"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

Photoelectric Effect

USSR

UDC 621.385.831 (088.8)

VISHNEVSKIY, N.K., LAPSHIN, V.G., RYKALIN, V.I., SOLYANIK, V.I., AHROMOV, V.P.

"Method For Determining The Point Of Impact On A Photocathode Of Short Light Pulses"

USSR Author's Certificate No 266083, filed 2 Oct 68, published 2 July 70 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A261P)

Translation: A method is proposed, consisting of the determination of the time of flight of photoelectrons, and differing from the known in increased precision, attainable by the fact that the input chamber of the photomultiplier is placed in a crossed electrical and magnetic field (the vector of the magnetic field intensity lies in the plane of the photocathode). The resolving power is ~5 bands per mm. N.S.

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USSR

LAPSHIN, V. G., RYKALIN, V. I., SHUVALOV, R. S.

UDC 621.3.087

"Procedure for Recording Weak Light Fluxes"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 12 May 70, p 60, Patent No 270910, Filed 15 Mar 68

Translation: This Author's Certificate introduces a procedure for recording weak light fluxes based on invariability and the shape of the single-electron pulse from a photomultiplier. In order to separate the signal from noise, the time interval between the beginning and the center of gravity of the output pulse of the photomultiplier is measured, the average time interval between the beginning and center of gravity of the noise pulse of the photomultiplier is sutracted from the measured value. The light pulse is considered recorded if the indicated difference exceeds some value predetermined by the experimental conditions.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--MEASUREMENT OF THE BRIGHTNESS TEMPERATURE OF THE EARTH'S ATMOSPHERIC EMISSION IN THE SUBMILLIMETER BAND FROM A HEIGHT OF 35 KM

AUTHOR-(05)-LAPSHIN, V.I., SALOMONOVICH, A.E., SOLOMONOV, S.V., TROITSKIY, V.F., FRADKOV, A.B.

COUNTRY OF INFO--USSR

SOURCE--IZVYUZ, RADIOFIZIKA, VOL. 13, NO. 3, 1970, P. 388-394

DATE PUBLISHED--------70

SUBJECT AREAS--NAVIGATION, PHYSICS, ATMOSPHERIC SCIENCES

TOPIC TAGS--RADIOMETER, RADIO BRIGHTNESS TEMPERATURE, SUBMILLIMETER WAVE, RADIO EMISSION, ATMOSPHERIC RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0846 STEP NO--UR/0141/70/013/003/0388/0394

CIRC ACCESSION NO--AP0110567

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 030 UNCLASSIFIED

CIRC ACCESSION NO--AP0110567 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A RADIOMETER AND THE RESULTS OF PRELIMINARY MEASUREMENTS OF THE BRIGHTNESS TEMPERATURE OF THE EARTH'S ATMOSPHERIC EMISSION, TAKEN AT A HEIGHT OF 35 KM AT WAVELENGTHS FROM 0.5 TO 2MM. THE SENSITIVE ELEMENTS OF THE RADIOMETER CONSISTED OF N-TYPE INSB PHOTORESISTORS COOLED TO LIQUID HELIUM TEMPERATURE. ANGULAR DISTRIBUTIONS OF BRIGHTNESS TEMPERATURE WERE OBTAINED IN THE VERTICAL PLANE. THE NATURE OF THE DISTRIBUTION AND THE RELATIVELY LOW BRIGHTNESS TEMPERATURE INDICATE THAT THE MAIN CONTRIBUTION TO THE SUBMILLIMETER RADIATION IS MADE BY THE RELATIVELY COLD UPPER LAYERS OF THE ATMOSPHERE. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

1/2 025 UNCLASSIFIED

TITLE--SUBMILLIMETER ASTRONOMY -U- PROCESSING DATE--02OCT70

AUTHOR--LAPSHIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZEMLIA I VSELENNAIA, JAN. FEB. 1970, P 47-53

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--ASTRONOMIC OBSERVATION, RADIO WAVE, SUBMILLIMETER WAVE, ATMOSPHERE, ELECTROMAGNETIC WAVE ABSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1878 STEP NO--UR/0384/70/000/000/0047/0053

CIRC ACCESSION NO--AP0104208

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 025

UNCLASSIFIED

CIRC ACCESSION NO--AP0108208 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE DIFFICULTIES AND POTENTIAL BENEFITS OF ASTRONOMICAL OBSERVATIONS IN THE SUBMILLIMETER SPECTRAL RANGE LYING BETWEEN IR WAVELENGHTS AND MILLIMETER RANGE RADIO WAVES. THE SIGNIFICANT AMOUNT OF ATMOSPHERIC ABSORPTION AT THESE WAVELENGTHS NECESSITATES THE USE OF HIGH ALTITUDE OBSERVATORIES, AIRCRAFT, AND SATELLITES. STUDIES OF ATMOSPHERIC ABSORPTION ARE DESCRIBED, AND ATTENTION IS GIVEN TO OBSERVATIONS OF THE SOLAR SYSTEM. COSMOLOGICAL PROBLEMS WHICH COULD BE STUDIED WITH SUBMILLIMETER ASTRONOMY ARE OUTLINED, INCLUDING MEASUREMENTS OF RELICT RADIATION IN THIS SPECTRAL INTERVAL. EXPERIMENTAL DIFFICULTIES THAT MUST BE OVERCOME ARE EVALUATED.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--A DIFFERENTIATING FABRY PEROT INTERFEROMETER -U-

AUTHOR-(03)-KOLOSHNIKOV, V.G., LAPSHIN, V.I., RAGIMOV, F.YA.

COUNTRY OF INFO--USSR

SOURCE--PRIBORY I TEKHNIKA EKSPERIMENTA, JAN.-FEB. 1970, P. 179-182

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FABRY PEROT INTERFEROMETER, EMISSION SPECTRUM, FREQUENCY CHARACTERISTIC, DIFFERENTIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1552 STEP NO--UR/0120/70/000/000/0179/0182

CIRC ACCESSION NO--AP0106298

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106298

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE DESIGN OF A SCANNING FABRY PEROT INTERFEROMETER WHICH MAKES IT POSSIBLE TO OBTAIN THE DERIVATIVES OF AN EMISSION SPECTRUM WITH RESPECT TO FREQUENCY. THE PRINCIPLE OF OPTICAL DIFFERENTIATION IS BRIEFLY OUTLINED, THE COMPONENTS OF A FABRY PEROT INTERFEROMETER DESIGNED FOR USE IN THE MILLIMETER WAVE RANGE ARE ENUMERATED, AND THE RESULTS OF A CHECK OF THE OPERATION OF THIS INTERFEROMETER ARE CITED. FACILITY: AKADEMIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ACTION OF OXYGEN ON FERROUS CHLORIDE AT HIGH TEMPERATURES -U-

AUTHOR-(03)-TETEREVKOV, A.I., VILNYANSKIY, YA.YE., LAPSHINA, M.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 487-91

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IRON CHLORIDE, OXYGEN, TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0305 STEP NO--UR/0080/70/043/003/0487/0491

CIRC ACCESSION NO--AP0113235

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113235

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING ACTION OF O SUB2 ON FECL SUB2 AT 673-703DEGREES, FE SUB2 O SUB3 AND CL ARE FORMED AS WELL AS THE INTERMEDIATE PRODUCTS, FE SUB2 CL SUB6 AND CEOCL. THE VALUE FOR THE ACTIVATION ENERGY OF THIS PROCESS IS 11,480 CAL-MOLE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

UDC 613.646:612.591

AZHAYEV, A. N., and LAPSHINA, N. A., Moscow

"Functional State of the Human Body Under Conditions of Overheating"

Moscow, Gigiyena Truda i Professionallnyye Zabolevaniya, No 6, Jun 1971, pp 6-10

Abstract: Since man is subjected to a high environmental temperature in various types of jobs, it is of importance to study the heat resistance of man. Several functional shifts in the human body during heat exposure under various conditions were studied. Test subjects were kept in a temperature chamber with an air and wall temperature of 60°. The relative humidity was 20-25% and the movement of the air was 0.2-0.3 m/sec. The changes in the functional state of the body were studied every 10-20 minutes. The tests were terminated when a subject (one of 46 apparently healthy young men of 20 to 30 years) experienced a 2-degree rise in body temperatures or twice the normal pulse rate. The respiratory and circulatory functions were studied. The pulmonary ventilation was found to be reduced at low levels of hyperthermia. Two different types of cardiovascular reactions were observed when the test subjects had been exposed to appreciable overheating. In one type a certain decrease in systole and a rise in the volume of the pulmonary circulation were

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

AZHAYEV, A. N., and LAPSHINA, N. A., Gigiyena Truda i Professionallnyye Zabolevaniya, No 6, Jun 1971, pp 6-10

observed. In the other type both systole and circulation volume dropped. It is suggested that for the prevention of a heat stroke in an overheated body, the state of the cardiovascular system should be ascertained from the changes in circulation volume and systolic discharge of the heart, from the unit peripheral resisance, the intensity of the left heart contractions, the blood ejection rate and the nature of certain changes observed in some of the electrocardiographic waves.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC: 621.3.049.75

GODOVITSYN, Ye. V., USMANOV, R. A., BELYAKOV, V. M., LAVRENCHEV, V. P., LAPSHINOVA, Zh. V., VIKULINA, N. V.

"A Method of Making Thin-Film Circuits"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 27, 1970, Soviet Patent No 279726, Class 21, filed 20 Dec 68, p 53

Abstract: This Author's Certificate introduces a method of making thin-film circuits based on forming circuit conductors on a dielectric substrate by means of an acid resist made from modified rubber, and coating the conductors with a layer of copper and gold. As a distinguishing feature of the patent, adhesion of the resist to the metallized substrate is improved by coating the substrate with a layer of iron over which the resist is applied.

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MHD

(9)

JPRS 61609

29 March 1974

RESEARCH ON MATERIALS FOR THE MANUFACTURE OF OPEN-CYCLE MHD GENERATOR ELECTRODES

[Article by G. V. Samsonov, V. M. Sleptsov, G. G. Gnesin, V. S. Fomenko, I. A. Podchernyayeva, Yu. K. Lapshov (Institute of Problems of Hydrology, [illegible] (Institute of Industrial Thermophysics, Academy of Sciences UkrSSR), E. P. Strashnin (Institute of Electrodynamics, Academy of Sciences UkrSSR); Kiev, Issledovaniye Materialov dlya MGDG Otkrytogo Tsikla, Russian, 1971, pp 393-409]

Annotation

Presented in this paper are the results of testing of gas-permeable blown electrodes under model MHD conditions. The tests revealed that the erosion resistance of protected materials is increased by a factor of 80 to 100 while the current density is 2-3 A/cm^2 (in the distributed discharge mode) and up to 20 A/cm^2 in the arc mode.

The interaction between air plasma containing compounds of alkali metals as additive, and the surface of electrodes, protected by blowing and without protection, was investigated. The results of tests of electrodes made of nonporous polycrystalline silicon carbide, produced by the reaction sintering method, are presented in this work. The physical properties which govern the operational performance of the electrodes are analyzed. It is established that long-term operation of the electrodes does not result in change of the phase composition and properties of polycrystalline silicon carbide. Erosion and chemical destruction occurs only on the surface of electrodes.

The composition of the film formed on the surface of a silicon carbide electrode during operation in contact with plasma containing potassium additive is analyzed. It is shown that the continuously forming silicate film substantially increases the emissivity of silicon carbide.

The electrode of an MHD generator should satisfy two main requirements: a) resistance to the aggressive action of the plasma jet for a long

LAPSHOV, Yu.K.

[I - USSR - L]

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

UDC: 8.74

USSR

LAPTEV, A. A.

"Finding Coefficients of Multiple Linear Regression"

Tr. Zap.-Sib. n.-i. geologorazved. neft. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 34-43 (from RZh-Kibernetika, No 10, Oct 1972, abstract No 10V637 [author's abstract])

Translation: A program is compiled in Minsk-22 computer codes for evaluating the coefficients of a system of linear equations relating two random vectors. This program may be used in various geological jobs. author's abstract.

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USSR

UDC 621.791.052.4.011:620.192.4:669.14.018.44

LAPTEV, A. A., LYUBALIN, P. M. (Candidates of Techn. Sciences), BELOTELOV, I. N., KULIKOV, F. R., and MANUYLOV, N. N. (Engineers)

"Certain Strength Characteristics of Weld Joints From VNS2 and VNS5 High-Strength Stainless Steels"

Moscow, Svarochnoye proizvodstvo, No 6, June 72, pp 29-31

Abstract: Argon-arc welding is widely used for welding structures from VNS2 and VNS5 high-strength stainless steels. It is not always possible, however, to heat-treat these structures after welding. Repeated heating in back runs may, therefore, affect the joint strength. The objective of this study was to rate the reliability of repaired structures in order to develop an efficient repair welding technology. Auxiliary welding without subsequent heat treating of argon-arc-welded butt joints from VNS5 steel markedly decreases their static strength. Welds from VNS2 steel are not affected to such an extent by auxiliary welding. Back runs of argon arc-welded butt joints from VNS2 steel substantially increase their susceptibility to cracking in blow-bending tests; this was not observed in joints from VNS5 steel. Surface plastic strain hardening of weld joints and weld-affected areas markedly increases the static strength of argon-arc

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USSR

LAPTEV, A. A., et al., Svarochnoye proizvodstvo, No 6, June '72, pp 29-31

welded joints from VNS2 and VNS5 steels and their combinations. Hardening fully compensates for the drop in static strength caused by auxiliary welding. Hardening hardly affects the susceptibility of weld joints to cracking in blow-bending tests with the exception of weld joints made from VNS2 + VNS5 steels. (2 illustrations, 3 tables)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 669.112227.342:669.017.3

BERNSHTEYN, M. L., and LAPTEV, D. V., Moscow Institute of Steel and Alloys

"Martensite Decomposition of High-Nickel Steels During Tempering"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 115-120

Abstract: Decomposition was studied in the process of tempering martensite steels 60N20 and 80N18 which had been subjected to standard hardening, high-temperature thermomechanical treatment (HTTT) and low-temperature thermomechanical treatment (LTTT), and the effect of repeated quenchings from different initial states on martensite decomposition was also investigated. Chemical composition of the investigated steels was:

	C	Ni	Mn	Si	S	P
60N20	0.61	20.44	0.12	0.20	0.010	0.004
80N18	0.80	18.46	0.11	0.25	0.010	0.001

Only processes of two-phase decomposition were detected during tempering at room temperature. For development of single-phase decomposition processes an increased temperature is necessary. HTTT slows and LTTT speeds up the pro-

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

BERNSHTEYN, M. L., and LAPTEV, D. V., Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 115-120

cesses of martensite tempering. The inheritance of austenitic structural features by the martensite determines the occurrence of low-temperature tempering processes in the martensite. Four figures, one table, seven bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

Thermomechanical Treatment

USSR

UDC 669.24:539.4

BERNSHTEYN, M. L., VLADIMIRSKAYA, T. K., LAPTEV, D. V., and CHUYAN, A.N.,
Moscow Institute of Steel and Alloys

"Stability of the Thermomechanical Strengthening Effect in Donzo Nickel Steel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 403-408

Abstract: The effect of repeated heating after prior thermomechanical treatment on the properties and structure of austenite and martensite was studied for 60N20 steel which had the following chemical composition (in %): 0.61 C, 20.44 Ni, 0.11 Mn, 0.18 Si, 0.010 S, and 0.001 P. Temperatures of the direct M_s and inverse A_s martensite transformation were -35 and +420°C, respectively. Results of mechanical tests and electron microscopy examinations showed that the effect of thermomechanical strengthening is preserved during the repeated heatings to 650 and 950°C, followed by quenching, because the accelerated heating promotes growth in the strength properties of the austenite and martensite as a result of phase cold hardening. The morphological features, forming in the austenite during repeated quenching, are the result of the reverse alpha-gamma transformation. In austenitic samples, subjected to high-temperature thermomechanical treatment with repeated quenching, preservation of the developed polygonal

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USSR

BERNSHTEYN, M. L., Fizika Metalloy i Metallovedeniye, Vol 35, No 2, Feb 73, pp 403-408

structure can be observed. Dislocation structures formed in the austenite are caused by the combined action of thermomechanical treatment and phase cold hardening during the gamma-alpha-gamma transformation. 5 figures, 6 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 669.15 539.67

LAPTEV, D. V., BERNSHTEYN, M. L., BASINA, N. Z., and ZAYMOVSKIY, V. A., Moscow Institute of Steel and Alloys

"The Change of the Amplitude Dependence of Internal Friction of Nickel Steels After Thermomechanical Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 408-410

Abstract: A study was made of the amplitude dependence of internal friction of 40N25, 60N20, and 80N18 steels after thermomechanical treatment. Wire specimens, 250 mm long and 0.9 mm in diameter, were subjected to thermomechanical treatment and hardening. The specimens were drawn at 550 and 950°C. Martensite was produced by deep cooling in liquid nitrogen; its quantity comprised 86-90%. The amplitude dependence of internal friction (ADIF), investigated at room temperature, is characterized by the tangent of the angle of slope α of a straight line in ε-Q^{-1} coordinates. The austenite ADIF shows an increase of tgα with decreasing deformation temperature and increasing carbon content in the steel. The change of tgα of martensite of 60N20 steel and the change of the level of its internal friction, depending on the tempering temperature, are discussed by reference to diagrams. Four figures, one table, four bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 669.15'24-194:621.789

BERNSHTEYN, M. L., KAPUTKINA, L. M., IAPTEV, D. V., and NIKISHOV, N. A.,
Moscow Institute of Steel and Alloys

"Effect of Austenite Deformation on the Properties of Nickel Steels

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 25-30

Abstract: Described is a study on the effect of deformation at 950°C (high-temperature strain hardening/HTSH/) and 550°C (low-temperature strain hardening/LTSH/) on the properties and martensitic structure of three steels with 0.4-0.8% C, 18-25% Ni (40N25, 60N20, 80N18) and martensitic points <0°C. The study included mechanical tests, x-ray diffraction analyses of both martensite and the volume of the low-carbon phase, as well as electron microscopic analyses of foils. The thermal stability of the state of strain hardening following reheating in a salt bath at 950°C was also studied. The mechanical properties of the steels following HTST were found to be higher than after conventional treatment. Upon deformation at various temperatures, the austenite appears to have a well developed dislocation substructure which is then inherited by the martensite and markedly affects the tempering

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

BERNSHTEYN, M. L., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 25-30

processes. Repeated rapid hardening from 950°C retains the effect of thermal strain hardening. The dislocation structures in the austenite "inherit" some of the features of the initial dislocation structures. (6 illustrations, 1 table, 5 bibliographic references).

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 669.15:539.4

BERNSHTEYN, M.L., LAPTEV, D.V. and BARAZ, A.R., Moscow Institute of Steels and Alloys

"Effect of Deformation Temperature on the Austenitic Properties of Nickel Steels"

Sverdlovsk, Fizika Metallov i Metallovadeniye, Vol 31, No 2, Feb 71, pp 414-415

Abstract: A study was made of the properties of austenite in nickel steels subjected to deformation at different temperatures. The nickel steels investigated were 40N23, 60N19, and 80N15. The degree of deformation for initial diameters of 3.5 and 2.9 mm was 40 and 20%, respectively. The following temperatures were selected for deformation: 900-950°C (high-temperature mechanical treatment) and 550°C (low-temperature mechanical treatment). Data obtained from the study showed that for HTMT the redistribution of carbon does not enter into later stages of segregation formation, not forming precipitations of the second phase, since the lattice parameter of austenite after quenching and HTMT is practically the same for all the studied alloys. In the case of LTMT the picture is different. The austenite lattice parameter is smaller after quenching and HTMT. This is a direct indication of the precipitation of carbon from the solid solution in the form of dispersed carbides. In the past the authors observed that after LTMT the carbides precipitated into dislocations.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

BERNSHTEYN, M.L., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31 No 2, Feb 71, pp 414-415

Smaller values of the lattice parameter were observed for alloy 60N19 in comparison with alloy 40N23, which was apparently associated with the prevailing influence of nickel. 2 figures, 2 tables, 5 bibliographical references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 533.933

BYKOVSKIY, YU. A., DEGTYAREV, V. G., DEGTYARENKO, N. N., YELESIN, V. F., LAPTEV, I. D., NEVOLIN, V. N., Moscow Engineering-Physics Institute

"Kinetic Energies of Laser Plasma Ions"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol XLII, No 3, 1971, pp 658-661

Abstract: The mass-spectrometric method was used to study the ion composition and distribution of ions with different z with respect to energy in the last stage of dispersion of a substance. A transit time mass-spectrometer with an electrostatic analyzer was used in the experiments. A study was made of the maximum energy of the ions E_{max} of a laser plasma as a function of the radiation flux density in the range of $q \sim 10^8$-10^{11} watts/cm^2. The value of E_{max} was obtained as a function of the ion mass. The domain of weak dependence of $E_{max} = f(q)$ was detected in the 10^8-10^9 watts/cm^2 range. The integral spectrum was determined by the energy distributions of the ions with different charge. Values obtained for α_1, q_2 (the flux densities) and γ_1 [illegible] α_1 ($E \sim q^{\alpha}$ where n is the total number of charged particles and $E_{max} \sim q^{\gamma_1}$) are tabulated for Be, Al, Ti, Co, [illegible] and [illegible] for bismuth with a flux density of $10^8 \leq q \leq 10^{11}$ watts/cm^2, the region of weak dependence of $E_{max} = f(q)$ was detected. This 1/[illegible]

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gees with the calculated values of q_1' and q_2' (the boundary values of the radiation flux density range of the gigantic laser pulse in which phase transition conditions exist).

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USSR UDC: None

FILONCHIK, A. V., MEDVEDKOV, V. I., MAN'KO, V. V., and LAPTEV, I. I.

"Device for Solving Partial Differential Equations"

Moscow, Otkrytiya. izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 29, 1973, Author's certificate 389521, p 179

Abstract: This device contains a grid model and a control unit. The inputs to the latter are connected to a program unit, while its outputs are joined to an output switch and a unit for specifying the boundary conditions of the grid model. Its distinctive feature is an auxiliary grid model which shortens the time for solution of the partial differential equation and has the effect of simplifying the structure of the device. The interconnections of this auxiliary grid model with the other units are given.

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Single Crystals

USSR UDC 669.725:621.785.78

GINDIN, I. A., LAPTEV, I. N., NEKLYUDOV, I. M., PAPIROV, I. I., and TIKHINSKIY, G. F., Physicotechnical Institute of the Academy of Sciences UkrSSR

"Change of the Anisotropy of the Resistance to Plastic Deformation of Beryllium Single Crystals After Program Loading"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 808-814

Abstract: A study was made of the effect of preliminary programmed loading along the c-axis on the crystal shear stresses in different crystallographic planes of beryllium single crystals. Results of the investigation of the influence of annealing under continuously progressive loading on the anisotropy of the resistance to plastic deformation indicate that program loading lowers the strength of crystals in their tests along the c-axis; but the critical shear stresses on the basal planes, on the other hand, increase approximately by 50%. As a result of the non-additive reaction of the program loading on the shear stresses in different crystallographic planes, the anisotropy of the resistance

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GINDIN, I. A., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 808-814

to plastic deformation of beryllium single crystals decreases. The process of disproportionation of point defects, which is assumed to take place in single crystals by annealing under continuously increasing loading applied along the c-axis, goes in two directions: a) diffusion of admixed and intermodal atoms with their separation along basal planes and on a-dislocations, and b) diffusion of vacancies generatable by creeping of a-dislocations with formation of prismatic loops of c-dislocations. Three figures, 13 bibliographic references.

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Single Crystals

USSR UDC 669.72.548.55.539.4

GINDIN, I. A., LAPTEV, I. V., NEKLYUDOV, I. M., TIKHINSKIY, G. F.

"Change in Anisotropy of Plastic Deformation of Beryllium Single Crystals Following Programmed Loading"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 1, Jul 72, pp 160-165

Abstract: The influence of preliminary programmed loading on the critical stresses of the beginning of twinning and slipping in beryllium single crystals of various orientations was studied. The single crystals were grown by the method of slow cooling of a melt in a vacuum. Programmed loading was conducted at 400°C for 30 hours using stresses not exceeding the critical stress of the beginning of twinning of crystals of the orientations used. The studies showed that extended annealing under smoothly increasing load increases the flow stress for the base planes by approximately 25% and significantly reduces the splitting stress in the other planes. It is concluded that this non-additive effect of programmed loading on shear stress in the different planes results from oriented redistribution of impurities in the volume of the crystal.

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LAPTEV N.N.

AA0043551 UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/10

242982 PULSED VOLTAGE REGULATOR. When the supply is switched on, capacitor (1) charges quickly through the diode (2). Further diode (2) does not take part in the regulation. When transistor (3) is ON, the energy is stored in the inductance (5), but when transistor (3) is off the energy is supplied through the diode (6) to the capacitor (1). In this way the voltage across the capacitor (1) is kept constant.

15.1.68 as 1209419/24-7. I.K. SMOLNIKOV & N.N. LAPTEV. (23.9.69) Bul 16/5.5.69. Class $21a^4$, $21a^2$. Int.Cl.H 02m.

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19761995

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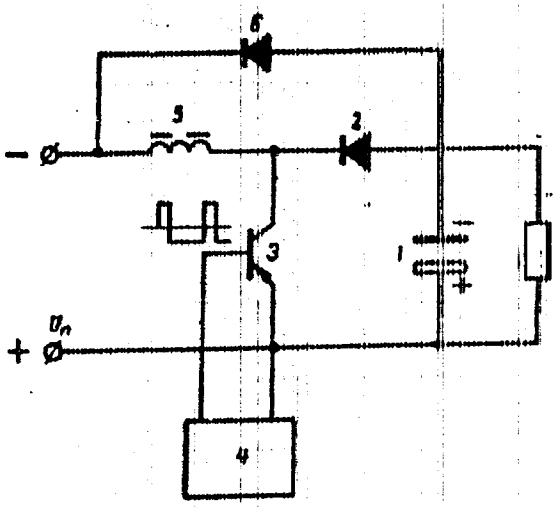

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19761996

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 2/70

242977 POWER TRANSISTORS. Shortcomings of the known controls is the circulation of parasitic currents in the controlling circuits when the power transistor is switched off. Therefore an additional winding is introduced in the path of the emitter-base of the power transistor and collector-emitter of the driving transistor. Applying switching ON voltage through the transformer (3) to the transistor (4), power transistor (1) is energized. Turning off voltage is applied to the transformer (2), transistor (4) is turned off and through the diode (5) the power transistor (1). In the fig.2, the windings (7) and (8) are used to regulate switching on and off voltages 26.6.67 as 1170161/24-7. N.N. LAPTEV. (17.9.66) Bul. 16/ 5.5.69. Class 21a^2. Int. Cl. H 02 m.

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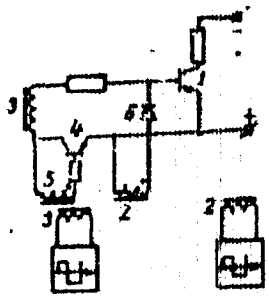
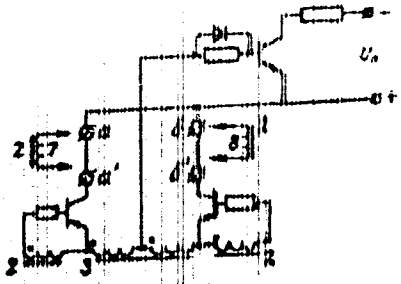


Фиг.1



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USSR

UDC 621.396.61:621.311.6(088.8)

LAPTEV, N. N.

"Device for Pulse Width Control of Transistors"

USSR Author's Certificate No 251665, Filed 17 Jan 68, Published 30 Jan 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D307P)

Translation: This author's certificate introduces a device for pulse width control of a transistor containing a variable rectangular voltage generator and an input transformer the secondary windings of which are connected to the transistor input via the corresponding blocks for shaping the unblocking and blocking signals. In order to increase the efficiency and protect the device from overloads, the unblocking signal shaping unit is equipped with an auxiliary transformer the primary winding of which is connected at the midpoint to the collector of the indicated transistor and by the ends through the decoupling diodes to the corresponding winding of the input transformer, and the secondary winding is connected via a rectifier and a resistor to the control junction of this transistor. The proposed device can be used in stabilizers.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC: 621.039.553.3

LAPTEV, N. YA., SPITSYN, V. I., and BALEZIN, S. A., Institute of Physical Chemistry, Academy of Sciences USSR

"Dissolution of Neutron-Irradiated Iron and Steel"

Moscow, Zashchita Metallov, Vol 6, No 1, Jan-Feb 70, pp 23-26

Abstract: A comparative study of the dissolution of radioactive and nonradioactive specimens of Armco-iron and 45-steel in acid solutions was carried out. Crystal lattice defects caused by neutron irradiation accelerate metal dissolution in acid, and the dissolution rate for radioactive specimens is slightly greater. The occurrence of a positive charge in the presence of oxide films or insoluble corrosion products is one of the factors responsible for inhibiting the corrosion of the β-radioactive metal. Saturated calomel was used as the comparison electrode.

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USSR UDC: 537.291

KANASHEVICH, V. I., LAPTEV, S. V., RYBIN, S. M., and CHURSIN, G. P.

"Measuring the Paths of Charged Particles in a Material"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, July-August 1972, pp 43-45

Abstract: The instrument described in this paper is a further development of a device for measuring the path of charged particles in a material as a function of the particle energy. The method of the instrument involves measuring the energy spectrum of the particles in a cyclotron beam after their passage through a target using 30 pieces of the material. Drawings of the instrument are given, together with a textual explanation. The device was used to determine the energy of a beam on various materials in order to study excitation reaction functions evoked by deuterons on a ^{59}Co nucleus; a curve is plotted for the energy spectrum of the deuteron elastic scattering. A curve for the path of alpha particles in Al as a function of the particle energy is also shown. The work was done at the Institute of Nuclear Physics, Kazakh Academy of Sciences, at Alma-Ata.

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USSR UDC 546.26-126+549.07+549.211

BEZRUKOV, G. N., BUTUZOV, V. P., LAPTEV, V. A., All-Union Scientific Research Institute for the Synthesis of Mineral Raw Materials, Aleksandrov, Vladimirskaya Oblast

"The Growth Kinetics of Artificial Diamond Crystals of Different Habitus Types"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1088-1091

Abstract: In research on the growth kinetics of artificial diamond crystals of different habitus types, the following conclusions were obtained. The thermodynamic conditions of crystallization, and particularly the temperature regimes, determine the predominant development of diamond crystals of a strictly defined habitus. The number of crystallization centers is also a function of the thermodynamic conditions, the determining parameter being pressure. The duration of crystallization substantially affects the rate of origination of diamond crystallization centers, which then form various habitus types, only during the first 120 seconds. Subsequently, during the investigated time interval, the rate of origination of the centers is practically constant. The rate of crystal growth of all the habitus types de-

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BEZRUKOV, G. N. et al, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1088-1091

pends essentially upon duration of the synthesis also only in the first stage (up to 30 seconds). In the course of time this relationship is relaxed, expressing a very smooth decrease of the growth rates. 4 figures, 1 reference.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 546.26-123+549.07:549.211

BEZRUKOV, G. N., BUTUZOV, V. P., and LAPTEV, V. A., All-Union Scientific Research Institute of Mineral Raw Material Synthesis, Aleksandrov Vladimirskoy Oblast

"Growth Kinetics of Synthetic Diamond Crystals of Differing Habit Types"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1088-1091

Abstract: A study was made of the pressure and temperature relationships in the growing of diamond crystals from which five morphological habit types were distinguished: I -- cubes, II -- cubes with truncated faces of an octahedron, III -- an intermediate form between a cube and octahedron -- a cubic octahedron, IV -- an octahedron with truncated cube faces and V -- octahedron. By experimentation it was established that nucleation of crystals occurs for the entire crystallization time interval, and that high temperatures and pressures facilitate the formation of twins and concretions the formation of which occurred at increased growth rates.

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USSR

BEZRUKOV, G. N., et al., Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1088-1091

At the minimum possible temperature for a given pressure type II crystals are formed in most cases with some formation of type I habits. A prevalent formation of type III crystals occurs at comparatively high parameters. Habit types IV and V form at even higher temperatures. By plotting the number of crystallization centers against temperature m, m+110°, m+220° and m+310° C and number of centers against pressures m, m+3, and m+6 kbars the authors were able to determine the maximum number of crystallization centers formed for each crystal habit type before a smooth drop starts. For habit types III, two centers of crystallization form four at m+110°; one crystallization center for habit type IV forms a maximum of two centers at m+220°; and for one crystallization center for type V there are about four centers formed. On the other hand if a multitude of crystallization centers initially form then the maximum number of centers resulting increases quite rapidly. For example, 28 crystallization centers of type V formed approximately 266 centers at m+220°. The data mentioned here for the high number of crystallization centers formed was for a pressure of m+6 kbars. The same evidence was observed for increasing pressure while holding temperature constant, with extreme being notee for high temperatures and high pressures.

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BEZRUKOV, G. N., et al., Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1088-1091

In plotting growth rate against time it was noted that maximum growth rate occurs at the 15 second mark for a pressure of m+3 kbars and temperature of m+110 C (excluding type I). The maximum growth rates were (in mm/sec): 0.06 for type III, 0.052 for IV, 0.042 for type V and 0.03 for type II.

From this experiment the authors made the following conclusions: 1) thermodynamic conditions of crystallization and especially temperature modes determine the prevalent development of diamond crystals of a strictly specified habit; 2) the number of crystallization centers is a function of the thermodynamic conditions whereupon the determining factor is pressure; 3) duration of crystallization time renders a substantial effect on the rate of crystallization center formation which then forms different habit typesonly in the course of the first 120 seconds. Furthermore, in the course of the investigated time interval the rate of center formation is practically unchanged; 4) growth rate of crystals of all the habit types also depends essentially on the synthesis time only in the first stage (up to 30 seconds). With the passage of time this relationship deteriorates, reflecting a very smooth decrease in growth rates. Four figures, 1 bibliographical reference.

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USSR UDC 551.510.721:539.12.05:621.039.524.4-97

KNYAZEV, V. A., KOTIKOV, P. I., LAPTEV, Y. P., and CHECHETKIN, YU. V.

"Control of the External Environment of Atomic Electric Power Plants With a Boiling Water Reactor"

Moscow, Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 18-21

Abstract: A brief outline is given of the program used to control the external environment of an atomic electric power plant with a boiling water reactor. Data are presented on the mean diurnal discharge intensity, the wind rose diagram, and the amount of atmospheric precipitation during operation of atomic electric power plants with fuel elements which are not gas-tight, the mean annual results of measuring the β-activity of samples of the external environment taken at distances of 1 and 65 km from the ventilation pipes of atomic electric power plants compared with data on the discharge intensity of radioactive gases, and the intensity of the radiation exposure dose locally caused by flaring radioactive gases under various meteorological conditions and for various intensities of discharge through the ventilation pipes.

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KNYAZEV, V. A., et al., Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 18-21

The results of measuring the radioactive fallout and radiometric analysis of the snow, soil, and vegetation samples permit the conclusion to be drawn that with a gas discharge intensity up to 1,000 curies/day, the contribution of the eliminated radioactive waste to the total activity of various objects of the external environment is not noticeable against the background of global fallout. The experimental values of the exposure dose intensity were used to calculate the absorbed radiation doses caused by an active cloud in the vicinity of the atomic electric power plant in a year. These estimates demonstrated that with a radioactive gas discharge intensity of 1,000 curies/day the absorbed radiation dose at a distance of more than 3 km from the ventilation center does not exceed 0.05 rads/year.

From the investigated data and the operating experience it has been concluded that two programs must be developed for controlling the external environment: for normal operating conditions of the atomic electric power plant, and for the occurrence of emergency discharge of radioactive substances into the external environment. Both control programs are outlined.

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USSR

KNYAZEV, V. A., et al., Atomnaya Energiya, Vol 29 No 1, Jul 70, pp 18-21

It is noted that the total number of samples and measurements is multiplied by 5 or 10; times in the case of an emergency situation.

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USSR

LAPTEV, V. I.

"Problems of Constructing Program Modules and Relief Storage Modules of the Structure of a Dynamic Control of a Communications Network"

V sb. Avtomati i upr. (Automata and Control--collection of works), Moscow, Nauka, 1972, pp 104-114 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V506)

Translation: This paper is devoted to the principles of constructing program modules and relief storage modules for the structure of the dynamic control of a communications network. The structural schematics of the modules are presented and a detailed study is made of the construction of the assemblies entering into the modules. Several versions of constructing the microinstruction counter are proposed from the point of view of obtaining the maximum speed from it. For the relief storage module stories are made of two versions of allocation of the relief matrix in the storage device. The functional schematics are presented for both versions.

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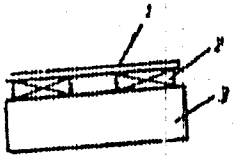
Soviet Inventions Illustrated, Section II Electrical, Derwent, 2/70

243974 RECEIVER FOR ACOUSTIC SIGNALS. When an acoustic signal is applied to the diaphragm (1), eddy currents are generated in it. Their interaction with the magnet (3) magnetic field generates an e.m.f. in the coil (2). As the diaphragm mass is small, the receiver reproduces without distortion the shape of the applied signal within a wide frequency range.



20.10.67 as 1191772/18-10. BAKSHEEV.A.F.et alia. KUIBYSHEV PETROLEUM IND.RES.INST.(3.10.69) Bul 17/ 14.5.69. Class 42a. Int.Cl.B 06b.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

AA0044748

AUTHORS: Bashkeyev, A. F., Yerusalimskiy, I. N., Kalinkin, G. M., Kudashov, N. V., Laptev, V. V., Sakharov, Yu. I., Fedoseyev, A. M., Kilov, L. Z.

Kuybyshevskiy Nauchno-Issledovatel'skiy Institut Neftyanoy Promyshlennosti

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 621.396.67:624.074

LAPTEV, Yu. P., PUSHKIN, V. N., TIMOHENKO, B. V., SHENDENOV, A. E.

"A Device for Orienting an Antenna With Respect to Azimuth and Polarization"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, Feb 72, Author's Certificate No 327545, Division H, Filed 11 Sep 70, published 26 Jan 72, p 156

Translation: This Author's Certificate introduces a device for orienting an antenna with respect to azimuth and polarization. The device contains a mechanism for azimuthal rotation fastened on a fixed base, a mechanism for rotation of polarization, and a high-frequency rotating coupler securely fastened to the frame which carries the antenna. As a distinguishing feature of the patent, the overall dimensions are reduced and remote control of antenna orientation is simplified by coupling the output shaft of the polarization rotating mechanism through a differential to the speed reducer of the azimuthal rotation mechanism and through a pinion to the tilting sector regulator. The output shaft of the polarization rotator is coaxial with the movable part of the rotating coupler. The tilting sector regulator is made in the form of a lever-and-linkage mechanism kinematically connected to the azimuthal rotator.

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1/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SOLUTION OF TWO DIMENSIONAL PROBLEMS CONCERNING ELASTIC PLASTIC STRAINS AND CREEP, USING A COMPUTER -U-

AUTHOR-(03)-AMELYANCHIK, A.V., GUTOROVA, YU.S., LAPTEVA, V.T.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 58-62

DATE PUBLISHED----MAR70

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

TOPIC TAGS--ELASTICITY THEORY, MATHEMATIC EXPRESSION, COMPUTER APPLICATION, STRAIN, STRESS ANALYSIS, CYLINDRIC SHELL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0111 STEP NO--UR/3663/70/002/000/0058/0062

CIRC ACCESSION NO--AP0123883

UNCLASSIFIED

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2/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A METHOD AND PROGRAM FOR CALCULATING THE TWO DIMENSIONAL STRESS STRAIN FIELDS UNDER ELASTIC AND ELASTIC PLASTIC STRAINS AND STEADY STATE CREEP. AN ALLOWANCE IS MADE FOR STRESS CONCENTRATIONS, REAL DEFORMATION CURVES, AND DEPENDENCE OF MATERIAL CHARACTERISTICS ON TEMPERATURE. PLATES WITH AN ARBITRARY CONTOUR ARE CONSIDERED IN THE POLAR COORDINATE SYSTEM. AS AN EXAMPLE, A CALCULATION IS MADE OF A STRESS FIELD AROUND A HOLE IN A CYLINDRICAL SHELL SUBJECTED TO ELASTIC PLASTIC STRAINS, WITH ALLOWANCE FOR THE LOADING HISTORY. FACILITY: TSENTRAL'NYI NAUCHNO-ISSLEDOVATEL'SKII INSTITUT TEKHNOLOGII I MASHINOSTROENIIA, MOSCOW, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

UDC 576.852.15.095.4.088.8

USSR

ASLANYAN, R. R., TUL'SKIY, S. V., POZHARITSKAYA, L. M., and LAPTEVA, Ye. A., Institute of Microbiology, Academy of Sciences USSR, and Chair of Biophysics, Physics Faculty, Moscow State University imeni M. V. Lomonosov

"Inhibition of Germination of Actinomycete Spores in a Constant Magnetic Field"

Moscow, Mikrobiologiya, Vol 42, No 3, 1973, pp 556-558

Abstract: Actinomycete spores were exposed to a constant magnetic field of 10,000 oersted, generated by a DC-powered electromagnet with an interpole distance of 25-30 mm. Thermoact. vulgaris 136 spores prepared as a suspension in a nutrient medium (opt. dens. 0.2) on glass slides were exposed to the magnetic field for 1.5 hr at 55°C, while those prepared as an aqueous suspension (opt. dens. 0.2) in test tubes were kept in the magnetic field for the same period but at room temperature. Act. streptomycini spores similarly prepared on slides were exposed for 5.5 hr at 28°C and those in test tubes for 1.5 hr at room temperature. Thirty minutes after completion of exposure, the spores were planted on a suitable medium and allowed to germinate for 1.5 hr at 55 and 28°C. On the whole, the number of germinating spores in the experimental samples was 6% lower than in control samples. Among Thermoact. vulgaris, the proportion of germinating spores was 46.5% in experimental vs. 55% in

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

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ASLANYAN, R. R., et al., Mikrobiologiya, Vol 42, No 3, 1973, pp 556-558

control slides and 69% in experimental vs. 72% in control tubes. Among Act. streptomycini, the corresponding figures were 47% vs. 54.5% and 44% vs. 49%. Though the mechanism of action remains to be elucidated, it is concluded that a constant magnetic field inhibits germination, possibly by preventing a reduction in the native paramagnetism of the spores.

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1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SELECTIVE TRYPTOPHAN PHOTOOXIDATION IN LYSOZYME -U-

AUTHOR-(02)-KRAVCHENKO, N.A., LAPUK, V.KH.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(1), 64-71

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRYPTOPHAN, PHOTOOXIDATION, BIOLOGIC STAIN, FLUORESCENCE, TRYPSIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0637 STEP NO--UR/0218/70/035/001/0064/0071

CIRC ACCESSION NO--AP0117863

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117863

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO PRODUCTS OF CHICK EGG LYSOZYME (EC 3.2.1.17) PHOTOOXIDIZED IN THE PRESENCE OF METHYLENE BLUE WERE ANALYZED BY PEPTIDE MAPPING, AND EACH PRODUCT WAS SHOWN TO CONTAIN ONLY 1 OXIDIZED TRYPTOPHAN RESIDUE, AT POSITION 28. FLUORESCENCE CHARACTERISTICS FOR THE 2 PRODUCTS ARE PRESENTED AND POSSIBLE REASONS FOR THE REDUCED ENZYME ACTIVITY ARE DISCUSSED. BOVINE TRYPSIN ACTS NONSPECIFICALLY ON THE ASPARAGINE OXIDIZED TRYPTOPHAN BOND OF PHOTOOXIDIZED LYSOZYME. FACILITY: N. D. ZELINSKII INST. ORG. CHEM., MOSCOW. URRS.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--GEOCHEMICAL CHARACTERISTICS OF PETROLEUMS FROM THE RECHITSA DEPOSIT -U-

AUTHOR--PRYLYUBKA, YA.M., LAPUSH, V.A., SEMYACHKA, R.YA.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1), 90-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--PETROLEUM DEPOSIT, CRUDE OIL, CHEMICAL COMPOSITION, PHYSICAL CHEMISTRY PROPERTY, METHANE, GEOCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1135 STEP NO--UR/0419/70/000/001/0090/0094

CIRC ACCESSION NO--AP0107624

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107624

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RECHITSA DEPOSIT, SITUATED IN THE SOUTHEASTERN PART OF THE PRYPYAT SYNCLINE, IS LOCALIZED IN A BRACHYANTICLINAL FOLD OF SUBLATITUDINAL STRIKE. THE DEPOSIT CONTAINS 7 OIL HORIZONS: 4 AMONG THE INTERSALT FORMATIONS (LOWER AND UPPER FAMENNIAN), 2 BELOW SALIFEROUS STRATA (SUBSALT FORMATION, FRASNIAN), AND 1 IN MIDDLE DEVONIAN CARBONATE RESERVOIR ROCKS. SAMPLES FROM 16 WELLS WERE ANALYZED. THE D PRIME20 OF OILS VARIES (0.840-0.906). THE LIGHTEST PETROLEUMS IN EACH HORIZON ARE CONCD. IN ELEVATED PARTS OF THE STRUCTURE AND THE HEAVIEST IN ITS LOWEST PARTS, I.E. CLOSE TO THE OIL WATER CONTACT. PETROLEUMS OF THE RECHITSA DEPOSIT ARE RICH IN SOLID PARAFFIN HYDROCARBONS (SMALLER THAN OR EQUAL TO 0.5PERCENT) AND HAVE HIGH F.P. CAUSED BY LARGE AMTS. OF SOLID PARAFFINS. THE DIFFERENCES IN COMPN. AND PROPERTIES OF OILS WERE ATTRIBUTED TO THE VARIABLE DEGREES OF METAMORPHISM AND SUPERGENE ALTERATION.

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USSR UDC 621.383:039.21

MOSTOVSKIY, A.A., LAPUSHKINA, L.V., KUTUZOVA, T.D., KAZAKEVICH, G.A.

"Photoelectronic Receiver With Semitransparent Photocathode"

USSR Author's Certificate No 252495, Filed 9 Nov 62, Published 9 Mar 70 (From RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A201P)

Translation: A method is proposed for increasing the sensitivity of semitransparent photocathodes by use of the phenomenon of total internal reflection with the aid of an external prism of the same material as the substrate of the photocathode. N.S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 532.74

DERYAGAN, B. V., Corresponding Member Academy of Sciences USSR, AORIN, Z. M., LAPUTINA, I. P., RABINOVICH, YA. I., and CHURAYEV, N. V., Institute of Physical Chemistry, Academy of Sciences USSR, and Institute of the Geology of Ore Occurences, Petrography, Mineralogy and Geochemistry, Academy of Sciences USSR, Moscow

"A Study of the Composition of Modified Water by Means of an Electron Probe"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 101-104

Abstract: Samples of modified H_2O that were obtained by condensation of H_2O vapor in quartz, capillaries, on quartz powder, or on plane quartz surfaces were subjected to analysis by means of an electron probe. The content of non-volatile extraneous substances was determined that were isolated by evaporation of the modified H_2O on a Cr surface. The modified H_2O contained one or several of the elements Na, C, K, Cl, S the compounds of which can form true solutions. In cases in which these elements were absent, the modified H_2O contained a sol or gel of silicic acid. The results indicated that the anomalous properties of modified water can be explained without taking recourse 1/2

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DERYAGIN, B. V., et al, Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 101-104

to the hypothesis of formation of polymeric H_2O on quartz surfaces, which was advanced before the presence of impurities in the water in question had been established. To arrive at a definite solution of the problem of a quantitative explanation of the properties of modified H_2O, the molecular composition of modified water will have to be investigated. It has been established that H_2O introduced in the liquid state into capillaries did not show a raised content of Si or Na. The raised content of these elements in modified H_2O can be explained by a higher solution capacity of freshly condensed H_2O. The authors thank I. I. Belyayeva, V. V. Berezkin, B. V. Zheleznyy, N. N. Zakhavayeva, A. I. Izmaylova, V. V. Karasev, D. S. Lychnikov, M. A. Prusakov, V. Kh. Simonova, V. D. Sobolev, and Ye. N. Kiromova for preparing samples and assisting in the experiments.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC [549.321.13+549.514.71]:548.4

BOYARSKAYA, R. V., SOBOLEVA, S. V., and LAPUTINA, I. P., Institute of the Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry, Academy of Sciences, USSR, Moscow

"The Combined Application of Microdiffraction and Electron-Sonde Analysis for the Diagnosis of Fine Inclusions in Sphalerites and Cassiterites"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, No 1, Jan 73, pp 79-85

Abstract: Some examples of the exposure of fine inclusions-admixtures in sphalerites and cassiterites, by means of electron microscopy and microro-entgenospectral analysis, are examined, and their application to specific minerals is established. Very fine dendrite-like crystals and growth of chalcosine, not visible in an optical microscope, were found in sphalerite from the Zangezur deposit. The presence of molybdenite microinclusions was established in sphalerite from the Zangezur deposit. Similar inclusions of MoS_2 found earlier elsewhere are an indication of the fact that molybdenum is not likely to enter into the ZnS lattice in the form of an isomorphic admixture, but forms predominantly an independent crystalline phase. Micro-inclusions of goethite, discovered in cassiterite from the Tubaraka deposit

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

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BOYARSKAYA, R. V., et al., Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, No 1, Jan 73, pp 79-85

(Belgian Congo), have the character of distribution and the density which are in good agreement with the intensity of the brown coloring of the zones in the mineral.

The effectiveness of the integrated use of microdiffusion and electron-sonde analysis in application to replicas with extraction has been demonstrated. This permits refinement and supplementation of the structural characteristics by data concerning the qualitative chemical composition of the investigated specimen. 11 figures. 8 references.

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USSR
ENGINEERING
Aeronautical and Space

USSR UDC 533.69.01

LAPYGIN, V. I., Moscow

"Solution to a Problem of Streamlining a V-Shaped Wing With a Strong Shock Wave at the Leading Edge"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 3, May-Jun 73, pp 114-119

Abstract: The author studies the effect of the initial and boundary conditions on the numerical solution to a problem associated with the streamlining of a V-shaped wing with supersonic leading edges. Streamlining regimes are studied in the range of attack angles close to those required for detaching the shock wave from the leading edge. Two streamlining regimes are considered: with a strong shock wave at the leading edge and a weak shock wave. The realization of the strong shock wave regime is demonstrated. This is based on an exact solution with a flat shock wave lying at the leading edges. The solution is set up in the following manner. A shock wave is strong in the plane perpendicular to the leading edge. The possibility of realizing such a solution was studied experimentally and was shown to exist. At present however there is no theoretical work on this aspect.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 533.69

LAPYGIN, V. I., and OSTAPENKO, N. A., Moscow

"Streamlining of the Leeward Side of a Conical Wing by a Supersonic Gas Flow"

Moscow, Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 112-121

Abstract: The streamlining of the leeward side of a conical wing by a supersonic gas flow is investigated on a series of differently edged triangular wings, with a view to determine the forces acting on the wing and the qualitative changes in the flow structure. The investigation includes flows at symmetrical streamlining of the wing when its fore edges are supersonic and, therefore, the flow on windward and leeward sides of the wing can be determined independently. It is hitherto not clear which one of possible flow types is realized on the leeward side of a plane triangular wing. The introduction of the cross-sectional V-angle complicates the task by possible development of qualitatively new flow conditions.
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

LAPYGIN, V. I., and OSTAPENKO, N. A., Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 112-121

For their determination was applied a previously described method (V.I.Lapygin, Ibid.:1971, No 3). The transition from shocked compression flow to underpressure flow and characteristic conditions of underpressure waves are discussed by reference to diagrams. The flowing off point at increasing wing angle of attack was found to leave the wing surface and to move into the flow along the symmetry axis. Fourteen figures, four formulas, eleven bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

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LAPYGIN, V. I. UDC 533.6.011

"Bodies of Maximum Fineness in a Hypersonic Stream"

Nauch. Tr. In-t Mekh. Mosk. Un-t (Scientific Works of the Institute of Mechanics Moscow University), No 11, 1971, pp 44-50 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B286 by G. I. Maykapar)

Translation: With the assumption that pressure can be determined by the Newtonian law, and that the coefficient of resistance may be assumed constant, the problem of the shape of a conic body of even length with a given volume and maximum fineness is solved by the method of local variations with the aid of an electronic computer. In contrast to the previously produced work by Huang Ho-Yi (See J. Astronaut. Sci. 1959, 15, No 3, 118-123, RZhMekh, 1970, 8B746) it is not assumed, but is shown as a result of calculations, that the lee side of a body with maximum fineness is formed by two intersecting flow planes of an undisturbed stream. The windward side constitutes a surface with a small convexity. Convergence to a unique solution was verified. Fourteen references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC: 621.396.69:621.316.543(088.8)

FIRER, V. I., YUR'YEV, F. N., LARENKOV, A. P.

"A Coaxial Switch"

USSR Author's Certificate No 253882, filed 2 Feb 68, published 29 Jun 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V383 P)

Translation: This Author's Certificate introduces a coaxial switch which contains a stator with plugs fastened to it, a rotor connected to a rotating axle, commutating lines, and a mechanism for fixing rotor positions. To improve decoupling between channels, the stator and rotor are equipped with semicircular channels arranged on the arc of a circle, which form the outer conductor of the commutating lines, while the inner conductors of the commutating lines are accommodated in the rotor channel. The inner conductors are connected by dielectric supporting elements to shields which are radially arranged.

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JPRS 58308
6-73

LAREVSKIY, A.S.

XVI-3. STUDY OF THE FORM OF HETEROEPITAXIAL ISLETS IN DIFFERENT STAGES OF FILLING OF THE SUBSTRATE SURFACE

[Article by R. N. Sheftal', A. S. Larevskiy, Moscow; Novosibirsk. III Simpozium po Protsessam Rosta i Sintera Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1971, p 222]

For the theory of heterogeneous formation of nuclei it is necessary to know many experimental values which these theories support. It is most important to answer the question of the applicability of macroscopic thermodynamic concepts (free energy, surface tension) to the problems of nucleus formation.

For this purpose, in this paper an electron microscope study was made of the size and shape of the islets of bismuth as functions of their surface density; Bi was condensed in a vacuum by the methods of direct and random supply of the material to the oriented and nonorienting substrates. The study of shape was made at different stages of growth of the films, beginning with the average thickness of 1Å and ending with the channel growth stage.

The crystallization conditions varied within the limits with respect to temperature from 77° K to 383° K and with respect to condensation rate from 0,1Å/sec to 10Å/sec. The results obtained are discussed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHANGE IN TOMATO QUALITY DURING ACCELERATED RIPENING IN AN ETHYLENE ATMOSPHERE -U-

AUTHOR-(02)-KNYSH, A.N., LARGSKIY, YU.N.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (1), 73-5

DATE PUBLISHED--------70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--AGRICULTURE CROP, ETHYLENE, ASCORBIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0188 STEP NO--UR/0485/70/000/001/0073/0075

CIRC ACCESSION NO--AP0123957

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123957

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY OF THE COMPN. AND TASTE QUALITIES OF TOMATOES (8 VARIETIES) ACCELERATED IN RIPENING IN AN C SUB2 H SUB4 ATM. SHOWED THAT AS COMPARED WITH NORMALLY RIPENED FRUITS THE ACCELERATED TOMATOES HAD ALMOST HALF THE TOTAL ACIDITY, SOMEWHAT LESS ASCORBIC ACID, AND IN MOST CASES PRACTICALLY THE SAME CONTENTS OF DRY MATTER AND TOTAL SUGARS. THE TASTE OF ACCELERATED TOMATOES WAS BETTER THAN THAT OF NORMALLY RIPENED FRUITS, WHICH SUGGESTED THE POSSIBLE USE OF C SUB2 H SUB4 FOR PRODUCTION OF EARLY TOMATOES. FACILITY: OVOSHCHE-BAKHCHEVAYA OPYT. STA., DNEPROPETROVSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CONTROL OF TOMATO NUTRITION UNDER FIELD CONDITIONS -U-

AUTHOR--LARGSKIY, YU.N.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (3), 146-7

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE

TOPIC TAGS--MINERAL FERTILIZER, AGRICULTURE CROP YIELD, NUTRITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0584 STEP NO--UR/0489/70/000/003/0146/0147

CIRC ACCESSION NO--AP0122705

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

2/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122705

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPN. OF TOMATO CELLULAR FLUID WAS ANALYZED AT BUDDING, FLOWERING, AND RIPENING. THE AMT. OF N, P, AND K RANGED 100-500, 40-160, AND 1500-5000 MG-KG OF TOMATOES, RESP. N AND K LEVELS DECREASED DURING PLANT DEVELOPMENT. THE HIGHEST CONCN. OF P WAS FOUND DURING RIPENING, THEN IT DECREASED. FERTILIZATION WITH N,P,K FERTILIZERS INCREASED THE YEILD AND ALSO N, P, AND K LEVELS IN CELLULAR FLUID. FACILITY: DNEPROPETROVSK. OVOSHCHE-BAKHCHEVAYA OPYT. STA., DNEPROPETROVSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

UDC 621.039.58

USSR

LARICHEV, A. V.

"Safety Problems in Conducting Radiation-Chemical Processes"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev, Vol 18, No 3, 1973, pp 327-332

Abstract: A review with 32 references. In carrying out radiation chemical processes, there exists principally a possibility of affecting the operating personnel by radiational and related factors of professional injuries. This review reports characteristics of the sources of ionizing radiation used in radiation chemistry, their characteristic factors of radiation safety and the state of the art of assuring safety of the personnel handling various sources of radiation.

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LARICHEV, O.I.

High order Systems

GDORIA

SO. JPRS 55889
4 May 1972

High-order systems

[illegible]

[illegible] AMERICAN CONFERENCE ON HIGH-ORDER SYSTEMS

[illegible]icle by Candidates of Technical Sciences M. A. Bermant, O. I. Larichev; [illegible], Vestnik Akademii Nauk SSSR, Russian, No 3, March 1972, pp [illegible]

The conference was held in Anaheim (U.S.) from 25-29 October 1971. [illegible] convened by two American organizations: Institute of Electrical [illegible] (systems analysis and cybernetics group) and Society of Operations [illegible].

The term "bol'shaya sistema" (high-order system) is now used most [illegible] for designating systems consisting of staffs of people, combined in [illegible]ertain form of activity and by a certain structure of relations. The [illegible]tinguishing feature of high-order systems is the important influence [illegible] decisions made by the people have on their behavior and characteristics. [illegible] systems as, for instance, health, education, city transport systems, [illegible] are viewed as high-order systems. The basic task facing an investi[illegible] in this field is the problem of reorganization of the structure and [illegible]ation of resources for the purpose of improving the results of [illegible] functioning. Problems related to analysis and synthesis of high-[illegible] systems are extremely urgent. In recent years it has become possible [illegible] many cases, despite their complexity, to adopt scientific methods for [illegible] practical problems that arise in the given sphere.

Reports on the practical problems (most of them) and also on the [illegible] of the methodological principles of investigation and construc[illegible] of high-order systems, were presented at the American conference on [illegible] systems.

The systems approach to the solution of problems consisted of the [illegible] stages: separation of a system into its input and output action; [illegible] of means of functioning, structure; analysis of the environment [illegible] which the system functions, characteristics of this environment and its [illegible] on the system; construction of a model of the system; clear [illegible] of the purposes of the system; explanation of the degree of [illegible] between the actual functioning of the system and the stated [illegible]; explanation of alternative (from the standpoint of the structure of

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

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UDC 612.766.1-05:613.24

USSR

KAKURIN, L. I., PURAKHIN, YU. N., GEORGYEVSKIY, V. S., KRYTKOVSKIY, B. S., VYSOTSKIY, V. G., CHEREPAKHIN, M. A., USHAKOV, A. S., [illegible], K. A., PETUKHOV, B. N., IVANOV, P. P., MACHINSKIY, G. V., MIKHAILOV, V. M., POKSTOV, YU. D., and SMIRNOVA, G. I.

"Locomotor Activity of Man Kept on a Reduced Food Ration"

Moscow, Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

Abstract: The combination of drastic limitation in locomotor activity with reduction to a low-calorie diet (down to basal metabolism) was studied in six healthy men 24-35 years of age who were confined to bed for a number of days under conditions of hypokinesia. Pronounced changes were observed in the functions of the cardiovascular, respiratory, nervous, and muscular systems of the body. Tabular data were collected on physiological tremor of closed eyes, maximum physical work fitness, muscle tone dynamics, and the cardiovascular system in the orthostatic position. Asthenia of the nervous system and a slowing down of the biopotentials in the cerebral cortex were observed. Likewise, it was noted that hypokinesia caused disturbances in body coordination and statics. The pulse rate increased and the arterial pulse pressure was

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR.

KAKURIN, L. I., Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

reduced in persons subjected to the orthostatic test. Three persons reached a state of near collapse. These changes were attributed to a significant reduction in the compensating actions of the blood circulation. It was found that after about 10 days, the observed changes gradually decreased in the test subjects. This regression was largely of a functional character and was linked to the "detraining" of the various systems of the body. The authors believe that the severity of the changes in the body functions is directly proportional to the degree of hyperkinesia to which the tested persons were subjected. It is proposed that maintenance of homeostasis requires a certain level of motor activity even with a low-calorie ration.

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1/2 042 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CONVERSION OF POTASSIUM CARBONATE INTO POTASSIUM BICARBONATE IN A LOW TEMPERATURE ZONE OF THE GAS CHANNEL OF A MAGNETOHYDRODYNAMIC, MHD,

AUTHOR-(05)-GOLUBKOVA, A.S., ZAKHAROVA, N.I., LARICHEVA, M.A., MOSTINSKIY, L.L., NEKHOROSHEV, R.S.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(2), 459-60

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, ENERGY CONVERSION (NON-PROPULSIVE) PROPULSION AND FUELS

TOPIC TAGS--COMBUSTION PRODUCT, IONIZATION, POTASSIUM CARBONATE, MAGNETOHYDRODYNAMIC CONVERSION

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2/2 042 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132175

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONVERSION OF THE IONIZING ADDN. K SUB2 CO SUB3 TO KHCO SUB3 IN THE LOW TEMP. ZONE OF MHD GENERATORS WAS STUDIED AT COMBUSTION PRODUCT TEMPS. 70-250DEGREES, ATM. PRESSURES 5.5-7.5 N-M PRIME2, AND CO SUB2 CONTENTS IN THE COMBUSTION PRODUCTS OF 8-9.5PERCENT. SHIELDED PROBE AND ISOSTATIC SAMPLING ON GLASS WOOL OF DUST LADEN VAPORS FOLLOWED BY CHEM. ANALS. CONFIRMED THAT KHCO SUB3 FORMED AT TEMPS IS SMALLER THAN 160DEGREES AND THE FRACTION KHCO SUB3 WAS 40 AND 80 WT. PERCENT AT 120 AND 70-90DEGREES, RESP.

FACILITY: INST. VYS. TEMP., MOSCOW, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 629.78.015.076.8

LARICHEVA, V. V.

"The Discontinuous Nature of the Analog of the Separatrix with Motion of an Asymmetrical Body with One Center of Mass in the Atmosphere"

Uch. zap. Tsentr. Aerogidrodinam. In-ta [Scientific Writings of Central Institute of Aerodynamics and Hydrodynamics], Vol 3, No 3, 1971, pp 72-79, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 9, 1972, Abstract No 9.41.132, from the Resume).

Translation: Simple, analytic formulas are presented for description of the planar rotation about the center of mass of an asymmetrical body descending in the atmosphere, suitable up to the moment of "capture" -- the boundary of transition of the rotary motion to aperiodic or oscillating motion. The rotating speed and time at "capture" are determined, and a dependence of initial angular velocity of rotation on initial angle of attack -- analog of separatrix in a nonindependent nonlinear system -- are determined. A nontrivial result of the asymmetry of the body is discontinuity of the separatrix analog with respect to the initial angular velocity for the initial angle of attack at which the rotating speed upon "capture" changes suddenly by unity. It is demonstrated that the separatrix analog, both in its area of continuity, and at discontinuous points, is determined rather

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USSR UDC 629.78.015.076.8

LARICHEVA, V. V., Uch. zap. Tsentr. Aerogidrodinam. In-ta, Vol 3, No 3, 1971, pp 72-79.

precisely by the simple formulas suggested with certain refinements and when a more general capture criterion, used earlier, is applied. 4 Figures; 2 Biblio. Refs.

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LARICHEVA, V. V.

"The Discontinuous Nature of the Analog of the Separatrix Upon Movement of an Asymmetrical Body About Its Center of Mass in the Atmosphere"

Uch. zap. Tsentr. Aerogidrodinam. In-ta. [Scientific Writings of the Central Aerohydrodynamics Institute], 1972, Vol 3, No 3, pp 72-79, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B427, from the Resume).

Translation: Simple analytic formulas, more general then those presented earlier (see Laricheva, V. V., Shilov, A. A., Kosmich. Issledovaniya, 1969, Vol 7, No 1, pp 61-67, RZhMekh, 1969, 6A97) are presented for description of the planar rotation of an asymmetrical body descending in the atmosphere about its center of mass. The formulas are suitable up to the moment of "capture," the boundary of transition of rotary motion to a periodic or oscillating motion. The rotating speed and time of "capture" are determined, and the dependence of initial angular rotation rate on initial angle of attack -- the separatrix analog in the nonself-modeling nonlinear system -- is constructed. One nontrivial result of the assymetry of the body is discontinuity of initial angular velocity of the separatrix analog with the initial angle of attack for which the rotating speed at "capture" changes suddenly by one. It is demonstrated that the separatrix

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LARICHEVA, V. V., Uch. zap. Tsentr. Aerogidrodinam. In-ta., 1972, Vol 3, No 3, pp 72-79.

analog, both in the area of its continuity, and at points of discontinuity, is rather precisely determined by the simple formulas suggested with some refinements and when a more general criterion of "capture" is used.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 669.15.018.8:620.196.2

LARIKOV, L. N., and OMEL'YANENKO, V. V., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Intercrystalline and Transcrystalline Failure of Steels and Alloys From the Action of Different Media"

Kiev, Metallofizika, No 40, 1972, pp 3-24

Abstract: A survey was made of literature on intercrystalline corrosion and stress corrosion from the viewpoint of the effect of the structural state of a structural material. Intercrystalline corrosion was manifested in nonuniform solid solutions by the presence of inclusions of second-phase particles. The specified degree of ordering in uniform solid solutions leads to a sporadic increase of overall corrosion resistance, although the tendency toward stress corrosion is not eliminated. The relationship between the dislocation structure of the material and its tendency toward transcrystalline failure under stress was also examined. 9 figures, 2 tables, 132 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 620.18:669.14

GRIDNEV, V. N., KONONENKO, V. A., LARIKOV, L. N., MESHKOV, YU. YA., RAFALOVSKIY, V. A., and YURCHENKO, YU. F., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Effect of Plastic Deformation on the Tempering Processes of a Quenched Steel"

Kiev, Metallofizika, No 39, 1972, pp 51-54

Abstract: The features taking place in the tempering of martensite by the simultaneous action of heating steel 70 to 250°C while imparting plastic deformation by drawing (almost 10%) were studied. From the obtained calorimetric and dilatometric data it follows that during this treatment, along with acceleration of the metastable phase (martensite and austenite) decomposition, being accompanied by lowering of defect density from hardening origin and weakening of the steel, another process occurs--that of martensite decomposition products as a result of plastic deformation yielding the accumulation of new defects which increase the internal energy of the system and stimulate a more complete occurrence of the phenomena of recrystallization during repeated heating. 2 figures, 7 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 546.3.004.5.001.2

LARIKOV, L. N., CHEREPIN, V. T., GUREVICH, M. Ye.

"Automation of Testing and Investigation of Metals"

Avtomatizatsiya Kontrolya i Issledovaniya Metallov [English Version Above], Tekhnika Press, Kiev, 1971, 198 pages.

Translation of Annotation: The basic principles and methods of automatic study and testing of the properties of metals and alloys using electronic equipment are presented, modern precision devices are described, and problems of the prospective development of devices, measuring complexes, and systems used in order to automate scientific experimentation in the area of study of the properties of metals and alloys are analyzed. The book is designed for scientific and engineering workers involved with problems of testing and study of the properties of metals in the metallurgical, machine building, instrument building and other branches of industry, and also may be useful for teachers and students in the corresponding specialties in technical universities. 5 Tables; 92 Figures; 231 Biblio. Refs.

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USSR UDC 546.3.004.5.001.2

LARIKOV, L. N., CHEREPIN, V. T., GUREVICH, M. Ye., Avtomatizatsiya Kontrolya i Issledovaniya Metallov, Tekhnika Press, Kiev, 1971, 198 pages.

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LARIKOV, L. N., CHEREPIN, V. T., GUREVICH, M. Ye., Avtomatizatsiya Kontrolya i Issledovaniya Metallov, Tekhnika Press, Kiev, 1971, 198 pages.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

UDC 621.791:546.621:532.72

LARIKOV, L.N., FAL'CHENKO, V.M., RYABOV, V.R., LOZOVSKAYA, A.V., MRAVCHENKO, A.G., and YEREMENKO, A.N.

"Determination of Aluminum Self-Diffusion in Intermetallides Formed During Welding"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 71-72

Abstract: In the present work, conducted by the Institute of Electric Welding jointly with the Institute of Metal Physics, Academy of Sciences Ukrainian SSR, with the use of isotope Al^{26} self-diffusion was studied in samples of pure aluminum and Fe-Al alloys having the following intermetallic phases: $FeAl_3$, FeAl, Fe_3Al, Fe_2Al_5, and $FeAl_2$. Equations for the temperature relationship of self-diffusion coefficients were derived. 1 table, 2 bibliographical references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 548.52

BRIK, V. B., BYKHOVSKIY, A. I., LARIKOV, L. N., and FAL'CHENKO, V. M.

"The Effect of the Geometry of Growth of α-Sn Crystals on the Kinetics of Transformation of White Tin Into Gray"

Kiev, Metallofizika, No 32, 1970, pp 113-118

Translation: The general kinetics of the β → α transformation of the high-purity OVCh-000 (99.9995%) tin on specimens of various forms, i.e., massive in the form of small cubes, plates, and wire, was investigated by the method of hydrostatic weighing.

The overall rate of the polymorphic β → α transformation adheres to Avrami's equation

$$X = 1 - \exp(-At^k),$$

where X is the share of the transformed volume; A and k are the constants. At the same time, k depending on the form of specimens assumes various values: 2.3-2.7 for massive specimens, 1.5-2 for specimens in the form of plates, and 1 for the specimens in the form of wire of a diameter less than 0.8 mm.

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USSR UDC 669-172:539.2

DUBOVITSKAYA, N. P., and LARIKOV, L. N.

"Study of Substructure of Single Crystals of Molybdenum Deformed in Various Crystallographic Planes"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 129-135

Translation: Electron microscope and x-ray methods were used to study the substructure of molybdenum single crystals oriented in the {100} and {110} planes and deformed to 15-80% by rolling in the <110> and <100> directions. The change in substructure and microhardness was studied during isothermal annealing. It was established that the crystallographic deformation conditions significantly influence the nature of the dislocation substructure not only following plastic deformation, but also with subsequent heating, thus determining the type of softening process. Under conditions of slight hardening (<110> {100} $\varepsilon \approx 80\%$), the single crystal is retained following deformation and extended heating, leading to recovery of the mechanical properties. In the case of deformation of less than 30% with strong hardening (<110> {110} the single crystal is retained, while during annealing polygonization is developed, leading to recovery of mechanical properties.

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DUBOVITSKAYA, N. P., and LARIKOV, L. N., Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 129-135

With a greater degree of deformation (<110> {110} ε ≈ 80%), the single crystal ceases to be a single crystal in the process of deformation. Softening occurs as a result of development not only of polygonization, but of recrystallization as well. 5 Figures; 9 Bibliographic References.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 54677, 27, 5487, 53926

KRAVCHENKO, V. S., LARIKOV, L. N., and PLOTNIKOVA, N. P.

"Study of the Substructure During Annealing of Molybdenum Bombarded Following Deformation"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 143-148

Translation: Methods of x-ray topography are used to perform studies of polygonization in neutron-bombarded single crystals of Mo, preliminarily deformed by rolling in the {110} plane. It is demonstrated that the process of polygonization is accelerated in specimens bombarded following deformation while the development of the recrystallization process is retarded and in many cases is halted. 5 Figures; 8 Bibliographic References.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR

UDC 539.219.3:548.3

LARIKOV, L. N., FAL'CHENKO, V. M., and CHERNAYA, L. F., Institute of Metal Physics, Academy of Sciences UkrSSR

"The Effect of the Type of a Crystal Lattice on the Diffusion Mobility of Atoms in Metals of the Iron Group"

Kiev, Metallofizika, No 31, 1970, pp 75-82

Translation: The effect of the type of crystal lattice on the parameters of volume and boundary diffusion in metals of the iron group and their alloys is examined on the basis of the data available in the literature. It is shown that the difference between the mobility in α- and β- iron is much greater than among the mobility in close-packed cubic modifications of β-iron, nickel, and γ-cobalt during the extrapolation of their values to the same temperature. In general, this conclusion also extends to the diffusion of other elements in these metals. The type of crystal lattice has a marked effect on the parameters of volume self-diffusion and has a weak effect on the mobility of atoms along grain boundaries.

Bibliography: 48 entries, 12 illustrations.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

USSR UDC 669.017.548.53.620.187

DUBOVITSKAYA, N.V., and LARIKOV, L. N., Institute of Metal Physics, Academy of Sciences UkrSSR

"Investigation of the Processes of Polygonization and Recrystallization in an Iron-Chromium Alloy"

Kiev, Metallofizika, No 31, 1970, pp 48-59

Translation: Softening processes in the alloy Fe + 8.25% Cr + 0.05% C, in which the equivalent level of softening was attained by deformation (ε = 70%) and hardening, are investigated by the method of diffraction electron microscopy. To determine the nature of the effect of Cr and of a small admixture of C, part of the study was done on the alloy Fe + 0.03% C and Fe cleaned by the zone method. To study the kinetics of polygonization, statistical curves of distribution of subgrains according to sizes and disorientation were plotted. It turned out that, as the time of isothermal annealing is increased, there is an increase in the maximum size of subgrains disoriented more than 18, which is described by a linear dependance both for a deformed and hardened alloy. At the same time, there is also some increase in the angle of disorientation of adjacent subgrains. A comparison of experimental data with

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USSR

DUBOVITSKAYA, N. V., and LARIKOV, L. N., Metallofizika, No 31, 1970, pp 48-59

the existing theoretical concepts of the mechanism of growth of subgrains showed that the growth of subgrains with the maximum size and angle of disorientation ($\theta > 1^{\circ}$) occurred primarily according to the mechanism of transfer of sub-boundaries. Subgrains with a disorientation of less than 1° grow through coalescence. An inhibiting effect of carbon on the formation and growth of subgrains was established. The effect of chromium is of a more complicated nature. The change in the maximum size of recrystallization centers during the isothermal annealing is of a linear nature both for the deformed and hardened alloy. However, in the hardened alloy, in contrast to the deformed alloy, there is a certain latent period corresponding to the time of growth of subgrains with maximum sizes until a disorientation of more than 20° is attained. In the deformed alloy there is another, more rapid mechanism of formation of centers, perhaps through successive thermal fluctuations. Carbon and chromium greatly affect the rate of growth of recrystallization centers, slowing it down.

Bibliography: 33 entries, 15 illustrations, 2 tables.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720006-1

Miscellaneous

USSR UDC: 539.21:536.42

BARANOVSKIY, V. M., GUREVICH, M. Ye., LARIKOV, L. N., KHOMENKO, B. S., SHMATKO, O. A.

"Investigation of **Spatial Effects During Aging**"

Metallofizika. Resp. mezhved. sb. (Physics of Metals. Republic Interdepartmental Collection), 1970, vyp. 27, pp 65-79 (from RZh-Fizika, No 9, Sep 70, Abstract No 9Ye477)

Translation: The article is a brief survey of methods of studying **spatial** effects, with a description of the EAD-65 and AD-2 automatic dilatometers developed at the Institute of Physics of Metals, Academy of Sciences of the Ukrainian SSR. The data obtained on the automatic equipment are compared with those obtained on an optical dilatometer. The **spatial effects during** aging of an alloy of cobalt with 31.89 percent tungsten is calculated. The calculation is compared with experimental data. Authors' abstract.

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USSR

UDC 536.72.2(088.8)

LARIKOV, L. N., GUREVICH, M. YE., Institute of Metal Physics, Ukrainian SSR Academy of Sciences

"Determination of Thermodynamic Characteristics of Materials"

USSR Author's Certificate No 249690, filed 17 Nov 67, published 4 Jan 70 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.657 P)

Translation: A method is proposed for the determination of thermodynamic characteristics of materials by the way of comparison of their thermal and volumetric effects. In order to increase the accuracy of the results the measurement of change of heat content and volume is carried out using the same specimen and standard instrument, for example by the calorimetric and dilatometric methods. Their ratios are measured continuously and are compared with the memory inserted ratios which are characteristic for the processes of all possible types. The thermodynamic characteristics are determined according to parity with the established accuracy of comparable values.

1/1 V. S. K.

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Miscellaneous

USSR UDC 669.017.3

GUREVICH, M. YE., LARIKOV, L. N., and SHMATKO, O. A., Institute of Metal Physics Academy of Sciences Ukr SSR

"The Size and Spectrums of Volume Changes in Metal Systems"

Kiev, Metallofizika, No 32, 1970, pp 5-25

Translation: The article presents the thermodynamic characteristics of various processes accompanied by volume changes or by the volume effect. An evaluation is made of the informative nature of the most widespread volumetric and dilatometric research methods, and a comparative evaluation is made of dilatometric and x-ray methods of measuring volume changes. Methods of determining the number of defects in the crystalline structure and of analyzing the types of processes occurring are examined.

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