradiation in a dosage of 5-50 rem per burst (V.G. Bobkov et al.; Schaefer) are factors that are continuously present during prolonged space flights. The prognosis of man's condition under these conditions and substantiation of levels of permissible exposure of cosmonauts during prolonged space flights constitutes a rather complex problem.

The mechanisms of onset of radiation sickness after exposure to relatively large doses of ionizing radiation have been studied in numerous investigations. There are many works dealing with immunological reactivity under such conditions, and they have been summarized in monographs and textbooks (R.V. Petrov; N.N. Klemparskaya et al.; V.L. Troitskiy et al., and others). Yet the changes in immunological processes in the organism referable to exposure to small doses of ionizing radiation have not been investigated sufficiently.

It has been demonstrated that 4-5 months after fractional or continuous exposure to 1.3-2.5 rem daily there is a significant decrease in immunity to infections (P.N. Kiselev and P.A. Buzini; D.R. Kaulen; E.K. Dzhikidze).

In the present investigations, some manifestations of specific immunity were analyzed during a unique complex chronic experiment.

A large group of dogs has been continuously exposed to gamma rays (cobalt 60) for several years. For the first three years of the experiment the animals were exposed to radiation such as could be present for the crew of a spacecraft during a flight from the earth to Mars and back to earth, provided the radiation conditions are relatively stable ["calm"] (Yu.G. Grigor'yev et al.)

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Navigation Aids

UDC: 621.371.332.3

USSR

SKRYABIN, A. S.

"The Effect Which Depolarization of Radio Waves has on the Maximum Effective Range of Radio Altimeters"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1970, vyp. 208, pp 84-89 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G32)

Translation: A survey is given of experimental works dealing with the effect which depolarization of radio waves has on the maximum effective range of radio altimeters. Studies were done both with actual reflecting surfaces (ground, sea and planetary surfaces) and with artificial models. It is shown on the basis of an analysis of the results that the effect of depolarization on radio altimeter operation may be eliminated when flying above broken terrain covered with vegetation where the levels of the parallel and orthogonal components of the field are comparable; this is accomplished by joint reception of two orthogonal components. In flights over the sea, the effect of depolarization may be disregarded. Four illustrations, bibliography of thirteen titles. M. S.

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USSR

SKRYABIN, D. D.

"Effective Sequential Estimation"

Vestn. Leningr. Un-ta [Herald of Leningrad University], 1973, No 7, pp 50-56 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V114)

Translation: The problem of effective sequential estimation of natural parameters of binomial, multinomial and multidimensional Wienerian processes is studied. Based on the Rao-Kramer inequality, effective plans and parameters effectively estimating the functions are found. Results of De Groot concerning binomial estimation are extended to unlimited sequential plans. Linear plans of the form $\{\gamma: x(\gamma) = ky(\gamma) + m\}$ and $\{\gamma: y(\gamma) = kx(\gamma) + m\}$ and only these plans were found to be effective.

Functions of the form $\phi(p) = a\frac{q}{p - kq} + b$ and $\phi(p) = a\frac{p}{q - kp} + b$ can be effectively estimated. In multinomial walks, which are studied for the first time, the planar plans $\{\gamma: a_1 x_1(\gamma) + a_2 x_2(\gamma) + \ldots + a_l x_l(\gamma) = b\}$. These plans allow effective estimation of functions of the form

$$f(p) = C\phi_p + d,$$

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UDC 576.895.1(0:01)

USSR

SHUMAKOV, Ye. Ye., Compiler, and SKRYABIN, K. I., Editor

Stroitel'stvo Gel'mintologicheskoy Nauki i Praktiki v SSSR (Development of Helminthology and Practical Applications in the USSR), Vol 5, Bibliography, Moscow, "Nauka," 1972, 619 pp

Translation: Annotation: This volume lists the Soviet publications on general, medical, and veterinary helminthology from 1961 to 1967 that were used in discussing various aspects of helminthology in volumes 1 to 4 in the series Stroitel'stvo Gel'mintologicheskoy Nauki i Praktiki v SSSR, 1963-1969.

The book is aimed at helminthologists, veterinarians, physicians, zoologists, and biologists of all kinds.

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SHUMAKOV, Ye. Ye., and SKRYABIN, K. I., Stroitel'stvo Gel'mintologicheskoy Nauki i Praktiki v SSSR, Vol 5, Bibliography, Moscow, "Nauka," 1972, 619 pp

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USSR

SKRYABIN, K. I., Academician, Hero of Socialist Labor, Lenin Prize, Laureate

"Whales and Dolphins"

Moscow, Knizhnoye Obozreniye, 20 Aug 71, p 4

Translation: In recent years in the Soviet Union, much research has been done on the biology of marine mammals: whales and dolphins. The interest displayed in these animals is quite understandable. It was found that dolphins have many interesting properties, which prompted bionic study of their life. At the same time, it was found that dolphins are remarkably kind and friendly and easily learn various difficult tricks. This prompted a completely new trend in the study of dolphins. Currently, dolphins are being investigated not only by biologists but also by psychologists, engineers, linguists, and acousticians.

In view of this broad, multifaceted investigation of dolphins, it is strange that our literature has not had a single review on the world's cetaceans. Now, such a review has been written. By the end of 1971, the Nauka Publishing house will issue a voluminous monograph Kity i Del'finy (Whales and Dolphins) by three authors: Doctor of Biological Sciences A. V. Yablokov

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SKRYABIN, K. I., Knizhnoye Obozreniye, 20 Aug 71, p 4

and Candidates of Biological Sciences V. M. Bel'kovich and V. I. Borisov. The authors are well known to Soviet and foreign readers, since in 1965 and 1967 the Molodaya Gvardiya Publishing House published two popular books written by them: Zagadka Okeana (The Ocean's Puzzle) and Nash Drug Del'fin (Our Friend the Dolphin). These books were translated into a number of languages in our country, and they were also published in Japan and Poland.

The distinguishing feature of this new book about whales and dolphins is its monographic nature. In it, the reader will find information on the structure of organ systems in cetaceans, a description of their way of living (food intake, reproduction, distribution, behavior, and so on), and information on the origin of these mammals and on their enemies and parasites. The final chapter offers a brief description of all currently known types of whales and dolphins. The book also has a most complete bibliography on cetaceans, with over 1,500 references to domestic and foreign publications.

This comprehensive approach, which includes not only the authors' own information but also data by world investigators, offers a description not only

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