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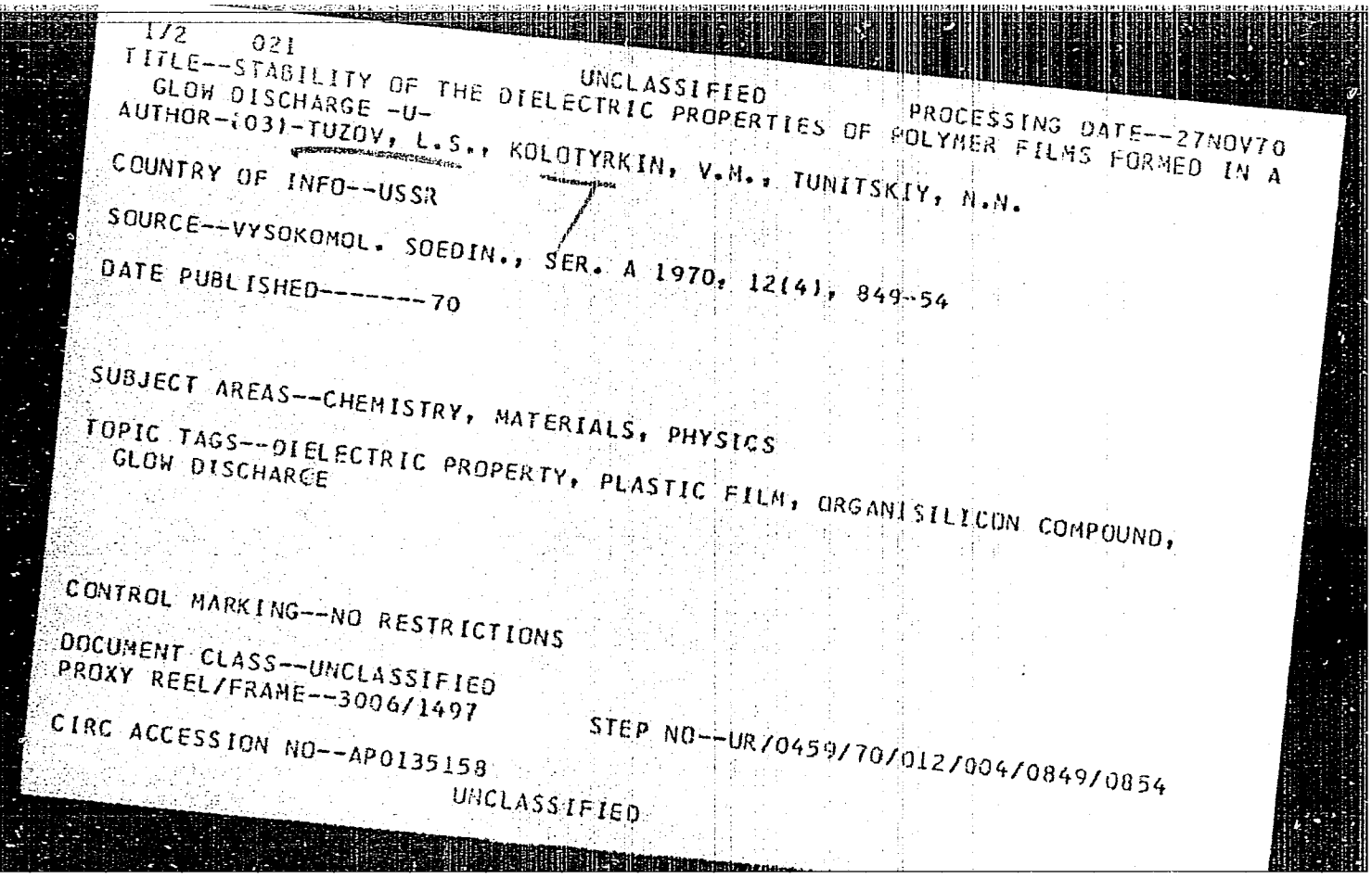

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--STABILITY OF THE DIELECTRIC PROPERTIES OF POLYMER FILMS FORMED IN A GLOW DISCHARGE -U-

AUTHOR-(03)-TUZOV, L.S., KOLOTYRKIN, V.M., TUNITSKIY, N.N.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 849-54

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--DIELECTRIC PROPERTY, PLASTIC FILM, ORGANISILICON COMPOUND, GLOW DISCHARGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1497

STEP NO--UR/0459/70/012/004/0849/0854

CIRC ACCESSION NO--AP0135158

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CIRC ACCESSION NO--AP0135158 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENCE OF AR, O, N, OR H DURING THE FORMATION OF FILMS FROM (ME SUB3 SI) SUB2 O (I) VAPORS IN A GLOW DISCHARGE (L. S. TUZOV, ET AL., 1967) RETARDS FILM FORMATION DUE TO THE INCREASE OF I DECOMPN. AND THE DECREASE OF I PARTIAL VAPOR PRESSURE. THE DIELEC. CONST. (EPSILON) AND TAN(DIELEC. LOSS ANGLE) TAN DELTA) OF I FILMS DECREASED DURING THE STORAGE AT ROOM TEMP. THE DECREASE WAS HIGHER AT HIGH AIR HUMIDITY AND FOR I FILMS CONTG. POLAR GROUPS. THE MOST STABLE EPSILON AND TAN DELTA WERE OBTAINED WITH THE FILMS FORMED IN THE PRESENCE OF H. THE ANNEALING ALSO INCREASED THE STABILITY OF EPSILON AND DELTA. PREPN. I FILMS AT HIGH GLOW DISCHARGE CURRENT D. DECREASED WT. LOSSES DURING HEATING LESS THAN OR EQUAL 600DEGREES IN THE AIR.

FACILITY: FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

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TUZOVA G.P.

Acc. Nr: AP0044157 Ref. Code: UR 0244

PRIMARY SOURCE: Voprosy Pitaniya, 1970, Vol 29, Nr 1, pp 23-28

CHARACTERIZATION OF BIOCHEMICAL SHIFTS IN EXPERIMENTAL B_6-HYPOVITAMINOSIS

Karkalitskiy, I. M.; Karkalitskaya, G. V.; Ashikhmina, Ye. M.; Kovrizhnykh, N. D.; Tuzova, G. P.; Plotnikova, G. F.; Berdnikov, M. P.

Tubazid in an amount of 100 mg was administered daily intramuscularly for 7 weeks to nuria cospus to produce pyridoxine deficiency. The earliest sign of B_6-hypovitaminosis was diminished passage of 4-pyridoxine acid with the urine, whose week-wise fluctuations were of an undulating nature. The blood serum of animals with pyridoxine deficiency showed a fall of α- and β-globulins, a rise of albumins, declined activity of the aspartate-aminotransferase, unchanged activity of the alanine-aminotransferase and an increase of β-lipoproteids in the blood serum and tissues. The animals also developed fatty degeneration of the liver, kidneys and fatty infiltration of aortic walls. Furthermore, they exhibited symptoms of B_6-hypovitaminosis, such as poor appetite, loss of weight, skin lesions on the tip of the nose, focal affection of the skin around the eyes, bilateral paresis of hind legs, epileptiform seizures and symmetric lamellar desquamation of the skin in hind paws and diminished passage of riboflavin with the urine. All of the listed deviations are corrected following administration of vitamin B_6 to the animals.

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Acc. Nr.: AP0045878

Ref. Code: UR0387

JPRS 52054

Rock Density at High Pressures

(Abstract: 'Study of Density of Rocks from Central Kazakhstan Under High Pressures," by M. P. Volarovich, A. K. Kurskeyev, A. I. Levykin, I. S. Tomashevskaya, I. L. Tuzova and B. M. Uragayev, Institute of Physics of the Earth, Academy of Sciences USSR, and Institute of Geological Sciences, Academy of Sciences Kazakh SSR; Moscow, Izvestiya Akademii Nauk SSR, Fizika Zemli, No. 1, 1970, pp. 46-51)

The density of rocks of various composition from Central Kazakhstan was determined at high pressures in the laboratory. Rock tests were at quasihydrostatic pressures up to 15 kb. The apparatus used made it possible to measure the velocities of elastic waves. The sample was compressed by hard-alloy pistons. Change in volume (from displacement of the piston) was determined simultaneously with measurements of the velocity of longitudinal waves. Change in density at different pressures was computed using the formula

$$\rho = \frac{\rho_0}{1 - \Delta V/V},$$

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where ρ_0 is the initial density of the sample in g/cm^3, $\Delta V/V$ is the volume decrement. Change in density was determined with an error of about 5 percent. Samples were selected along two deep seismic sounding profiles. Under the applied pressure density of all rocks increased. Density changes were greatest in the initial phase to 4 kb. Later the changes became less and the density-pressure curves flattened out. The greatest density changes were observed in samples of ancient metamorphosed rocks: schists, gneisses and porphyroids of more acidic composition for which the density changes at 15 kb attain 3.5 percent. The density of granites also changes rather sharply and increases continue to 15 kb. Relative density changes are dependent on initial density: the lesser the density at atmospheric pressure, the greater is the change when pressure is applied. The maximum changes in density for rocks of acidic composition are evidently caused by their greater inhomogeneity than for rocks of basic composition. Acidic rocks are also poorly preserved. Defects in the rock, largely microfissures, close under pressure and density at the attained pressures approaches an identical value for rocks of similar composition. For rocks of basic and ultrabasic composition the density change at pressures up to 15 kb does not exceed 2 percent, that is, the compressibility of rocks of acidic composition is greater than for basic

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rocks by approximately a factor of 1.5. Density is dependent primarily on chemical and mineralogical composition. Differentiation of rocks by density corresponds to their basicity. The density of sandstones at high pressures approaches the density of granodiorites. Tuff-diorites approach the density of diorites. The density of eclogites from northern Kazakhstan is less than the density of eclogites from other regions. The low density of eclogites in northern Kazakhstan can be attributed to the fact that they contain quartz (up to 15-20 percent). The results of studies of rock densities at high pressures can be used in the geological interpretation of geophysical data. The authors used such data in constructing a density cross section of the crust in central Kazakhstan.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 547.241.547.391.1

GASIZOV, T. KH., PASHINKIN, A. P., DMITRIYEVA, G. V., TUZOVA, L. L., KHAYRULLIN, V. K., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzova, Academy of Sciences USSR

"Reactions of the Acyl Cyclonides of Trivalent-Phosphorus Acids with α,β-Unsaturated Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 8, 1972, pp 1730-1733

Abstract: A detailed study was made of the mechanism of the title reactions with special reference to behavior of the P atom of the chlorophosphines. The simultaneous reaction of the acrylic acid with equimolar mixtures of phenyl- and ethyldichlorophosphine (PDP and EDP, respectively) and the subsequent reaction with ethanol and triethylamine to form the ethyl ester of ethyl- β-carboethoxyethylphosphonic acid (45% yield) proceeds as follows:

$$(C_2H_5PCl_2 + C_6H_5PCl_2) + CH_2{=}CH{-}COOH \rightarrow$$

$$\rightarrow C_2H_5P(O)(Cl)CH_2CH_2COCl + C_6H_5PCl_2$$

$$\xrightarrow{2(C_2H_5OH + (C_2H_5)_3N)} C_2H_5P(O)(OC_2H_5)CH_2CH_2COOC_2H_5 + 2(C_2H_5)_3N \cdot HCl$$

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USSR

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GAZIZOV, T. KH., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 8, 1972, pp 1730-1733

An analagous reaction occurs between PDP and ethyldichlorophosphite. On the other hand, EDP, when treated with a mixture of acrylic and metacrylic acids reacts only with the former which is a strong electrophil. These two observations support the assumption that the P atom has a nucleophilic character. Thermal analysis and NMR data on P^{31} were used to elucidate the nature of the intermediates. IR spectra were also discussed.

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USSR

UDC 550.385.41

KOVALENKO, V. S. and TUZOVA, S. I., Siberian Physicotechnical Institute imeni V. D. Kuznetsov, Tomsk University

"Relaxation of High-Energy Protons in the Magnetosphere of the Earth Acted on by Alfven Waves"

Tomsk, Izvestiya VUZ, Fizika, No 5, 71, pp 65-71

Abstract: The authors cite the basic results from a quantitative investigation of the interaction between protons and alfven waves on the basis of a numerical solution to the equation

$$p^2 \sin\alpha \frac{\partial f}{\partial t} = \frac{\partial}{\partial z}(p^2 \sin\alpha < \Delta z > f) + \frac{\partial}{\partial p}(p^2 \sin\alpha < \Delta p > f) +$$
$$+ \frac{1}{2}\frac{\partial^2}{\partial p^2}(p^2 \sin\alpha < (\Delta p)^2 > f) + \frac{\partial^2}{\partial p \partial z}(p^2 \sin\alpha < \Delta p \Delta z > f) +$$
$$+ \frac{1}{2}\frac{\partial^2}{\partial z^2}(p^2 \sin\alpha < (\Delta\alpha)^2 > f),$$

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KOVALENKO, V. S., et al, Izvestiya VUZ, Fizika, No 5, 71, pp 65-71

Where the quantity $\langle X \rangle = \lim_{\tau \to 0} \frac{X}{\tau}$. The solution is determined substantially by the spectrum of the alfven waves, and since this is unknown in the magnetosphere, the usually determined approximations must be used. The authors discuss the initial distribution and the boundary conditions used to solve the problem. Using schematics, the authors illustrate and discuss the pitch angles for values of α_0, L, and β. The behavior of the proton distribution function versus the magnetic shell parameter is illustrated on several of the schematics. Finally, the authors estimate the influence of alfven waves on the lifetime of protons in the geomagnetic trap by finding the total number of particles as a function of time. One disadvantage of the suggested mechanism for particle leakage from the trap is that it does not fall within the theory of an external source. This article contains seven figures and a bibliography of five titles.

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TUZOVSKIY A.M.

JPRS 59208

6-73

VII-6. GROWTH OF EPITAXIAL LAYERS OF GALLIUM ARSENIDE FOR THE MANUFACTURE OF GUNN DIODES

(Article by P. S. Gudz, I. Ye. Maronchuk, N. N. Nasenko, Yu. G. Dubkov, L. A. Rhodyko, A. M. Tuzovskiy, Svetlovodsk; Novosibirsk, III Simpozium po Problemam Rosta i Stiktsii Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 93)

The basic requirements on gallium arsenide layers used to manufacture Gunn effect devices are formulated. The layers are grown by the gas transport in the Ga-AsCl$_3$-H$_2$ system. From analysis of the basic stages of growth of the layers in this process and the experimental results, the conclusion is drawn that the reproducibility of the parameters of the layers arises primarily from the quality of treating the surface of the substrates and the processes in the source zone.

A study was made of various variations of etching the substrates in the gas phase, and the regime was selected which permits the surface to be obtained with class 14 finish after gas etching. A detailed analysis was made of the processes in the source zone, and the saturation time of the source was calculated on the basis of the proposed model of the formation of the source was made of gallium arsenide on the sources. A study was made of the characteristic features of obtaining the n$^+$-n-n$^+$ epitaxial structures. Epitaxial layers were obtained with n = 10^{14} to 10^{15} cm^{-3} and a mobility of μ = 30,000 cm^2/vsec at 77° K not containing unevennesses greater than 0.3 microns in an area of 3 cm^2.

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TUZOVSKIY, A.M.

STRS 65303
6-73

XIII-9. STUDY OF THE PROPERTIES AND CONDITIONS OF GROWTH OF EPITAXIAL LAYERS OF GALLIUM ARSENIDE FROM SOLUTION IN A GALLIUM MELT

[Article by I. Ye. Marmenkov, G. S. Pasechkiy, Yu. G. Plukhov, A. I. Sushko, A. M. Tuzovskiy, Svetlovskiy, Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 191]

The epitaxial layers of gallium arsenide were grown from a solution of gallium melt in a vertical reactor. The gallium melt placed in a container made of carbon glass was saturated by arsenic by decomposition of AsCl$_3$. A study of the effect of the growth temperature, the cooling rate, the melt volume and the orientation plane of the substrates on the morphology, the rate and the electrical characteristics of the epitaxial layers. The source of uncontrolled admixture were analyzed for growth of the gallium arsenide layers.

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IUZOVSKIY, A. M.

37RS 57208
6-73

XIII-6. EFFECT OF THE SUBSTRATE ORIENTATION ON THE GROWTH AND PROPERTIES OF EPITAXIAL LAYERS

[Article by S. A. Grushkov, F. P. Kesamanly, V. F. Kovalenko, I. Ye. Maronchuk, B. P. Nazarov, V. T. Orel, A. M. Yuzovskiy, Sverdlovsk; Novosibirsk, III Simpozium po Poluprovodnikovym Soyedineniyam, Novosibirsk, 12-17 June 1967, p 187]

The epitaxial layers of solid solutions of $Al_xGa_{1-x}As_yP_{1-y}$ were grown from a solution in a gallium melt in a hydrogen flux on gallium arsenide plates with an orientation of 100, 111B, 111A and on the 100 planes disoriented to 111B by 3° and 10°.

The effect of the orientation plane on the growth rate, morphology, electrical parameters and photoluminescence intensity was investigated. The layers most improved with respect to morphology were obtained on singular planes. The distribution of the composition in the $Al_xGa_{1-x}As$ layers with respect to thickness is observed as a function of the substrate orientation. The most uniform layers were obtained on the 111B plane. In pure layers of $Al_xGa_{1-x}As$ with a concentration of less than $5 \cdot 10^{15}$ cm^{-3}, a deep level is observed (for example, for $x = 0.3$ the activation energy of the level is 0.12 electron volts). On the basis of the layers of solid solutions of $Al_xGa_{1-x}As$, GaP_xAs_{1-x} obtained, like diodes were manufactured with a brightness to 1,000 nt for a current of 10 milliamps.

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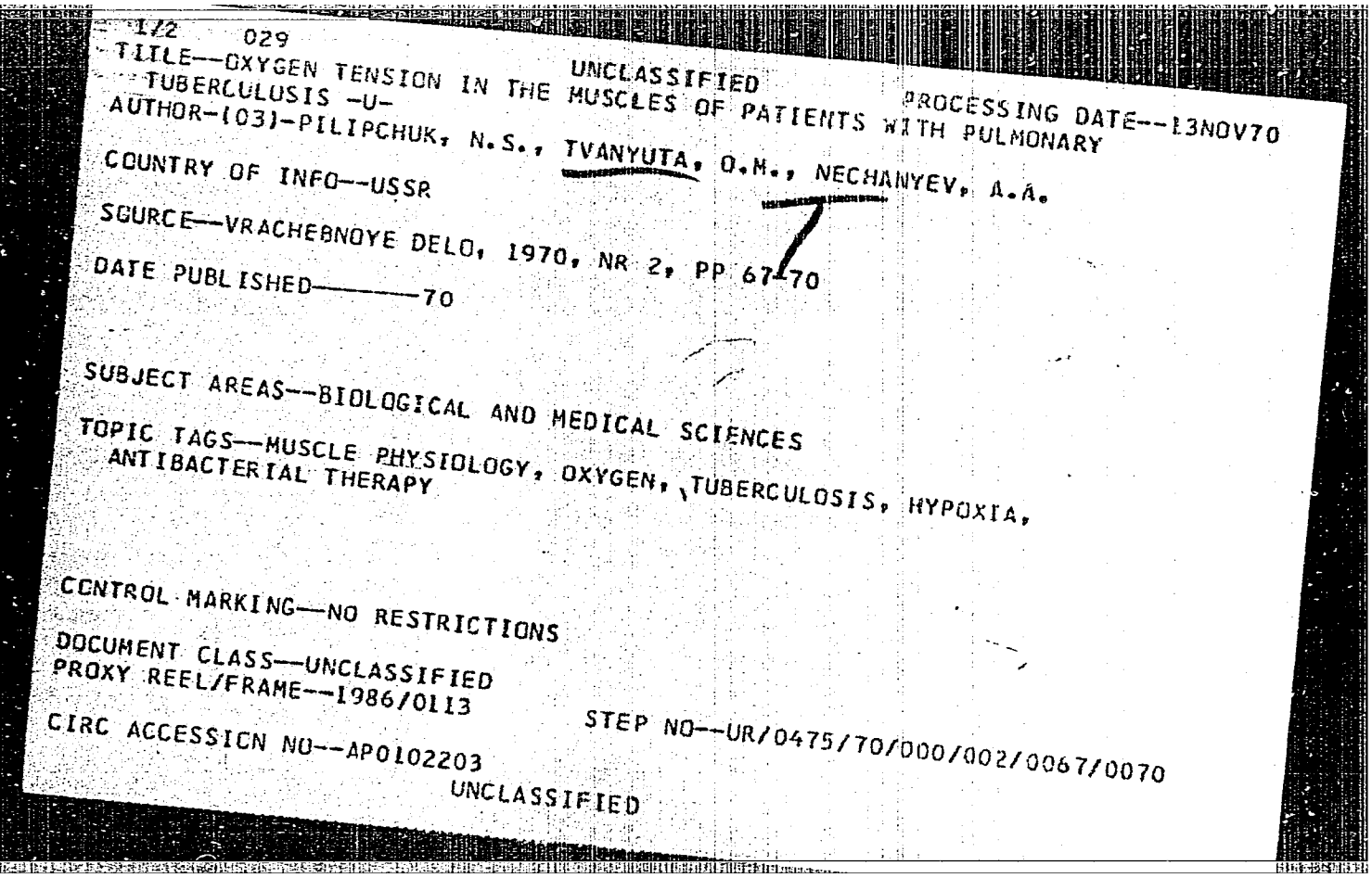

1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--OXYGEN TENSION IN THE MUSCLES OF PATIENTS WITH PULMONARY TUBERCULOSIS -U-
AUTHOR-(03)-PILIPCHUK, N.S., TVANYUTA, O.M., NECHANYEV, A.A.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 2, PP 67-70
DATE PUBLISHED----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MUSCLE PHYSIOLOGY, OXYGEN, TUBERCULOSIS, HYPOXIA, ANTIBACTERIAL THERAPY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0113 STEP NO--UR/0475/70/000/002/0067/0070
CIRC ACCESSION NO--AP0102203
UNCLASSIFIED

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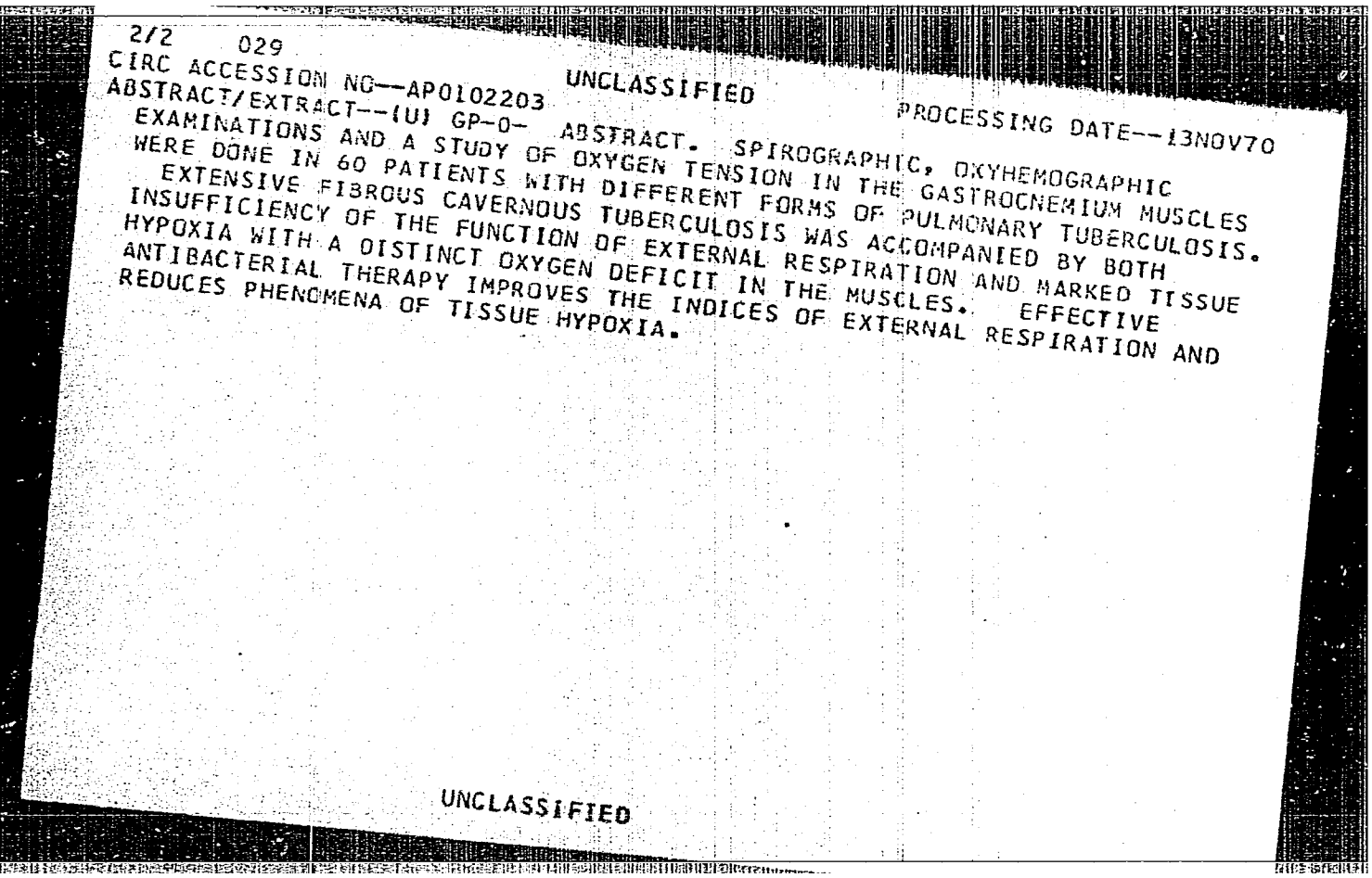

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CIRC ACCESSION NO--AP0102203 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPIROGRAPHIC, OXYHEMOGRAPHIC EXAMINATIONS AND A STUDY OF OXYGEN TENSION IN THE GASTROCNEMIUM MUSCLES WERE DONE IN 60 PATIENTS WITH DIFFERENT FORMS OF PULMONARY TUBERCULOSIS. EXTENSIVE FIBROUS CAVERNOUS TUBERCULOSIS WAS ACCOMPANIED BY BOTH INSUFFICIENCY OF THE FUNCTION OF EXTERNAL RESPIRATION AND MARKED TISSUE HYPOXIA WITH A DISTINCT OXYGEN DEFICIT IN THE MUSCLES. EFFECTIVE ANTIBACTERIAL THERAPY IMPROVES THE INDICES OF EXTERNAL RESPIRATION AND REDUCES PHENOMENA OF TISSUE HYPOXIA.

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Acc. Nr: AP0054296

Ref. Code: UR 9115

PRIMARY SOURCE: Ortopediya, Travmatologiya i Protezirovaniye, 1970, Nr 2, pp 19-23

OPERATIVE MANAGEMENT OF PATIENTS WITH ARTHROSIS DEFORMANS OF BOTH HIP JOINTS

A. Kh. Ozerov, and S. P. Tvardovskaya

Arthrosis deformans of both hip joints in association with congenital dysplasia was observed in 62.2% of all the bilateral lesions. The osteotomy of Pauwels' type with a three-flanged nail fixation has been employed in changes as a result of congenital dysplasia of I,II and sometimes III degree, in presence of one third of range of motion. Eleven patients underwent osteotomy of one hip and four patients of both hips. This was followed by loss or decrease of pains in all of them, the range of motion improved or remained the same, amelioration of the roentgenographic indices ensued. The reconstructive-rehabilitation operation on one joint and osteotomy or arthrodesis on the other (10 patients) have been used in marked limitation of function. After osteotomies, a good result was achieved in 13 and a satisfactory in 2 patients. After the reconstructive-rehabilitation operation the result was judged good in 5 and satisfactory in 5 patients. In arthrosis deformans of both hip joints of infectious and uncertain genesis, joint plasty resulted in development of painful syndrome and rigidity.

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USSR

TVERDOKHLEB, I. G., SAMINSKIY, L. A., ZAYDEL', I. N., KUCHEROV, V. G. UDC: 661.143

"A Photochemical Method of Making Fine-Structured Screens With the Use of Centrifuging"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 119-124 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L179)

Translation: The paper presents the results of a study of fine-structured screens made by photographic exposure of coatings deposited by centrifuging from a suspension of a luminescent composition in a solution of surface-active agent with subsequent application of an organic film of acrylate lacquer by using centrifugal forces before aluminizing. The surface-active agent and organic film are removed from the screen by heating in air. The method ensures a higher technological yield and improves the resolution of the screens as compared with the conventional method of making screens. The method can be readily mechanized and shortens the duration of the technological processes. The procedure can be recommended for use in serial production. Author.

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USSR

UDC: 621.378:681.332.5

GIBIN, I. S., NEZHEVENKO, Ye. S., POTATURKIN, O. I., and TVERDOKHLEB, P. Ye.

"Coherent Optical Device for Generalized Spectral Analysis of Images"

Novosibirsk, Avtometriya, No 5, 1972, pp 3-9

Abstract: This paper offers a method of generalizing spectral analysis of images by using holographic methods of storing and processing information realized by coherent optical techniques. This spectrum is defined as the expansion of a function describing the image in a generalized Fourier series. Although the problem can be done with a computer, it is often best to use optical analyzers because the objects of the analysis are basically optical images. To generalize the spectral analysis, holographic methods are used in the present paper for storing and processing information; a scalar mechanism is used for storage, and the correlation mechanism of Gabor is used for the processing. Both these methods are analyzed and the synthesis of the images discussed. The authors find that their coherent optical system has high memory capacity,

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UDC: 621.378:681.332.5

GIBIN, I. S., et al, Avtometriya, No 5, 1972, pp 3-9

high velocity in analysis, and improved noise immunity.

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USSR

NEZHEVENKO, Ye. S. and TVERDOKHLEB, P. Ye.

UDC: 621.391.193

"Coherent Optical Devices for Recognizing Unidimensional Signals"

Novosibirsk, Avtometriya, No 5, 1972, pp 15-21

Abstract: This paper is to some extent based on an earlier article by the first of the authors named above, published in the same journal (Opredeleniye blizosti funktsiy v kogerentno-opticheskikh vychislitel'nykh ustroystvakh -- Determining the Proximity of the Functions in Coherent Optical Computing Devices -- No 6, 1971). The earlier article illustrated the possibility of using noncorrelation proximity measures for two comparable signals in the coherent optical device, the first a standard, and the second classified. The present paper offers methods for designing a coherent optical device to calculate the distances between the classified signal and the classes of signals specified by their mathematical expectation vectors and the covariance matrices. It is noted that such devices can be technically realized with relative simplicity. Various means of realizing signal recognition operations in the coherent optical device are considered, and different variants of

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NEZHEVENKO, Ye. S., et al, Avtometriya, No 5, 1972, pp 15-21

UDC: 621.391.193

the device are analyzed. Since it may have a comparatively extensive memory, the device can advantageously be used in problems with more than 1000 classes of signals.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

Optical

USSR

NEZHEVENKO, YE. S., SALOV, G. I., TVERDOKHLEB, P. YE., UMANTSEV, G. D., Novosibirsk

UDC 621.391.19

"Linear Adaptable Optical Pattern Classifier"

Novosibirsk, Avtometriya, No 3, 1971, pp 82-84

Abstract: One of the urgent problems of automating a scientific experiment is the problem of creating devices to classify optical patterns with respect to random variation of the parameters with incomplete a priori information. Usually the patterns subject to analysis are represented on photographic film or a photographic plate so that their transmission coefficient is a function of two variables s and t. Classification is realized by calculating the discriminate function (functional) of the pattern and using it to decide the classification of the pattern. The pattern $x(s, t)$, $a \leq s$, $t \leq b$ is a realization of one of k classes of patterns $\xi_i(s, t)$, $i = 1, \ldots, k$. Then there are probabilities of the occurrence of each of the $\xi_i(s, t)$ (possibly unknown). The linear functional of the pattern $x(s, t)$ has the form

$$(x, h) = \int_a^b \int_a^b x(s, t)h(s, t)dsdt,$$

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

NEZHEVENKO, YE. S., et al, Avtometriya, No 3, 1971, pp 82-84

and the problem consists in finding the weight function h(s, t) suitable for classification. It is demonstrated that by using relatively new material -- photochrome material [K. M. Savost'yanova, Optiko-mekhanicheskaya promyshlennost', No 5, 1968] it is possible comparatively easily to obtain h(s, t) experimentally using a recurrent procedure investigated previously [G. I. Salov, Avtometriya, No 6, 1970]. The linear functional in this case is an estimate of the mean square approximation to the ideal functional assuming a value of $d = d_i$ if $x(s, t)$ belongs to $\xi_i(s, t)$. The initial data for realizing the mentioned recurrent procedure is the unknown sample $x_1(s, t), \ldots, x_N(s, t)$ $(N > k)$ from the set of patterns of the classes $\{\xi_i(s, t)\}$ insofar as possible indicative for the entire set and also the known series of values of $d_{i_1}, \ldots, d_{i_N}$ and the ideal functional corresponding to this sample. The procedure for constructing $h(s, t) = h_N(s, t)$ was implemented in an optical version of the classifier the schematic of which is given. The adaptive process based on the photochrome material is described and some experimental results are presented.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC:629.78.002.3

TROFIMOVICH, A. N., TVERDOKHLEB, S. I., KRAVETS, N. I.

"Self-Lubricating Antifriction Material Based on Thermally Stable Aromatic Polyamides"

Probl. Treniya i Iznashivaniya. Resp. Mezhved. Nauch.-Tekhn. Sb. [Problems of Friction and Wear. Republic Interdepartmental Scientific and Technical Collection], 1973, No 4, pp 119-123 (Translated from Referativnyy Zhurnal Raketostroyeniye, No 10, 1973, Abstract No 10.41.164 from the resume)

Translation: Laboratory studies of new self-lubricating thermally stable materials based on aromatic polyamides with teflon are performed. The dependence of physical-mechanical and antifriction properties on content of teflon is demonstrated and the optimal quantity of filler is established. The maximum wear resistance is achieved by a material based on poly-m-p-phenylene isophthalamide containing 15-20% teflon. 3 Figures; 2 Tables; 11 Biblio. Refs.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

BOGOMOLOV, A. M., TVERDOKHLEBOV, V. A.

UDC 577.4

"Results of Studying the Problems of Test Diagnosis of Complex Systems"

V sb. Tekhn. diagnostika (Technical Diagnostics — collection of works), Moscow, Nauka Press, 1972, pp 258-260 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V417)

No abstract

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC: 51:621.391

BOGOMOLOV, A. M., TVERDOKHLEBOV, V. A.

"Nemurovskiy Experiments With Complex Systems"

V sb. Obnaruzh. i raspoznavaniye. Planir. eksperimentov (Detection and Recognigion. Planning of Experiments--collection of works), Moscow, "Nauka", 1970, pp 92-98 (from RZh-Kibernetika, No 1, Abstract No 1V335)

Translation: As the authors point out, in analyzing "complex systems" the effect of input sequences alone on the system may be insufficient for producing the desired output. Sometimes in the process of the experiment it is advisable to utilize effects on the system being investigated such as changing the system to some state with the aid of a built-in device, changing the working conditions of the system, leading to a change in the transfer and output functions of the abstract automaton which describes the system, etc. These ideas and some others are formulated in the paper, and problems are also outlined which are involved in the given class of questions. G. Blokhina.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 681.3.06:51

BOGOMOLOV, A. M., TVERDOKHLEBOV, V. A.

"One Approach to Problems of Testing and Diagnosis"

Nadezhnost' Upravlyayushchikh Vychisl. Sistem. Ch. 1, [Reliability of Control Computer Systems, Part 1--Collection of Works], Kiev, 1970, pp 151-158, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1970, Abstract No. 5V653).

No Abstract.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

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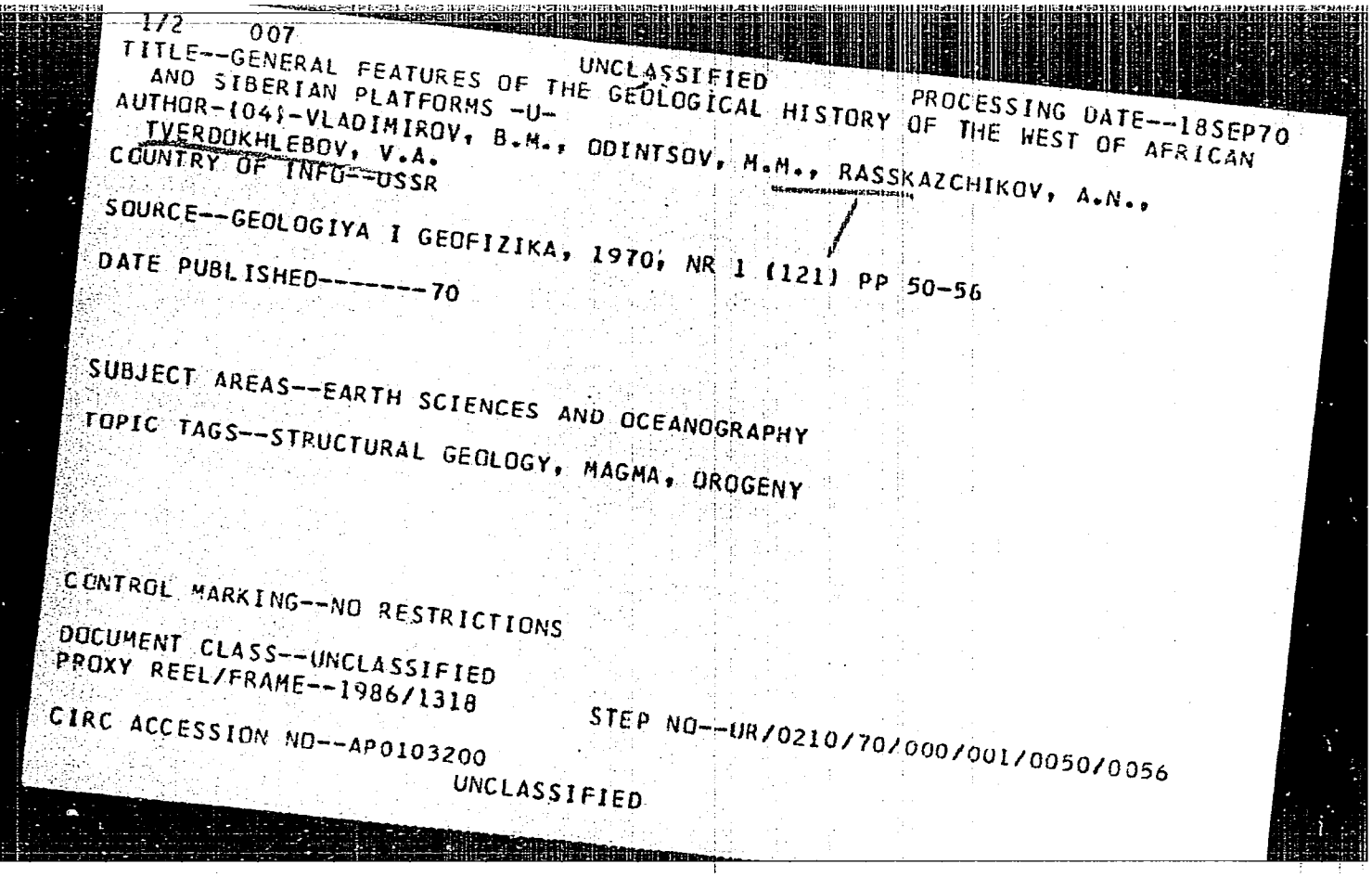

1/2 007 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--GENERAL FEATURES OF THE GEOLOGICAL HISTORY OF THE WEST OF AFRICAN AND SIBERIAN PLATFORMS -U-

AUTHOR-(04)-VLADIMIROV, B.M., ODINTSOV, M.M., RASSKAZCHIKOV, A.N., TVERDOKHLEBOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 1 (121) PP 50-56

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--STRUCTURAL GEOLOGY, MAGMA, OROGENY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1318 STEP NO--UR/0210/70/000/001/0050/0056

CIRC ACCESSION NO--AP0103200

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

2/2 007 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103200

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MAIN FEATURES OF GEOLOGICAL STRUCTURE OF THE BASEMENT, SEDIMENTARY COVER AND MAGMATISM OF THE WEST AFRICAN CRATON AND LIBYAN NIGERIAN OROGENIC BELT ARE CONSIDERED. THEIR BELONGING TO THE SINGLE WEST AFRICAN COMPLICATED EPIBAIKALIAN PLATFORM STRUCTURE WITH DIFFERENT AGE OF HETEROGENE BASEMENT IS ESTABLISHED. THE ANALOGOUS FEATURES OF GEOLOGICAL DEVELOPMENT OF THE WEST AFRICA AND SIBERIAN PLATFORM WITH INCLUDED BAIKALIDES ARE ESTABLISHED BY COMPARATIVE ANALYSIS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC: 533.95

POLYAKOV, S. P., TVERDOKHLEBOV, V. I.

"Properties of Low-Pressure Jets"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasma--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 433-435 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B108)

Translation: A study was made of the effect which the addition of natural gas has on the parameters of a hypersonic plasma jet -- air and oxygen. The gas flowrate when the plasmatron operates on oxygen is 0.06 g/s, with a corresponding figure of 0.082 g/s for operation on air. The additive was introduced into the jet at a distance of 1 mm from the nozzle tip. The Mach number of the jet is of the order of 2.5. Current-voltage curves are given for a plasmatron together with the excitation temperature distribution lengthwise of the jet under various conditions. It is shown that introduction of the additive has a noticeable effect on the parameters of the jet, this effect being different for air and for oxygen. For an oxygen jet, the temperature of excitation decreases when the additive is introduced, while the temperature increases for air. V. P. Shimchuk.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

172 031 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ION FORMATION IN AN ACETYLENE AIR FLAME STUDIED BY A SATURATION CURRENT METHOD -U-

AUTHOR-(02)-TVERDOKHLEBOV, V.I., CHIRKIN, N.N.

COUNTRY OF INFO--USSR

SOURCE--FIZ. GORENIYA VZRYVA 1970, 6(1), 34-7

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--IONIZATION, ACETYLENE, FLAME, METHANOL, METHANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0902 STEP NO--UR/0414/70/006/001/0034/0037

CIRC ACCESSION NO--AP0136336

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

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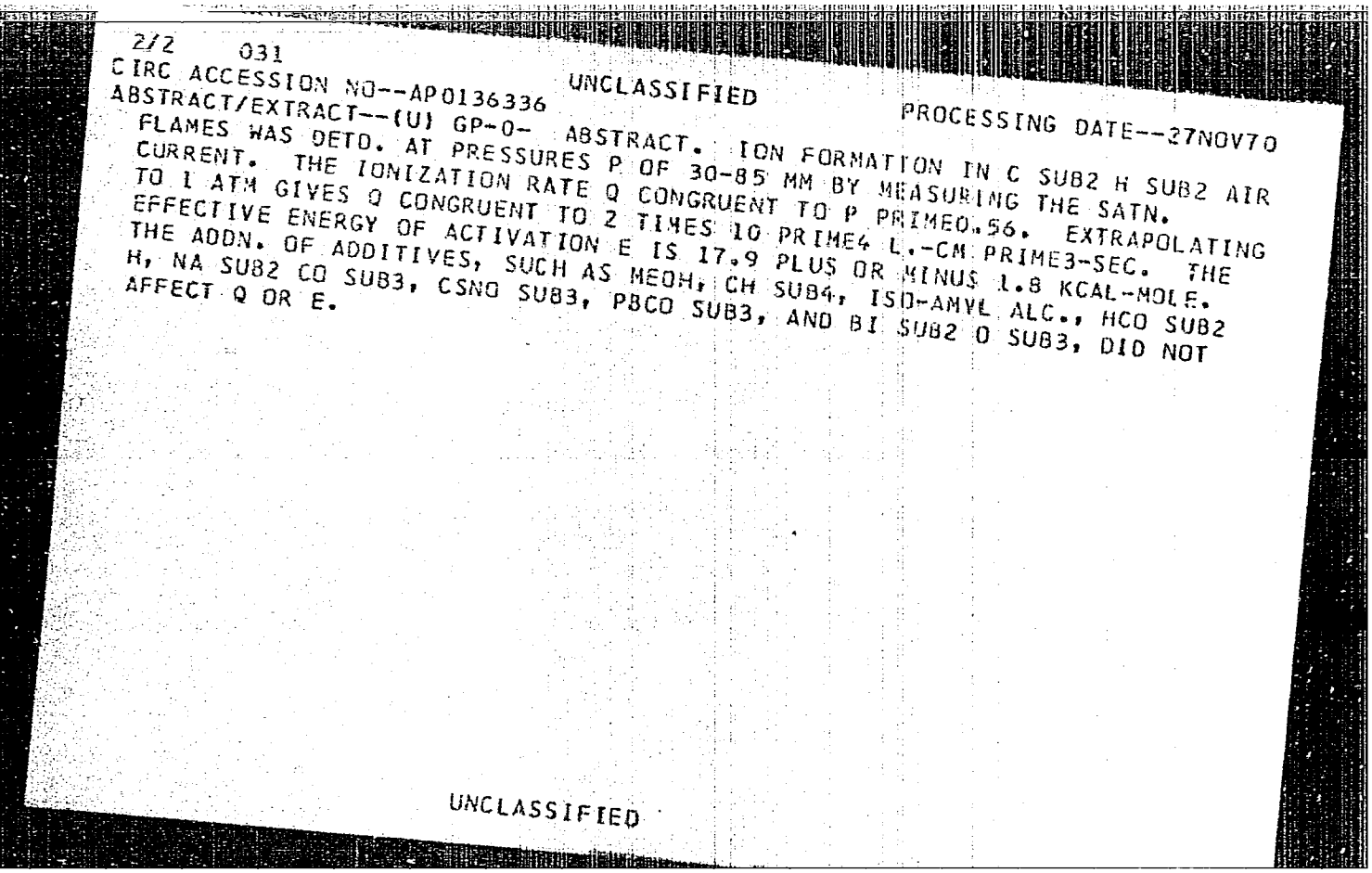

2/2 031 UNCLASSIFIED

CIRC ACCESSION NO--AP0136336 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ION FORMATION IN C SUB2 H SUB2 AIR FLAMES WAS DETD. AT PRESSURES P OF 30-85 MM BY MEASURING THE SATN. CURRENT. THE IONIZATION RATE Q CONGRUENT TO P PRIME0.56. EXTRAPOLATING TO 1 ATM GIVES Q CONGRUENT TO 2 TIMES 10 PRIME4 L.-CM PRIME3-SEC. THE EFFECTIVE ENERGY OF ACTIVATION E IS 17.9 PLUS OR MINUS 1.8 KCAL-MOLE. THE ADDN. OF ADDITIVES, SUCH AS MEOH, CH SUB4, ISO-AMYL ALC., HCO SUB2 H, NA SUB2 CO SUB3, CSNO SUB3, PBCO SUB3, AND BI SUB2 O SUB3, DID NOT AFFECT Q OR E.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

1/2 036 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--EFFECT OF HALOGENS ON IONIZATION IN A LOW PRESSURE ACETYLENE AIR FLAME -U-

AUTHOR-(02)-TVERDOKHLEBOV, V.I., CHIRKIN, N.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2) 183-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IONIZATION, HALOGEN, CARBON TETRACHLORIDE, ACETYLENE, LOW PRESSURE, FLAME, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0488

STEP NO--UR/0456/70/004/002/0183/0184

CIRC ACCESSION NO--AP0107093

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

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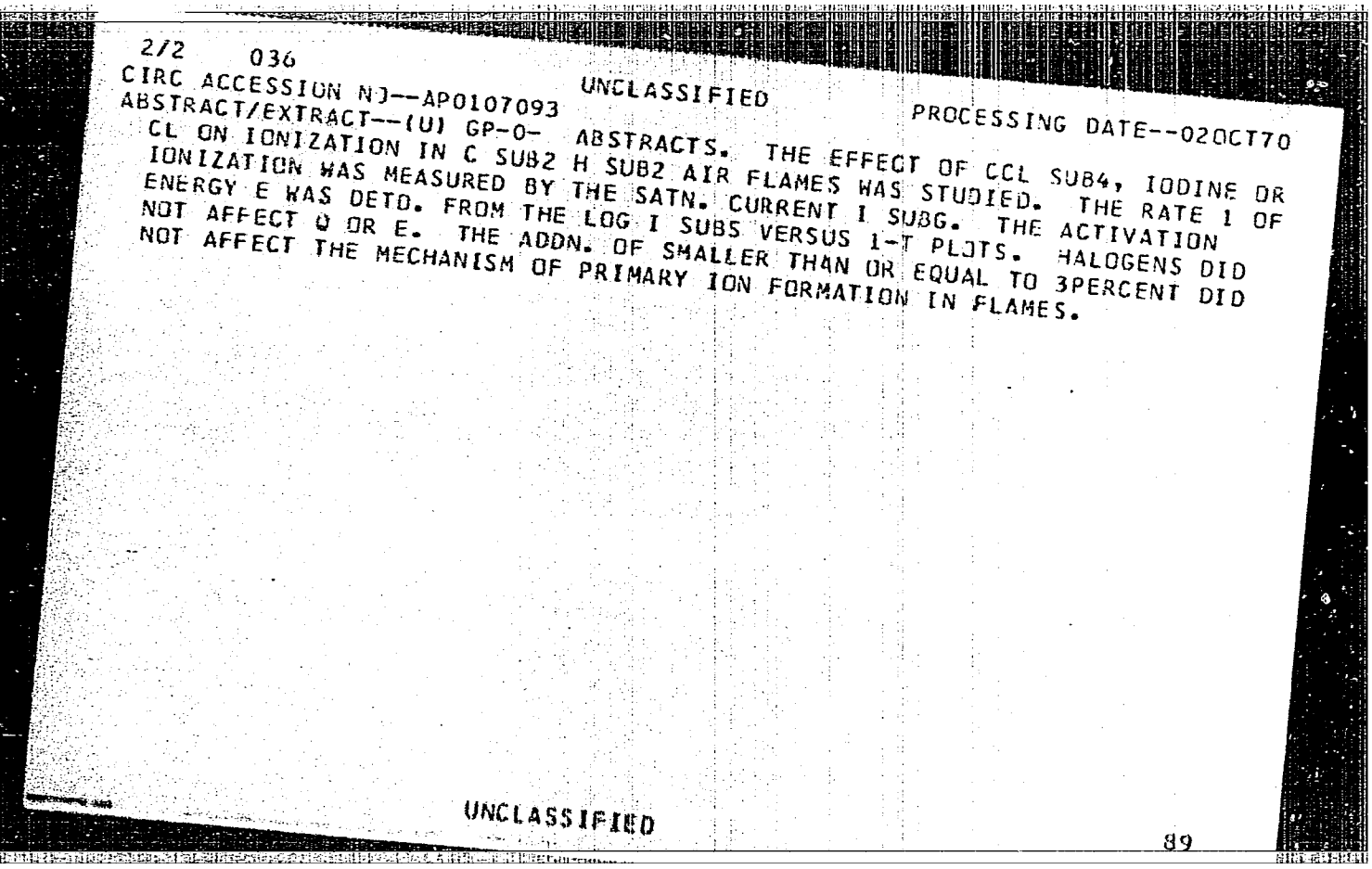

2/2 036 UNCLASSIFIED
CIRC ACCESSION NO--AP0107093 PROCESSING DATE--02OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACTS. THE EFFECT OF CCL SUB4, IODINE OR CL ON IONIZATION IN C SUB2 H SUB2 AIR FLAMES WAS STUDIED. THE RATE I OF IONIZATION WAS MEASURED BY THE SATN. CURRENT I SUBG. THE ACTIVATION ENERGY E WAS DETD. FROM THE LOG I SUBS VERSUS 1-T PLOTS. HALOGENS DID NOT AFFECT Q OR E. THE ADDN. OF SMALLER THAN OR EQUAL TO 3PERCENT DID NOT AFFECT THE MECHANISM OF PRIMARY ION FORMATION IN FLAMES.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

GALKIN, B. YE., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 47-48

Magnitude of unified signal at the output:

Direct current in milliamps	0-5
DC voltage under a load of 2 kilohms, in volts	0-10
Load resistance and converter output in kilohms	2
Basic error under normal conditions for maximum value of converter output signal, in %	±0.5-1.0
Output signal setup time in the presence of a noise filter with a suppression factor of 400 at a frequency of 50 hertz, in milliseconds, no more than	250
Pulsation amplitude of the output signal (for maximum value), in %, no more than	0.2

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

GALKIN, B. YE., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 47-48

Error on variation of ambient temperature within limits of 5-50°C beginning with 20°C with respect to absolute magnitude of the allowable basic error for each 10°C of temperature variation in %, no more than	0.5
Noise proofness:	
Normal type noise -- voltage with a frequency of 50 hertz (any phase) in volts	to 1
From general type noise -- AC voltage, frequency 50 hertz (any phase) and DC voltage in volts, respectively	to 6 and 10
Feed voltage in volts	220 (50 hertz)
Overall dimensions in mm	512x410x492

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

TVERDOKHLEBOVA, N. N.

"Number-Theory Method of Construction of Tests for Devices Described by k-valued Logic Functions"

Izv. Leningr. Elektrotekhn. In-ta. [Works of Leningrad Institute of Electric Engineering], 1972, No 118, Part 1, pp 142-146 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V448 by Kh. Madatyan).

Translation: A method is presented for construction of checking and diagnostic tests for circuits realizing functions in k-valued logic. It is suggested that the functions be fixed by formulas in a certain base.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC: 661.143.099

TVERDOKHLEV, I. G., BUTSLOV, M. M., MIKHALEV, A. A., BOZHI-BAYLOVA, G. N.

"Pressing Phosphors as a Method of Making X-Ray Phosphor Screens"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Substances), 1971, vyp. 6, pp 71-81 (from RZh-Khimiya, No 15, Aug 72, Abstract No 15L188)

Translation: The paper demonstrates the feasibility of improving the characteristics of x-ray phosphor screens through an increase in the packing density of phosphor grains by the method of pressing followed by high-temperature treatment to restore the intensity of x-ray luminescence (sulfide and rare earth phosphors) or without heating (tungstates, sulfates). Bibliography of five titles.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

PISKAREVA, S.M., TARASOV, G.I., TVERDOV, B.I.

UDC 681.327.8:621.391

"Device For Determining Adjusting Capacity Of The Receiving Apparatus Of Discrete Communication Systems"

USSR Author's Certificate No 308527, filed 26 Jan 70, published 23 Aug 71 (from RZh:Elektrosvyaz', No 2, February 1972, Abstract No 2.64.318P)

Translation: A device is proposed for determining the adjusting capacity of the receiving apparatus of the discrete communication systems of Author's Certificate No 221022. With the object of assuring straightforward direct measurement of the values of the adjusting capacity of receivers, the outputs of the coincidence circuits are connected via the time delay elements with the inputs of supplementary coincidence circuits, the second input of which is connected to the output of the pulse comparator, and the inputs of the latter are combined with the outputs of the time delay element and the code converter, connected respectively with the input and output of the receiver. The cadence [taktovyye] inputs of the time delay elements, the code converter, and the comparator are connected with the outputs of the circuit for separation of the fronts of samples.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

ZAKHAROV, YU. K., TVERDOV, I.V., PAUKOVA, A.I.

UDC 621.314.61 (088.8)

"Rectified Voltage Regulator"

USSR Author's Certificate No 261476, filed 16 Aug 68, published 22 May 70 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B502P)

Translation: In order to increase the speed of response of a rectifier, it is proposed to make it out of a number of bridge rectifiers connected in series, which are fed from separate windings of a transformer connected across a thyristor and a shunted semiconductor diode. Each thyristor is provided with a blocking circuit consisting of an auxiliary thyristor and capacitor. 1 ill. I.A.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC: 621.375.4

TVERETSKIY, M. S.

"Dissipation Inductances of Differential Transformers in a Transistorized Amplifier With Bridge Type Feedback"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Technical Electrical Communications--collection of works), Moscow, "Svyaz'", 1970, pp 76-81 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D111)

Translation: Conditions are given for which the inductive component of the input and output impedances of a transistorized amplifier covered by deep bridge type feedback is determined in the high-frequency region only by the dissipation inductance between the balance and working windings. Three illustrations, bibliography of four titles. Resumé.

1/1

- 5 -

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

1/2 036 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECT OF CORROSIVE MEDIA ON THE MECHANICAL PROPERTIES OF BORING STEELS AS USED IN THE OIL INDUSTRY -U-

AUTHOR-(02)-TVERITINOV, G.I., ROZHDESTVENSKY, YU.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (2), 105-107

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TENSILE STRENGTH, MECHANICAL PROPERTY, CRYSTAL LATTICE STRUCTURE, HYDROGEN, SULFURIC ACID, AQUEOUS SOLUTION, HYDROGEN SULFIDE, IMPACT RESISTANCE, SODIUM CHLORIDE, PETROLEUM INDUSTRY, BORIDE, CORROSION R AND D

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0197

STEP NO--UR/0369/70/006/002/0105/0107

CIRC ACCESSION NO--AP0129453

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

2/2 036 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129453

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF MECHANICAL TESTS ON A NUMBER OF C AND ALLOY STEELS USED IN THE OIL INDUSTRY BEFORE AND AFTER PROLONGED CONTACT WITH CORROSIVE MEDIA, SUCH AS SEA WATER AND MEDIA CAUSING H ABSORPTION IN THE MATERIAL, ARE PRESENTED, THE UTS, FATIGUE STRENGTH, IMPACT RESISTANCE, AND HARDNESS BEING MEASURED. THUS THE TENSILE STRENGTH FALLS SLIGHTLY AND THE FATIGUE STRENGTH VERY SUBSTANTIALLY AFTER CONTACT WITH NACL OR H SUB2 SO SUB4 SOLUTIONS. THE MECHANICAL PROPERTIES ARE SERIOUSLY AFFECTED BY H SUB2 S, WHICH INTRODUCES H INTO THE LATTICE OF THE STEEL MATRIX.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE VM-1 VACUUM DIFFRACTION MONOCHROMATOR AND ITS OPERATIONAL PERFORMANCE -U-
AUTHOR-(03)-GERASIMOVA, N.G., SNIGIREV, YU.A., TVERITINOV, M.P.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, OPTIKO MEKHANICHESKAYA PROMYSHLENNOST', NO 1, 1970, PP 58-62
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--VACUUM, MONOCHROMATOR, SPECTRAL DISTRIBUTION, PHOTOMETRIC ANALYSIS, SPECTROMETER/(U)VM1 MONOCHROMATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1354 STEP NO--UR/0237/70/000/001/0058/0062

CIRC ACCESSION NO--AP0123312
UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

2/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0123312

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN OF A STUDY OF THE SPECTRAL CHARACTERISTICS AND OPERATIONAL PERFORMANCE OF THE VM-1 SERIES PRODUCED VACUUM MONOCHROMATOR. IN CONJUNCTION WITH A PHOTOMETRIC CHAMBER, THE UNIT PERFORMS THE FUNCTIONS OF A SINGLE BEAM SPECTROMETER USED TO MEASURE THE TRANSMISSION AND REFLECTIVITY FACTORS OF SOME MATERIALS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR UDC 621.039.526:621.039.524.034.3

NESTERENKO, V. B., TVERKOVKIN, B. YE., SHINKEVICH, O. S.

"Prospects for Application of Dissociating Gases as the Heat Exchange Agents of Fast Neutron Nuclear Reactors"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 36-41 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U193)

Translation: Results are presented from thermal calculation of the cores of fast neutron nuclear reactors with dissociating heat exchange agents N_2O_4, Al_2Cl_6 and Al_2Br_6. They are compared with the heat engineering characteristics of the water vapor and sodium reactor. There is 1 illustration, 1 table and a 4-entry bibliography.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 621.039.524.034.3

NESTERENKO, V. B., TVERKOVKIN, B. YE., SHINKEVICH, O. S., PLESHCHENKOV, G. A.

"Calculating the Parameters of a Chemically Reacting Flow in a Heated Channel"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V. sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 238-252 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U192)

Translation: A one-dimensional procedure for calculating the parameters of a chemically reacting stationary flow in a heated channel is proposed. The results of numerical calculation are presented, and the effect of the kinetics of chemical reactions on the average parameters of the chemically reacting flow is analyzed in the example of the dissociating system $N_2O_4 \rightleftarrows 2NO_2 \rightleftarrows 2NO+O_2$. There are 4 illustrations, 1 table and a 6-entry bibliography.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

1/3 027 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--RELATIONSHIP BETWEEN SUMMATION REACTION AND CONDITIONED REFLEX -U-

AUTHOR-(02)-PRESSMAN, YA.M., TVERITSKAYA, I.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 3, PP 569-577
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--CONDITIONED REFLEX, ELECTRIC DISCHARGE, NEUROPHYSIOLOGY, EYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1906 STEP NO--UR/0247/70/020/003/0569/0577

CIRC ACCESSION NO--AP0120564
UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

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2/3 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARISON WAS MADE ON FOUR DOGS OF THE CHARACTERISTICS OF SUMMATION REACTIONS AND OF THOSE PROCEEDING ALONG TEMPORARY FORWARD AND BACKWARD CONNECTIONS. THE FOLLOWING CHARACTERISTIC WERE ESTIMATED: FREQUENCY OF EMERGENCE OF EACH TYPE OF RESPONSES IN THE COURSE OF REPEATED APPLICATION OF STIMULI, STATISTICAL SUCCESSION OF APPEARANCE OF, POSITIVE AND NEGATIVE EFFECTS OF THE REACTIONS, AND THEIR LATENCIES DURATION. THE STIMULI WITH PRONOUNCED PROPER EFFECTS (AIRPURR INTO THE EYE AND ELECTRIC CUTANEOUS STIMULATION) WERE APPLIED IN DIFFERENT TEMPORAL COMBINATIONS. SIMILARITY HAS BEEN ESTABLISHED OF A NUMBER OF PROPERTIES OF SUMMATION REACTION, OF REACTIONS ACHIEVED ALONG A BACKWARD CONNECTION AND OF REACTIONS PROCEDING ALONG A DIRECT CONDITIONED CONNECTION AT EARLY STAGES OF ITS FORMATION. IN AGREEMENT WITH PREVIOUS RESEARCHES, THE AUTHORS CONSIDER THE CONNECTION OF THE SUMMATION TYPE AS THE MOST GENERAL TYPE OF TEMPORARY CONNECTION; IT IS CHARACTERIZED BY A COMPARATIVELY LOW PROBABILITY OF EMERGENCE AND A TWO WAY, OR CIRCULAR MOVEMENT OF EXCITATION BETWEEN THE NERVOUS STRUCTURES, INVOLVED IN REALIZATION OF THE REACTIONS. AT THE INITIAL PERIOD OF CONDITIONING IT IS THE SUMMATION MECHANISM THAT ACTS. AS THE PAIRINGS CONTINUE, ANOTHER MECHANISM BEGINS TO ACT, PROVIDING FOR DIRECT CONDITIONED CONNECTION OF THE SIGNAL TYPE; THE CONNECTION IS CHARACTERIZED BY ONE WAY CONDUCTION FROM THE NERVOUS STRUCTURES OF THE SIGNAL STIMULUS TOWARDS THOSE OF THE REINFORCING STIMULUS. DIRECT CONDITIONED CONNECTION IS CHARACTERIZED BY A HIGH PROBABILITY OF EMERGENCE OF POSITIVE EFFECTS APPEARING IN THE FORM OF LONG SERIES.

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3/3 027 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0120564
ABSTRACT/EXTRACT--THE BACKWARD CONNECTION IS A CONNECTION OF THE SUMMATION TYPE AND IS PRESERVED TO A CERTAIN DEGREE THROUGHOUT THE EXISTENCE OF THE CONDITIONED REACTION.. FACILITY: INSTITUTE OF HIGHER NERVOUS ACTIVITY AND NEUROPHYSIOLOGY, USSR ACADEMY OF SCIENCES, MOSCOW.

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USSR

UDC 632.95

KOSMATYY, YE. S., TVERSKAYA, B. M.

"Quantitative Analysis of Residues of Keltane and Dilor by the Method of Thin-Layer Chromatography"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Fodder and Environment), Tallin, 1971, pp 162-166 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N451)

Translation: In analyzing dilor (I) and keltane (II), the thin layer chromatographic method is used in a reinforced layer in biological material. For II, the mixture of Al_2O_3 with silica gel KSK (40 mesh) in a 1:1 ratio is used as the adsorbent; for I, Al_2O_3 is used. The chromatographic analysis is run in an n-hexane-acetone system 3:1 (II) and in n-hexane (I). A solution of $AgNO_3$ in NH_4OH (II) or a 2% solution of diphenylamine in acetone (I) is used as the developer. The amount of pesticide in the sample is determined by the spot area.

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USSR

VERNOV, S. N., IVANOVA, T. A., SOSNOVETS, E. N., TVERSKAYA, L. V., FEDOROVA, G. F., and KHOROSHEVA, O. V.

"Injection of High-Energy Electrons into the Inner Regions of the Magnetosphere During a Magnetic Storm 29 October - 4 November 1968"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No. 11, Nov 70, pp 2270-2274

Abstract: Measurements of electron fluxes (E > 250, 500, and 800 kev) made with the satellite "Molniya-1" [Lightning-1] during a magnetic storm are reported. The trajectory of the satellite was the following: apogee 39,600 km in the Northern Hemisphere, perigee 520 km in the Southern Hemisphere, inclination of orbit 65°, period of rotation ~12 hours. The data is compared with readings made at various ground stations during the same period. It was found that after a series of strong minor storms the intensity of electrons in the gap (E_e > 250 kev) rose by more than a factor of 2. In a subsequent series of such disturbances, additional injection occurred and the front of the injected electrons moved closer to the earth. An

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USSR

VERNOV, S. N., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 11, Nov 70, pp 2270-2274

injection of electrons of higher energies in the region $L < 3$ was not as effective as for $L = 3$, and the spectrum here was softer. It is observed that these phenomena are closely associated with increased intensity of polar disturbances and in all probability are of great interest in understanding the dynamics of the magnetosphere as a whole.

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USSR

UDC 621.317.757.

TVERSKOY, V. I.

"Dispersion Analyzer for Phase Spectra of Short Radio Pulses"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 65, Author Certificate No 258452 Class 21e

Abstract: This author certificate introduces a dispersion analyzer of short radiopulses phase spectra with a simultaneous formation of the reference signal. The analyzer consists of a frequency modulated heterodyne, band filters, channel mixers for the analyzed and reference signals, a dispersion delay circuit, a short video pulse generator, and a detector. For the purpose of simplicity in the case of analysis of greatly varying phase spectra of short radiopulses in the intermediate-frequency shapings signals are connected to the input of the dispersion delay circuit through a summator. The dispersion delay circuit is connected to the mixer, the output of which is connected to the frequency detector and integrator through a filter and a limiter. In addition, the synch output of the heterodyne modulator is fed on an indicator and a delay cascade, whose output is connected to the synch input of the short videopulse generator, whose output is connected to the reference signal channel mixer through a band-forming filter.

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1/2 030 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ENERGY MODEL OF THE THERMOPLASTIC STRENGTHENING OF DISPERSION HARDENED ALLOYS -U-

AUTHOR-(03)-GORDIYENKO, L.K., POLYAKOV, M.G., TVOROGOV, I.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. OBRAB. MATER. 1970, (1), 90-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MODEL, THERMODYNAMICS, ALUMINUM ALLOY, METAL HEAT TREATMENT, METAL HARDENING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0278 STEP NO--UR/0472/70/000/001/0090/0098

CIRC ACCESSION NO--AP0048553

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2/2 030 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0048553

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ENERGY MODEL FOR THE DESCRIPTION OF THERMOPLASTIC HARDENING PROCESSES OF METALS WAS CONSTRUCTED THEORETICALLY ON THE BASIS OF THERMODYNAMICS OF IRREVERSIBLE PROCESSES. THE WHOLE PROCESS WAS DIVIDED INTO THE EVALUATION OF WORK IN HARDENING AND IN SOFTENING. THE WORK IN SOFTENING IS HIGHER THAN THE WORK IN HARDENING. THE MODEL WAS APPLIED TO HEAT TREATMENT OF AL ALLOYS (IVANOVA, ET AL., 1965) AS A SPECIAL CASE.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

1/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--STRUCTURE OF GRAIN BOUNDARIES AND IMPACT STRENGTH OF ALUMINUM ALLOYS AK6 AND V93 AFTER HIGH TEMPERATURE DEFORMATION WITH TEMPERING -U-

AUTHOR--TVOROGOV, I.M., KHALIKOV, R.S.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2) 33-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--IMPACT STRENGTH, ALUMINUM ALLOY, TEMPERING, ALLOY DESIGNATION, METAL MICROSTRUCTURE, GRAIN BOUNDARY/(U)AK6 ALUMINUM ALLOY, (U)V93 HIGH STRENGTH ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1311 STEP NO--UR/0129/70/000/002/0033/0036

CIRC ACCESSION NO--AP0106088

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

2/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106088

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AK6 AND V93 AL ALLOYS (ALL VALUES FOR THE V93 ALLOY ARE GIVEN IN PARENTHESES), CONTG. CU 2.8 (1.02), MG 0.65 (2.15), MN 0.60 (0.06), SI 0.80 (0.06), ZN 0.04 (7.08), NI 0.01 (0.02), TI 0.01 (0.015), AND FE 0.12PERCENT (0.28PERCENT) WERE HEATED TO 510 PLUS OR MINUS 5 (470 PLUS OR MINUS 5)DEGREES FOR 1.5 (1.25) HR, HOT DEFORMED AT THIS TEMP. WITH 30PERCENT DEFORMATION, BY USING A FRICTION PRESS (100 TONS), QUENCHED IN WATER, AND AGED AT 160 PLUS OR MINUS 5DEGREES FOR 16 HR (120-3 PLUS 165 PLUS OR MINUS 5DEGREES-4 HR). THE MICROSTRUCTURES OBTAINED WERE COMPARED WITH THOSE AFTER USUAL TREATMENT (DEFORMING AT 420DEGREES (BOTH ALLOYS), QUENCHING FROM 510 PLUS OR MINUS 5 (470)DEGREES AND AGING AS ABOVE). THE MECH. PROPERTIES OF ALLOYS AFTER BOTH KINDS OF TREATMENT WERE PRACTICALLY THE SAME, EXCEPT THE IMPACT STRENGTH THAT INCREASED FROM 2.7 (0.6) TO 3.5 (1.2) KG.M-CM PRIME2 AFTER THE HOT DEFORMING TREATMENT. UNDER THE USUAL TREATMENT THE MICROSTURCTURES OF BOTH ALLOYS SHOW GRAINS WITH STRAIGHT, THICKENED BOUNDARIES. AFTER HOT DEFORMATION THE BOUNDARIES HAVE A WAVY TOOTHED NATURE WITH MARKEDLY LESS AMT. OF PPTS. THE FEATURE OF THESE STURCTURES IS A GREATER UNIFORMITY OF DISTRIBUTION OF THE DECOMPN. PRODUCTS FORMED DURING AGING, WHICH IMPROVES THE DYNAMIC STRENGTH OF ALLOYS.

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USSR

UDC: 531.788

TVOROGOV, I. V., KHAVKIN, L. P.

"Eliminating the Error of a Compression Manometer Due to the Evacuating Effect of a Mercury Vapor Jet"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 164-166

Abstract: At low pressures, a mercury compression manometer is inaccurate because of the evacuating action of the mercury vapor jet which escapes from the manometer into the cold trap. This paper describes a method of eliminating this error by using McLeod manometers with tubes of a known and different diameter connecting them to the cold trap. A diagram of the vacuum installation is shown in the figure. Formulas for pressure calculation are given as well as the results of an experimental check. It was found that a pair of compression manometers with connecting tube diameters of 8.22 and 21.58 mm almost completely eliminates measurement error due to mercury vapor jet action. The authors thank L. F. Nosyreva and G. I. Il'in for assistance in preparing and carrying out the experiments.

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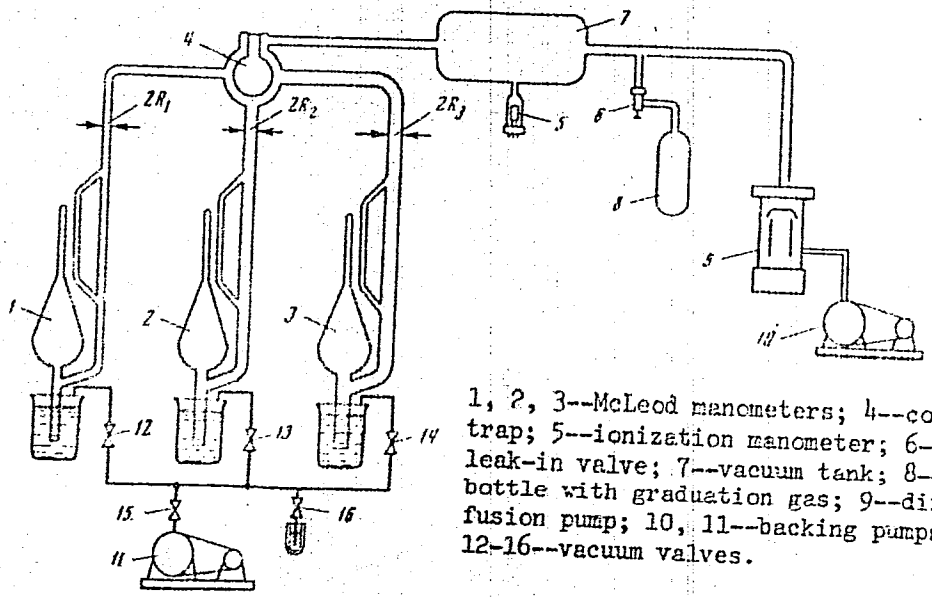
USSR

TVOROGOV, I. V., KHAVKIN, L. P., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 164-166



1, 2, 3--McLeod manometers; 4--cold trap; 5--ionization manometer; 6--leak-in valve; 7--vacuum tank; 8--bottle with graduation gas; 9--diffusion pump; 10, 11--backing pumps; 12-16--vacuum valves.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

Measuring, Testing, Calibrating

USSR

UDC: 531.788

TVOROGOV, I. V., KHAVKIN, L. P.

"Absolute Graduation of Manometric Converters by the Method of Comparison With a Compression Manometer on a Cryostatically Controlled Installation"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 162-164

Abstract: One of the simplest methods of absolute graduation of manometric converters is comparison with an absolute standard -- usually a mercury compression manometer. However, at low pressures an error arises due to the evacuating effect of the mercury jet escaping as vapor from the manometer into the cold trap. One way of eliminating the error is to cool the entire measurement installation including the compression manometer. In this paper the authors determine the temperature at which the principal error disappears. The experimental installation is described in detail. It is found that the measurement system must be cooled to 0-2.5°C to eliminate error due to evacuation by the mercury vapor jet.

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USSR

UDC 621.373.826:53

GORDOV, Ye. P., VAYNSHTEYN, V. D., SOKOLOV, V. V., and TVOROGOV, S. D.

"Some Problems in Quantum Statistical Optics and the Propagation of Electromagnetic Waves"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 184-186 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D387)

Translation: Results are given of the authors' solution to a series of problems in the use of quantum statistical optics in the area of electromagnetic wave propagation. Eigenfunctions of the electromagnetic field vector potential operator are introduced. A method is proposed of statistical computation for measuring the field density matrix as the field is propagated in the medium. The representation of the electromagnetic field in the form of the quantum average of purely field operators is advanced. The change in photon statistics for light propagated in a medium of weak nonlinearity and low absorption is assumed connected with the solution for the corresponding problem in classical electrodynamics. A. K.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 621.373.826:53

KALINENKO, A. N., LUGIN, E. V., and TVOROGOV, S. D.

"Propagation of a Short Pulse of Optical Radiation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 342-346 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D356)

Translation: By using the results of an analysis of the interaction of a light impulse and a spherical particle (in the linear approximation) the attenuation coefficient is obtained in the resonance Rayleigh dispersion for monochromatic (K^M) and pulse (K^P) radiation. For the resonance dispersion, K^P and K^M differ for any $\lambda = \omega_0 T$, where ω_0 is the pulse carrier frequency and T is the pulse duration. For nonresonance dispersion, the difference arises with $\lambda \leq 1$. Bibliography of four. A. L.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 551.521.3

ZUYEV, V. YE., SOKOLOV, V. V., TVOROGOV, S. D.

"Calculating the Volumetric Coefficients of Radiation Attenuation by Water Clouds and Fogs in the 0.3-25 Micron Range"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 4, 1971, pp 73-77

Abstract: The volumetric coefficients of attenuation of radiation by water clouds and fogs in the 0.3-25 micron range are calculated. The particle size spectrum is described by the gamma distribution, the parameters of which vary within broad limits. The latest most exact and detailed data on the components of the complex index of refraction of water were used in the calculations.

The calculated coefficients are presented in a table, and the attenuation coefficients are plotted as functions of some defined values of the microstructure parameters r (most probable particle radius) and μ (the characteristic of the distribution halfwidth). An error analysis is performed for the calculations.

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ZUYEV, V. YE., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy-- Fizika, No 4, 1971, pp 73-77

The problem of the limiting optical thicknesses of clouds and fogs for which it is still possible to use the values of the attenuation coefficients obtained in estimating the measurable radiation attenuation by Bouguer's law is also investigated.

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USSR

Adsorption

UDC 546.633:543.544.6

SHATSKIY, V. M., KRIVENKO, S. V., KOMISSAROVA, L. N., BEBIKH, G. F., PRUTKOVA, N. M., KESLER, YA. A., and TVOROGOV, V. A., Chair of Inorganic Chemistry

"Synthesis of Novel Phosphorus Containing Sorbents and the Study of the Sorption of Scandium on Them"

Moscow, Vestnik Moskovskogo Universiteta, Vol 13, No 6, Nov-Dec 72, pp 653-658

Abstract: Optimal conditions for scandium sorption and separation from iron have been determined on a pilot-plant scale. A specific sorbent was used in the process. It was the product of the copolymerization of styrene with divinylbenzene phosphorylated with $PNCl_2$ and subsequently hydrolyzed with alcoholic potassium hydroxide solution. The optimal conditions for the separation process on this sorbent are as follows: the sorption is carried out from a 0.1 N H_2SO_4 solution; a 7% ammonium fluoride solution is used for the desorption; under these conditions in one "sorption-desorption" cycle the iron is isolated practically completely. Repetition of the desorption process with a fresh portion of the desorbent removed 99% of scandium. This sorbent may be used for the concentration of scandium out of the solutions with high iron content. In addition to iron this method also separates all mono- and divalent elements, rare earth elements and other impurities from scandium.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC: 624.04:534

TYABLIKOV, YU. YE. (Moscow)

"Instability of an Oscillating System During Resonance"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 2 (80), 1972, pp 26-30

Abstract: V. S. Martynov's work has served as the basis in the study of the interaction between the energy source and the oscillating system. It also serves as the basis in studying losses in stability in passing through resonance zones. In analyzing this phenomenon which is known as the Sommerfeld effect, the usual approach is to compare the moment of momentum with the moment of resistance at the drive shaft of the excitation mechanism. Approximate solutions of linear equations of motion for an oscillating system are used for determining the moment of resistance, where the oscillating system includes an excitation mechanism and an oscillatory circuit. The author uses a symbolic method which makes it possible to set up directly an equation for the balance of moments at the exciter drive shaft. Since the angle of inclination of the load curve plays a significant role in problems of stability analysis, then the derivatives $\partial M_c/\partial\omega$ acquire significance. Obviously, the divergence in determining their values will become even greater. As a result of this the points of inflection of the moment curve change place and the regions of instability will not coincide with their actual values. Because of this the

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USSR

TYABLIKOV, YU. YE., Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 2 (80), 1972, pp 26-30

derivation of an equation for the balance of moments from the solution of a system of motion equations is feasible only in the case of nonlinear oscillatory circuits. In the case of linear oscillatory circuits, particularly ones with a complex structure, it is expedient to use the symbolic method which makes possible the direct determination of the active load moment at the exciter drive shaft. Original article: five figures, one table, 14 formulas, and three bibliographic entries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC: 534.14

KARAMYSHKIN, V. V., TYABLIKOV, Yu. Ye., Moscow

"Consideration of Energy Dissipation in Resonant Modes with Hydraulic Excitation"

Kiev, Problemy Prochnosti, No 9, 1970, pp 73-76

Abstract: A study is made of the possibility of maintaining stable oscillating modes in tests of models, structures and structural elements on vibrating test platforms at frequencies near the frequencies of natural oscillations of the objects being tested. The test object in this analysis is assumed to be a beam of constant cross section fastened to the vibrating platform. Then, considering the elastic-viscous nature of energy dissipation, an equation is written for the motion of the elements in the system and analyzed. It is found that at the resonant frequency of the rod under certain conditions the rod actually acts as a vibration damper.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 621.382.2

TYAGAY, V. A., KOLBASOV, G. YA., LUK'YANCHIKOVA, N. B., SOLGANIK, B. D.

"Study of Photosensitivity and Noise of Semiconductor-Electrolyte Barrier Contacts"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 248-253

Abstract: A detailed study was made of the volt-ampere characteristics, complex conductivity and noise of a CdSe-electrolyte barrier contact during irradiation of it in the band-band absorption region. The lifetime of the minority current carriers was determined, and the threshold sensitivity of the contact was found. The photothreshold is limited by the noise of the charge capture process in the traps in the CdSe barrier layer region. The noise of the limiting photocurrent of the contact is caused by power fluctuations of the incident photon flux. The threshold sensitivity of a number of semiconductor-electrode contacts with different width of the forbidden band was determined. From the tabulated data it follows that the semiconductor cadmium chalcogenides with a sufficiently broad forbidden band have the best photosensitivity. Decreasing the width of the forbidden band (or high admixture concentration, as in the case of GaP) leads to an increase in the dark currents, and the sensitivity becomes appreciably worse. The photothreshold for Ge and CdTe crystals of the

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

TYAGAY, V. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 248-253

p-type is appreciably below that for the corresponding samples of the n-type. This behavior is partially caused by a decrease in the phenomenological quantum yield and can be connected with the high rate of surface pair recombination on the surface of the semiconductors in the negative bias region.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--FARADAIC RECTIFICATION IN A PLATINUM IODIDE-TRIODIDE SYSTEM -U-

AUTHOR-(02)-TYAGAY, V.A., KOLBASOV, G.YA.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(4), 473-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IODIDE, PLATINUM, ELECTRIC IMPEDANCE, ELECTRONIC RECTIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1158 STEP NO--UR/0364/70/006/004/0473/0479

CIRC ACCESSION NO--AP0121717

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2/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121717

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYSTEM PT-INEGATIVE -I SUB3NEGATIVE WAS INVESTIGATED BY FARADAIC RECTIFICATION AND IMPEDANCE MEASUREMENTS. THE OVERALL ELECTRODE REACTION FOLLOWED THE SCHEME: DISCHARGE RECOMBINATION, THE DISCHARGE BEING THE SLOW STEP. THE KINETIC PARAMETERS OF THE DISCHARGE PROCESS WERE DETD. (Z (NO. OF ELECTRONS IN THE OVERALL REACTION) EQUALS 0.99 PLUS OR MINUS 0.1; ALPHA (THE CATHODIC TRANSFER COEFF.) EQUALS 0.47 PLUS OR MINUS 0.04)) AND THE VALUE OF THE RATE CONST. CALCD. (K EQUALS (1-5) TIMES 10 PRIME NEGATIVE 2 CM-SEC). A METHOD WAS WORKED OUT FOR DETG. THE NO. OF ELECTRONS INVOLVED IN THE SLOW DISCHARGE PROCESS. A THEORY OF FARADAIC RECTIFICATION WAS DEVELOPED FOR THE CONSECUTIVE REACTION OF DISCHARGE RECOMBINATION, TAKING INTO ACCOUNT THE FRACTIONAL COVERAGE OF THE ELECTRODE SURFACE BY THE ADSORBED SPECIES. SIMULTANEOUS MEASUREMENTS OF THE FARADAIC IMPEDANCE AND RECTIFICATION MAY SERVE AS A BASIS FOR DETG. THE EQUIL. COVERAGE. IN THE SYSTEM UNDER STUDY THE FRACTIONAL COVERAGE OF THE PT SURFACE BY AT. H WAS IN THE RANGE OF 0-0.5 DEPENDING ON THE I CONCN. IN THE SOLN. FACILITY: INST. POLUPROV., KIEV, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 617-001.21-02:538.3

TYAGIN, V. N.

Klinicheskiye Aspekty Obluchenlya SVCh-Diapazona (Clinical Aspects of Irradiation in the Superhigh Frequency Range), Leningrad, "Meditsina," 1971, 174 pp

Translation: Annotation: General characteristics of a SVCh (superhigh frequency) field, its application in the national economy, and the principles of its measurement are presented in this work. Data concerning the biological effects of a SVCh field of large or small intensity, and particularly its effect on the nervous and cardiovascular systems, blood system, metabolism, and some of the human and animal organs, are cited. At the same time, problems regarding the mechanism of these effects are touched upon. It is indicated in this work that functional disturbances, although not specific in character, may develop in persons who have been working with SVCh generators for a long time. Clinical manifestations of the nervous system and visceral functions developing under the influence of prolonged and repeated irradiation, have been established schematization and, depending on the leading syndrome, divided into three forms: asthenic, vegetative-vascular, and diencephalic. The severity of the disturbances may differ as follows: mild, moderate, and severe, the latter very seldom occuring and not always fully reversible.
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USSR

TYAGIN, V. N., Klinicheskiye Aspekty Oblucheniya SVCh-Diapazona, Leningrad, "Meditsina," 1971, 174 pp

Data concerning the maximum permissible levels of irradiation are cited. Problems of medical expertise and protection from SVCh irradiations are examined.

It is indicated that measures for prophylaxis and protection from SVCh irradiations in areas of work with SVCh generators are being implemented; the probability of being irradiated by rays the intensity of which exceeds the maximum permissible level has the refore been practically eliminated.

The book is intended for practicing physicians and scientific workers engaged in the investigation of problems bearing on occupational pathology of SVCh irradiations.

35 tables, 25 illustrations, 245 bibliography entries.

Introduction: Radioelectronics has been serving the national econony for more than two decades, and the number of branches of science and technology in which it is not yet being applied are few. Radar, radio direction finding, radioastronomy, radiogeodesy, and radiospectroscopy -- this list of its branches requiring independent directions of investigation is far from complete.

Radioelectronic apparatuses generate superhigh frequency (SVCh) elec-

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TYAGIN, V. N., Klinicheskiye Aspekty Oblucheniya SVCh-Diapazona, Leningrad, "Meditsina," 1971, 174 pp

tromagnetic waves the effect of which may induce functional changes in the human organism. The possibility of an unfavorable effect of a SVCh field on a living organism created a necessity for the study of its biological action, a matter of interest for theoretical and clinical, and in particular prophylactic medicine.

The constant broadening of the application area and considerable increase in the power of SVCh irradiation sources playing the role of a penetrating factor determined the exceptional urgency of the problem of the biological effect of a SVCh field.

Investigations concerning this problem were begun in the Soviet Union mainly after the World War II, predominantly in experimental and occupational-hygiene directions. They are also carried out on a broad scale abroad. In the United States alone more than 80 firms and institutes are engaged in the study of the biological effect of a SVCh field (B. V. Sergovantsev, 1956, 1961).

Measuring instruments and dosimetry methods of a SVCh field have now been created, making it possible to control the sources of irradiation and determine its maximum permissible level (PDU). This also made it possible to arrive at a hygienic evaluation of the different conditions of human

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USSR

TYAGIN, V. N., Klinicheskiye Aspekty Oblucheniya SVCh-Napazona, Leningrad, "Meditsina," 1971, 174 pp

activity from the point of view of the possible harmful effect of a SVCh field, to study the many aspects of the biological effects of the field, and to develop means of prophylaxis and protection from the effect of SVCh electromagnetic oscillations. However, many aspects of the problem, including such an important problem as the primary mechanism of the biological effect of a SVCh field, still remain unsolved.

Along with numerous journal articles the literature includes monographs on the problem of the biological effect of radio waves, including those of the SVCh range. These elucidate mainly engineering-technological and hygienic problems (Yu. A. Osipov, 1965; Z. Gordon, 1966, and others). The focus of attention in our work is the evaluation of the available factual data in a clinical and biological plane, and particularly the elaboration of clinical syndromes developing under the influence of SVCh and their prophylaxis. The proffered work is intended mainly for physicians who, in their practice, may encounter personnel with health disturbances induced in work with SVCh generators, or at least under conditions in which the development of such disturbances is possible. Information providing a representation of the SVCh factor, irradiation conditions, and principles of

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USSR

TYAGIN, V. N., Klinicheskiye Aspekty Oblucheniya SVCh-Diapazona, Leningrad, "Meditsina," 1971, 174 pp

measurement of the density of the power current (PPM) is briefly cited; the biological effects and mechanism of action of relatively large and relatively small intensities of radio waves in the SVCh range are characterized in general outlines. The consequences of the chronic effect of a SVCh field on humans and problems of expertise and prophylaxis of the affections are examined.

This work is based on literature data and materials gathered from many years of investigation. It does not pretend to provide an exhaustive elucidation of the problem of the biological effect of a SVCh field, and is concerned mainly with some of the clinical aspects of this effect and related problems.

I am taking the opportunity to express my deep gratitude to the coworkers and comrades who rendered assistance in forming this work.

Table of Contents:

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

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USSR

TYAGIN, V. N., Klinicheskiye Aspekty Oblucheniya SVCh-Diapazona, Leningrad, "Meditsina," 1971, 174 pp

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--KINETICS OF THE THERMAL DECOMPOSITION OF ALLYL HYDROPEROXIDE -U-

AUTHOR-(04)-CHERNYAK, B.I., KOSHOVSKIY, B.I., TYAGLO, V.B., KUCHER, R.V.

COUNTRY OF INFO--USSR

SOURCE--DOPOV. AKAD. NAUK UKR. RSR, SER. B 1970, 32(3), 256-61

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, HYDROPEROXIDE, ACTIVATION ENERGY, SOLVENT ACTION, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0782 STEP NO--UR/0442/70/032/003/0256/0261

CIRC ACCESSION NO--AT0132880

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

2/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132880

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DECOMPN., STUDIED IN PHCL, BUOH, AND ACOH, WAS 1ST ORDER; THE RATE CONST. AND THE ACTIVATION ENERGY DECREASED WITH THE INCREASING POLARITY OF THE SOLVENT. THE PRODUCTS WERE CH SUB2:CHCH SUB2 OH AND CH SUB2:CHCHO, AND ME(CH SUB2) SUB2 CHO AND ACH IN AOON. IN BUOH AND ACOH, RESP. FACILITY: OONETS, DERZH. UNIV., OONETSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 532.13:546.76

TYAGUNOV, G. V., BAUM, B. A., and GEL'D, P. V., Urals Polytechnic Institute imeni S. M. Kirov

"Kinematic Viscosity of Liquid Alloys of Chromium With Carbon"

Tomsk, Izvestiya Vysskhik Uchebnykh Zavedeniy, Fizika, No 8(111), 1971, pp 159-160

Abstract: A study was made of the variation with temperature and concentration of the viscosity and thermodynamic characteristics of the elementary viscous flow in liquid alloys of chromium with carbon. The temperature range was 1675-1925°. The plots of the ploytherms of kinematic viscosity of liquid alloys of chromium with carbon, isotherms of viscosity change in isobaric-isothermal potential ΔZ, entropy ΔS, and energy of activation E of the viscous flow of chromium-carbon alloys showed that at 1850° the viscosity of alloys at first decreases with increased carbon content and then, beginning with 5.45 weight % C (the carbide $Cr_{23}C_6$) increases. At higher temperatures, due to the greater energy of thermal motion of particles, microinhomogeneity is less developed and its effect on viscosity with increase in carbon concentration is compensated by the rise of energies of interparticle interaction. Beginning with 5.5% C directed

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USSR

TYAGUNOV, G. V., et al., Izvestiya Vysskhik Uchebnykh Zavedeniy, Fizika, No 8(111), 1971, pp 159-160

Cr-C bonds become so well developed that the number of microdomanins consisting only of "excess" chromium atoms is appreciably reduced and the melt becomes more homogeneous. In this case the rise in bonding energy is decisive; therefore, the viscosity and energy of activation of viscous flow are increased. The study thus indicates that in alloys of chromium with carbon the energy nonequivalence of the Cr-Cr and Cr-C bonds is maintained also in the domain of the liquid state up to temperatures of at least 1900°.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 669.24.782:537.31

BAUM, B. A., GEL'D, P. V., and TYAGUNOV, G. V., Ural Polytechnical Institute, Physics Department

"Influence of Temperature on the Electrical Resistance of Lower Silicides of Nickel"

IVUZ, Tsvetnaya Metallurgiya, No 2, 1971, pp 53-57.

Abstract: Specimens for investigation were prepared by melting electrolytic high-purity nickel and monocrystalline silicon in a high-frequency induction furnace. Resistivity was measured by a contactless method in aluminum oxide (or zirconium oxide) crucibles in an atmosphere of helium. The results indicated that liquid alloys of nickel with silicon are characterized by heterogeneous interatomic bonds and complex near order structure, which changes with composition and may differ, depending on the heating and cooling conditions of the liquid alloy.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 669.14:669.04

BAUM, B. A., D'YAKONOVA, L. V., YERMANOVICH, N. A., TYAGUNOV, G. V., and KHASIN, G. A., Sverdlovsk, Zlatoust

"Physical Properties of Molten High-Alloy Steels and Special Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 43-48

Abstract: The article determines the kinematic viscosity, electrical resistivity, and density of specimens of more than 20 industrial brands of steels and alloys. The properties were measured after 5-15 minute isothermal holding periods, beginning with a temperature increase to 1700-1800° C and then followed by a temperature decrease down to crystallization of the melt. In some cases this measurement cycle was repeated (reheating and then cooling the specimen) without bringing the specimen to solidification. The specimens studied included NZhVI alloy (99.66 percent Fe), EI435, EI437 nickel-base alloys, alloys Kh28, Kh18N10T, EI811, ShKh15, EI736, 12Kh2N4A, iron-base alloys U10, ShKh15, R18, 9Kh18 high-carbon steels, 4Kh9S2, E4,

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USSR

BAUM, B. A., et al., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 43-48

and 30KhGSNA steels, and alloy 60. The effect of the chemical composition of the speciemns, nonmetallic inclusions, and. production method on the physical properties was considered.

The results indicate that the kinematic viscosity, electrical resistance,and density of molten steels and special alloys depend mainly on the chemical composition and production method. The phenomenon of hysteresis of properties is observed, indicating differences in the structure of a molten specimen during its heating and cooling. The magnitude of the hysteresis may serve as one of the characteristics of a given specimen along with data on its physical properties. The structure of melts before crystallization (composition and properties of microvolumes, coordination of the atoms in them,etc.) should be regarded as one of the metallurgical heredity factors capable of influencing a number of the service characteristics of the solid metal.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

BAUM, B. A., et al., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 43-48

The authors thank P. V. GEL'D for his advice and interest in the work.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

Mechanical Properties

USSR

UDC 669.18-412:621.746.753

TYAGUNOV, G. V., KUSHNIR, M. N., MARTYNOV, O. V., NIKANORCVA, S. M., and BELOUSOV, V. A.

"Effect of Liquid Metal Characteristics on Solid Metal Properties"

Moscow, Stal', No 9, Sep 72, pp 803-806

Abstract: From an investigation of samples of steel 20 and technically pure iron (slabs 150 x 160 mm and hollow ingots 360/110 mm in diameter), it was established that the mechanical properties and electric resistance of the finished metal differed substantially from section to section. Data on the chemical composition and nonmetallic impurities in different zones cannot explain these differences. The properties of liquid metal obtained by melting samples from corresponding zones also differed substantially. It is shown that a law-governed relationship exists between the properties of the liquid metal and the mechanical characteristics of the solid metal. The vacuum treatment of liquid metal leads to an increase in density and to a modification of the viscous characteristics and probably contributes to the formation of a more micro-uniform texture.

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USSR

MAZUROV, V. D., TYAGUNOV, L. I.

"The Committee Method for Recognition of Several Patterns and Duality of Incompatible Systems of Inequalities"

Mat. Metody v Nekotor. Zadachakh Optimal'n. Planir. Vyp. 3 [Mathematical Methods in Some Problems of Optimal Planning, No 3 -- Collection of Works], Sverdlovsk, 1971, pp 55-59 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V522).

NO ABSTRACT.

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USSR

UDC: 51

KAAZIK, Yu., TYAKHT, R.

"A Method of Solving a Boolean Problem of Linear Programming"

Tr. vychisl. tsentr. Tartus. un-t (Works of the Computing Center, Tartu University), 1971, vyp. 22, pp 35-40 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V421)

Translation: The authors consider the following problem:

$$f(X)=\sum_{j=1}^{m}\sum_{i=1}^{n}a_{ij}x_i \to \max, \qquad (1)$$

$$\sum_{i=1}^{n}a_{ij}x_i \leq 1, \quad j=1,2,\ldots,m, \qquad (2)$$

$$x_i=0 \text{ or } 1, \quad i=1,2,\ldots,n. \qquad (3)$$

Here all coefficients a_{ij} are equal to 0 or 1.

It is pointed out that there are a number of practical problems which are reducible to model (1)-(3). For the solution of problem (1)-(3) the authors construct some relatively simple combinatoric algorithms. This

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USSR

KAAZIK, Yu., TYAKHT, R., Tr. vychisl. tsentra. Tartus. un-t, 1971, vyp. 22, pp 35-40

article describes that algorithm which was found to be the most effective in practical calculations — the algorithm of ordered sorting which utilizes the specifics of the problem. A flowchart is given.

Another approach to problem (1)-(3) (with the goal function of general form $\sum_{i=1}^{n} c_i x_i$) was proposed by V. A. Trubin (RZh-Mat, 1970, 6V518; 1969, 9V296). Yu. Finkel'shteyn.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

TYAN, Kh. S., SINYAVSKIY, Yu. P., KRIVTSANOVA, L. I., Kirgiz Scientific Research Institute of Water Management

UDC: 681.128.82

"An Acoustic Liquid-Level Indicator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329397, Division G, filed 29 Jul 70, published 9 Feb 72, pp 157-178

Translation: This Author's Certificate introduces an acoustic liquid-level indicator which contains a measurement tube with intermediate partial reflection, a tank circuit, electroacoustic transducers and transceiver subassemblies with a communications line. As a distinguishing feature of the patent, the device is designed for single reflection of a sonic pulse from the reflector, and for a stable autocirculation mode of operation. The fixed partial intermediate reflector is made in the form of a lateral reflector with adjustable length, for instance in the form of a threaded piston. The feedback circuit includes a symmetric flip-flop connected at the input to a square pulse shaper, and at the output to a probing pulse shaper.

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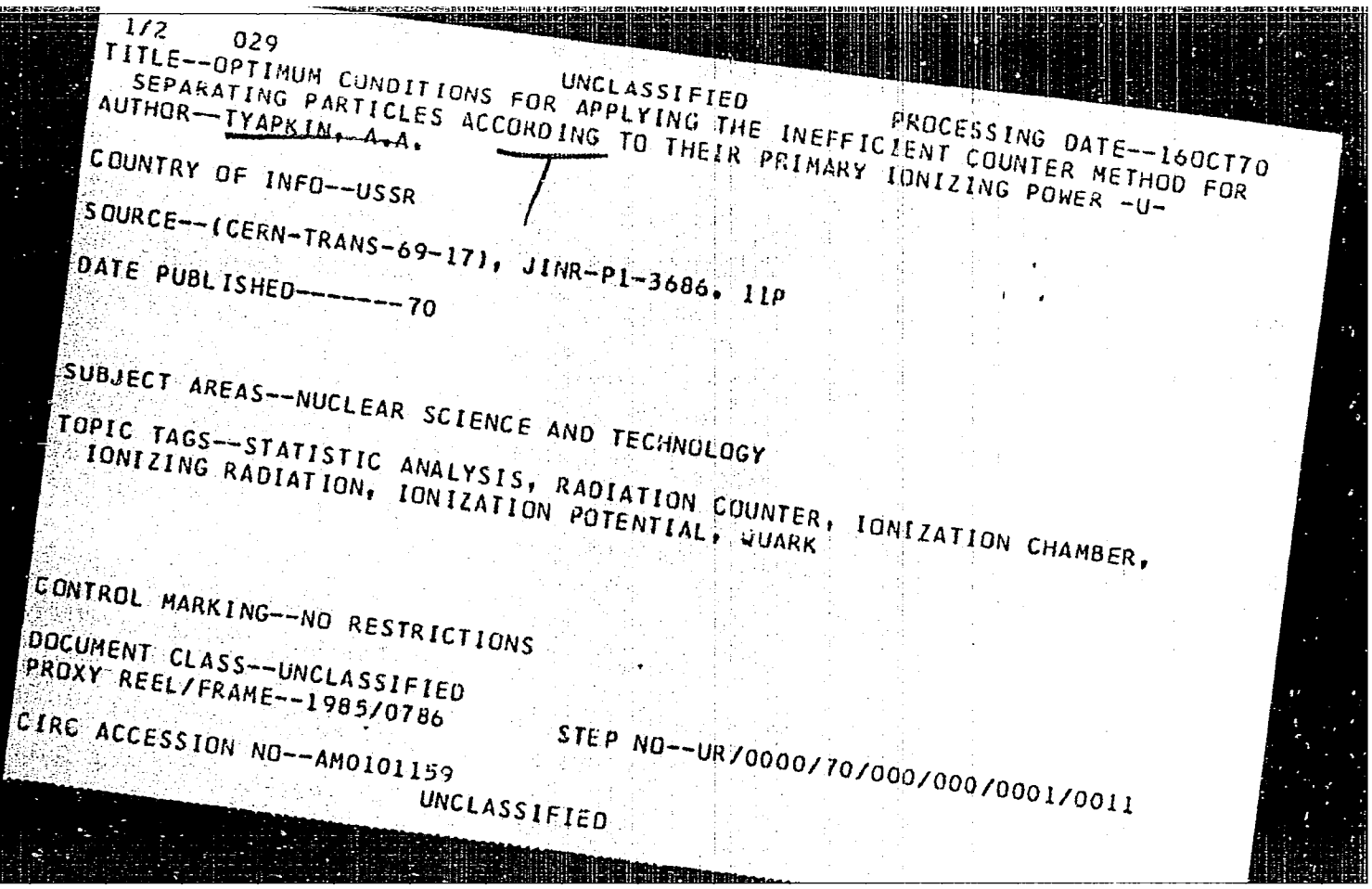

1/2 029 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--OPTIMUM CONDITIONS FOR APPLYING THE INEFFICIENT COUNTER METHOD FOR SEPARATING PARTICLES ACCORDING TO THEIR PRIMARY IONIZING POWER -U-

AUTHOR--TYAPKIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--(CERN-TRANS-69-17), JINR-P1-3686, 11P

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--STATISTIC ANALYSIS, RADIATION COUNTER, IONIZATION CHAMBER, IONIZING RADIATION, IONIZATION POTENTIAL, QUARK

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0786

STEP NO--UR/0000/70/000/000/0001/0011

CIRC ACCESSION NO--AM0101159

UNCLASSIFIED

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2/2 029 UNCLASSIFIED

CIRC ACCESSION NO--AM0101159 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STATISTICAL ANALYSIS IS PRESENTED FOR A MULTICOUNTER SYSTEM USING THE "INEFFICIENT COUNTER" METHOD FOR MEASURING THE PRIMARY IONIZING POWER OF PARTICLES, PARTICULARLY USED IN THE SEARCH FOR QUARKS WITH FRACTIONAL CHARGE AND FOR THE DETECTION OF RARE PARTICLES WITH LOW IONIZING POWER IN A BACKGROUND OF A LARGE NUMBER OF ORDINARY PARTICLES. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR. LAB. OF NUCLEAR PROBLEMS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC: 669.293.295.296:539.26:53.27

LYASOTSKIY, I. V., TYAPKIN, Yu. D., Institute of Metal Sciences and Physics of Metals, Central Scientific-Research Institute of Ferrous Metallurgy im. I.P.Bardin

"Structure of Niobium-Titanium-Zirconium Alloys. Diffuse Scattering of Electrons and X-Rays in Alloys with 50 at. % Niobium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 6, Dec 73, pp 1260-1270.

Abstract: Electron microscope (microdiffraction) and x-ray methods are used to study the change in diffuse scattering for a series of alloys in the system Nb-Ti-Zr (50 at. % Nb) as a function of composition, heat treatment and observation temperature. This scattering is described by means of concepts of fluctuation displacement waves for all alloys. Diffuse scattering was observed in all alloys studied in the form of individual areas located in the space of the reverse lattice within octahedrons formed by the {111} planes passing through the junctions of the reverse lattice of the initial body-centered cubic solic solution. Considering the general nature of diffuse scattering, it can be described by means of concepts of fluctuation displacement waves, distorting the body-centered cubic structure. The form of diffuse scattering and concequently the spectrum of displacement waves change regularly with

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

Lyasotskiy, I. V., Tyapkin, Yu. D., Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 6, Dec 73, pp 1260-1270.

changing relationship of the content of zirconium and titanium in the alloys. The flatter areas (in the form of a triple sheet at the edges of the octahedtron) in the Nb-Ti alloy are transformed in the Nb-Zr alloy to hollow spherical areas displaced toward the center of the octahedron; the directions of the polarization vectors of the displacement waves are also changed. At the primary junctions of the solid body-centered cubic solution, diffuse scattering is also observed, changing from alloy to alloy in parallel with changes in scattering in the space between junctions of the reverse lattice. Diffuse scattering does not change significantly after heat treatment, or at various observations temperatures between -130 and +400° C.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

UDC 536.4.015:669.018.2

TRAVINA, N. T., TYAPKIN, YU. D., NIKITIN, A. A., and KOZLOV, V. P., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"The Influence on Mechanical Properties of the Spatial Distribution of Second-Phase Separations in Nickel-Base Aging Alloys "

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 803-807

Abstract: A study was made of the effect of spatial distribution of second-phase separations on the characteristics of strength and plasticity of single crystals of aging alloys of the following compositions: Ni - 14.0 at%Al, Ni - 16.5 at%Al, and Ni - 19.0 at%Al. From the stress-strain diagram plotted from tensile tests of flat specimens made at a rate of $2.5 \cdot 10^{-3}$ sec^{-1} calculations were made of the curves "reduced shear stress τ_i - reduced shearing strain δ_i " for the $\{111\} < 110 >$ slip system. The measured mechanical characteristics (critical shearing stress τ_s, strain hardening factor θ_{II}, maximum shearing strain δ_r) are compared with parameters η which characterize the correctness of the spatial distribution of γ'-phase particles. It was found that the plasticity of the investigated alloys improves with growing η, not only without decrease in strength, but even at some increase in strength. The importance, from the viewpoint of practical use, of the effect of the

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

TRAVINA, N. T., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 803-807

correct spatial distribution of 2nd phase particles for the improvement of the plasticity of alloys at simultaneous increase in strength is emphasized. Two figures, one table, nine bibliographic references.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203410016-2

USSR

Superalloys

UDC 539.27

TYAPKIN, YU. D., TRAVINA, N.T., and KOZLOV, V. P., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Electron Microscopic Study of Space Distribution Parameters of the Second-Phase Precipitates in Aging Nickel-Based Alloys"

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Abstract: The thin-film electron microscopy method suggested in this work for the study of ordering and distribution of precipitates is based on the statistical treatment of the electron microscope images. Single crystals of two-phase Ni - Al alloys with different volumetric precipitation (from 20 to 60 volumetric percent) of the type Ni_3Al γ' phase were used. The density numbers of γ' precipitates along [100], [110], and [230] directions are given on histograms plotted on the basis of electron microscope images. Precipitates of Ni - Al alloys were distributed among nodes of a simple cubic macrolattice with [100] axes. The order of this distribution depended on many factors. The size of the precipitated γ' phase was 110-120 Å for the alloy containing 14 at% Al and aged at 700°C for 5 hours. It increased to 140-160 Å for the same alloy aged at 750°C for 1 hour. For the alloy containing 16.5 at% Al the size of

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the precipitated γ' phase was 180-200 Å after aging at 750°C for 1 hour, and it increased to 200-220 Å for the alloy containing 19 at% Al and aged at 750°C for 30 min. The three alloys contained 20, 40, and 60 volumetric percent of the γ' phase, respectively.

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