USSR

UDC 536.42:620.181.5+669.017.3

ESTRIN, E. I., and SOSHNIKOV, V. I., Institute of Physical Metallurgy and Metal Physics and the Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Kinetics of the Polymorphous Gamma-Alpha Transformation in Iron-Nickel Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 6, June 73, pp 1271-1277

Abstract: This work was devoted to studying the kinetics of the polymorphous gamma-alpha transformation in Fe-Ni alloys containing 5-20% Ni at a hydrostatic pressure of up to 20 kbar. Temperatures of the gamma-alpha and alpha-gamma transformations are lowered by 9.6 and 2.9 deg/kbar, respectively, under pressure. It was established that the gamma-alpha transformation in Fe-Ni alloys can occur by thermally active and "athermal" (martensitic) means. The thermally active transformation possesses features which distinguish it from "normal" polymorphous transformations and are characteristic for bainite and isothermal martensite transformations. It was established that, in relation to alloying or pressure, the mutual positioning of temperature intervals of thermally active and athermal gamma-alpha transformations can vary. 5 figures, 16 bibliographic references.

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USSR

UDC: 629.78.017.2

SOSHNIKOV, V. N.

"Dynamics of Motion of a Cosmonaut Toward a Vehicle by Means of a Cable, and the Principle of Vehicle Control Based on the Theory of Systems With Variable Structure"

Moscow, Upr. dvizhushchimisya ob"yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth All-Union Conference on Automatic Control. Tbilisi, 1968--collection of papers), 1972, pp 132-147 (from RZh-Raketostroyeniye, No 10, Oct 72, abstract No 10.41.56)

Translation: The author considers problems of analysis of an uncontrolled system, substantiates the need for control to achieve a given quality in the process of return, and proposes a principle for constructing a control system utilizing the properties of systems with variable structure. This principle enables return of a cosmonaut to a vehicle which is optimum in some sense. Within the assumed model of the system, an investigation is made of possible positions of equilibrium, their dependence on parameters and initial conditions is considered, bifurcation values of parameters are

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USSR

SOSHNIKOV, V. N., Upr. dvizhushchimisya ob"yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik, 1972, pp 132-147

determined; the dynamic particulars of processes of return of the cosmonaut to the vehicle are studied, and conditions are determined under which the process of return in an uncontrolled system has a given quality. The practical unrealizability of the resultant conditions shows the need for control which is most simply implemented by relay control of the angular motion of the vehicle. Eight illustrations, bibliography of seven titles. Résumé.

2/2

USSR

UDC: 538.4

SOSHNIKOV, V. N., TREKHOV, Ye. S, and KHOSHEV, Yu. M.

"Theory of a High-Pressure Eddy Discharge"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasmas--collection of works) Minsk, "Nauka i tekhn." 1970, pp 169-175 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B4)

Translation: As a result of the machine solution of the differential equations of the electromagnetic field and heat conductivity for a large number of variants, the integral parameters of the discharge in air and in argon, as well as the radial temperature and field distributions (the unidimensional problem) are obtained. The presence of stable and unstable discharge modes is discovered, and the essential role played by radiation energy loss is noted. The available experimental data does not contradict the theory. Numerical solutions of the two-dimensional discharge problem with a blowing gas is obtained. Bibliography of 29. Author's abstract.

1/1

USSR

UDC 621.73.049.75:776

KAPELEVICH, I. I., KONONOVICH, A. Yu., SOSIDKO, V. V., ANISIMOV, B. K.

"A Device for Making Printed-Circuit Phototemplates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 24, Soviet Patent No 277896, class 21, filed 24 Mar 69, published 5 Aug 70, p 53

Translation: This Author's Certificate introduces a device for making printed-circuit phototemplates. The device contains a movable table mounted on a stand. The table is equipped with a drive mechanism for shifting it along two mutually perpendicular coordinate axes, and a magazine for holding a glass plate covered with a layer of metal. The device also contains a stationary working head with a scriber which removes the layer of metal in accordance with a predetermined program, and a viewing device made in the form of a microscope. To improve the accuracy of inspection, the microscope takes the form of a periscope with the objective lens under the glass plate, the optical axis of this lens coinciding with the axis of the scriber.

1/ 1

Pulse Technique

USSR

UDC 621.316.722.1 (088.8)

SOSIN, P.A., FESENKO, B.I.

"Low-Voltage D-C Voltage Regulator"

USSR Author's Certificate No 305543, filed 5 Nov 69, published 21 July 71 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B470P)

Translation: In order to increase the stabilization factor of a regulator with a series regulating element and pulse width modulation (PWM), a multiplication circuit is introduced, to the input of which pulses are fed from the PWM unit. The capacitance of the capacitors of the multiplication circuit is chosen of a magnitude such that a change of the width of the pulses does not affect the magnitude of the output voltage. After multiplication, the voltage proceeds across a reference stabilitron to the PWM unit and the difference is established between the multiplied voltage and the voltage of the reference stabilitron, which is used as a control signal accomplishing modulation of the pulse width and regulation of the output voltage of the regulator. The minimum magnitude of the output voltage of the regulator in the circuit in question amounts to 1.5 -- 2 v. 1 ill. V.Sh.

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USSR

UDC 541.64:547.35

KORSHAK, V. V., DZHASHI, L. V., ANTIPOVA, B. A., and SOSIN, S. L., Institute of Metal Organic Compounds, Acad. Sc. USSR

"Polymerization of Ferrocenylacetylene"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15, No 3, Mar 73, pp 521-526

Abstract: The study was aimed at the investigation of the conditions favoring linear polymerization of ferrocenylacetylene to yield polymers with a system of conjugated double bonds containing electron donating ferrocenyl substituents. This was achievable in presence of di-tert-butyl peroxide at 160° or with molten metallic sodium at 130°. The soluble polymers formed had molecular weight of 1400 and 2500 respectively. A mechanism has been suggested for the formation of polymeric structures of the ladder type through preliminarily formed dimers. These polymers exhibited strong EPR signals (10^{18} spin/g, ΔH = 10.8 e).

USSR

UDC 678.742.3-137.462.2:613.632

SMUROVA, YE. V., ZURLOVA, O. M., SOSIN, S. L., ANTIPOVA, E. A., NOVIKOVA, S. P., KARPINSKAYA, V. M.

"Interaction of Modified Polypropylene with Blood"

Moscow, Plasticheskiye Massy, No 4, 1972, pp 60-61

Abstract: The results of studying polymers with antithrombogenic properties are described. Data are presented on obtaining a sulfonated inoculated copolymer of polypropylene and polystyrene, and a study is made of the conditions permitting the polymer to be obtained which prevents the coagulation of blood on contact. With an increase in the active group content, the given copolymers cause significant hemolysis of the blood corpuscles. Iron ions must introduced into the copolymer to eliminate this phenomenon. The presence of iron ions in the sulfonated inoculated copolymer polypropylene+polystyrene+polyvinylferrocene promotes a noticeable reduction in the hemolysis of the red blood corpuscles on contact of the blood with copolymers without changing the antithrombogenic properties.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THE CERULOPLASMIN CONTENT IN NEW BORNS WITH PNEUMONIA -U-

AUTHOR-(02)-LOMAKO, L.T., SOSINA, A.M.

COUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 5, PP 42-44

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PNEUMONIA, BLOOD PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1471 STEP NO--UR/0477/70/000/005/0042/0044

CIRC ACCESSION NO--AP0125099

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125099

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CERULOPLASMIN ACTIVITY HAS BEEN DETECTED IN THE PERIPHERAL BLOOD OF THE NEW BORNS WHO ARE SICK OF PNEUMONIA IN THE DYNAMICS OF THE AFFECTION AND IN THE CONTROL GROUP OF HEALTHY CHILDREN OF THE SAME AGE (2-4 WEEKS OF LIFE). THE CERULOPLASMIN CONTENT IN THE HEALTHY NEW BORNS HAS COMPOSED 16.87 MG PERCENT PLUS OR MINUS 0.85. AT THE BEGINNING OF THE AFFECTION WITH PNEUMONIA, THE LATTER OFTEN DEVELOPED WITH SCARE CLINICAL AND LABORATORY DATA; A LOWERING OF THE CERULOPLASMIN ACTIVITY HAS BEEN MARKED, 13.95 MG PERCENT PLUS OR MINUS 0.6 (P SMALLER THAN 0.05), ESPECIALLY IN PATEINTS WITH SEVERE FORMS OF PNEUMONIA. DURING THE PERIOD OF CLINICAL CONVALESCENCE THE CERULOPLASMIN ACTIVITY HAS INCREASED AND REACHED THE HEALTHY NEW BORNS' LEVEL. FACILITY: BELORUSSKIY NAUCHNO ISSLEDOVATEL'SKIY INSTITUT OKHRANY MATERINSTVA I DETSTVA.

UNCLASSIFIED

USSR

UDC 547.241

GLADSHTEIN, B. M., ZAKHAROV, B. L., SOSINA, M. M., SPITSYN, A. A.

"Reaction of Perchloromethylmercaptan with Di- and Mono-esters of Methylphosphonous Acid"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1245-1248

Abstract: The reaction of perchloromercaptan in a dry N atmosphere with di- and mono-esters of methylphosphonous acid was studied. In the case of monoalkyl methylphosphonite at -20°, taken in an equimolar amount with perchloromercaptan, O-alkyl methylchlorophosphonate (75% with respect to the monoalkyl methylphosphonite), thiophosgene (35% with respect to the perchloromethylmercaptan), and a small amount of hexachlorodimethyl disulfide were studied. The diesters of methylphosphonous acid react with perchloromercaptan in different ways, depending on the order of mixing of the reagents. When the dialkyl methylphosphonite is added to perchloromethylmercaptan at -50°, O-alkyl methylchlorophosphonate, hexachlorodimethyl disulfide, and alkyl chloride were isolated. The reverse order of addition of the reagents led to the formation of O-alkyl S-tris(alkylmethylphosphonyl)-methyl methylthiophosphonate (60% with respect to the dialkyl methylphosphonite) and alkyl chloride. These results are apparently in agreement with the results obtained by other researchers. 1/1

USSR

SOSINSKAYA, S. S., Irkutsk

UDC: 681.39

"Concerning a Method of Minimizing the Description of Classes in Pattern Recognition"

Moscow, Avtomatika i Telemekhanika, No 5, May 72, pp 72-77

Abstract: The following pattern recognition problem is considered: Let there be a discrete space U of dimensionality n whose points form r non-intersecting regions -- classes. After presentation of a certain number of objects whose class membership is known, the recognition algorithm must be capable of locating objects $x_\alpha \in U$ appearing at its input (including those used in teaching) in one of the classes A_r. Two recognition algorithms are examined: one in which the description of classes is minimized on the teaching stage, and a heuristic algorithm of random search with adaptation of the most informative system of distinctive features. The first method permits use of procedures for minimizing Boolean functions in pattern recognition. The percentage of correctly recognized objects is approximately the same for the two algorithms. Results of experiments are presented.

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USSR

UDC 669.18.046.554

KIRICHENKO, I. D., SOSIPATROV, V. G., SMOLYARENKO, D. A., and SEMENOV, YU. N.

"Production of Manganese-Aluminum Alloy, Stable During Storage, and Its Application for Deoxidation of Low-Carbon Steel Outside the Furnace"

Proizvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75, Metallurgiya Press, 1970, pp 84-88

Translation: Manganese-aluminum alloys produced from primary aluminum (99% Al) and metallic type Mn_2 manganese (over 93% Mn), containing not over 27% or over 50% aluminum have long-term storage qualities.

Homogeneity and decreased liquation of the alloys is provided by careful mixing and pouring at temperatures 40-60° above the liquidus point of the alloy into massive molds.

The use of manganese-aluminum alloy for deoxidation of low-carbon non-aging steel outside the furnace increases the homogeneity of the chemical composition and constancy of properties from melt to melt and ingot to ingot; higher purity than

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USSR

KIRICHENKO, I. D., et al., Proizvodstvo Chernykh Metallov, No 75, Metallurgiya Press, 1970, pp 84-88

that of steel deoxidized by aluminum in the mold is characteristic. 2 figures; 1 table; 1 biblio. ref.

2/2

USSR

UDC 669.14:669.189

DUBROV, N. F., KORROL', V. V., TAT'YANCHSHIKOV, A. G., and SOSIPATROV, V. T., Ural Scientific Research Institute of Ferrous Metals

"Rimmed Steel With Reduced Content of Manganese"

Moscow, Izvestiya Vysshikh Uchbenykh Zavedeniy -- Chernaya Metallurgiya, No 12, 1970, pp 64-66

Abstract: The possibility is shown of reducing the manganese content in rimmed steel to 22% during high-speed casting into large ingots. Casting and rimming of steel in ingot molds proceed normally. After rolling, ingots GOST requirements.

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USSR

UDC 669.187.046.51

KIRICHENKO, I. D., SOSIPATROV, V. T., and SMOLYARENKO, D. A., Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin (TSNIICHM); Cherepovets Metallurgical Plant

"Complex Alloys for Steel Deoxidation"

Moscow, Izvestiya Vysshikh Uchebnych Zavedeniy, Chernaya Metallurgiya, No 1, 1971, pp 61-63

Abstract: The objective of this study was to determine both the composition and specifications for storage-stable aluminum-manganese alloys for use in steel deoxidation. Test data on specimens have shown that aluminum-manganese alloys melted with primary aluminum (> 99% Al) and $Mn2$ manganese metal (>93.0% Mn) containing not more than 27% or more than 50% Al were storage stable. In order to lower element liquation in alloys, it is necessary that the temperature of the well-stirred melt, prior to pouring, exceed that of the liquidus by a maximum of 100°C. It is suggested that aluminum-manganese alloys containing 27% Al and not more than 6% Fe be poured at about 1300°C and those with 54% Al — at 1100°C. As compared to aluminum-deoxidized steel in either the ladle or in the ingot mold, steel deoxidized with aluminum-manganese alloy in the ladle is more completely deoxidized,

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USSR

KIRICHENKO, I. D., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1971, pp 61-63

has fewer nonmetallic inclusions, features higher plasticity, excels in homogeneity of composition and has constant mechanical properties over a wide range of melts and ingots. The steel has a higher yield of both usable metal and high-grade metal products.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--RADIOISOTOPE INVESTIGATION OF THE LIVER CONDITION IN PERSONS HAVING SUSTAINED VIRAL HEPATITIS -U-

AUTHOR-(03)-SOSKIN, A.M., LATSINIK, G.YE., ZHIGILEVA, V.I.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 22-26

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEPATITIS, RADIOBIOLOGY, RADIOACTIVE ISOTOPE, IODINE ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1182 STEP NO--UR/0504/70/042/005/0022/0026

CIRC ACCESSION NO--AP0123159

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123159

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN EXAMINING 54 PATIENTS HAVING SUSTAINED VIRAL HEPATITIS DURING THE PERIODS FROM 8 MONTHS TO 3 YEARS AFTER RECONVALESCENCE, AS WELL AS 48 PATIENTS WITH LIVER CIRRHOSIS AT THE TERMINATION OF BOTKIN'S DISEASE THE AUTHORS USED THE METHODS OF RADIOISOTOPE DIAGNOSIS, HEPATOGRAPHY AND SCANNING. THE RESULTS OF HEPATOGRAPHY WITH BENGAL ROSE LABELLED I PRIME131 SHOWED THAT A DROP IN THE ABSORBTIVE FUNCTION OF THE LIVER WAS PERSISTENT IN 70PERCENT OF THE PATIENTS, AND CIRRHOTIC CHANGES WERE REVEALED IN 48PERCENT. SCANNING WITH RADIOACTIVE AU PRIME198 IS OF GREAT INTEREST IN CATAMNESTIC EXAMINATION OF PATIENTS WITH VIRAL HEPATITIS. FACILITY: KAFEDRA INFEDTSIONNYKH BOLEZNEY TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY AND LABORATORIYA RADIOIZOTOPNOY DIAGNOSTIKI MOSKOVSKOGO N-I RENTGENO-RADIOLOGICHESKOGO INST.

UNCLASSIFIED

USSR

UDC: 8.74

MATYUSHKOV, L. P., SOSKIN, L. B.

"Determination of Characteristics of Technological Decisions"

Vychisl. Tekhn. v Mashinostr. Nauch.-tekhn. Sb. [Computer Equipment and Machine Building, Scientific and Technical Collection], 1971, pp 113-116 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V591, by the authors)

Translation: A method is studied for automatic determination of the characteristics of technological decisions (objects) during automation of technological planning.

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USSR

UDC 612.375

BONDARENKO, M. D., GNATOVSKIY, A. V., and SOSKIN, M. S., Institute of Physics, Academy of Sciences UkrSSR, Kiev

"Radiation Divergence in Solid-State Lasers"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 4, Apr 71, pp 529-538

Abstract: A method of determining the field in the far zone on the basis of the known amplitude-phase distribution of the near field is examined, and a theoretical analysis of the contribution made by the amplitude and phase inhomogeneities of the near field to radiation divergence is presented. It is noted that decreasing the divergence of radiation remains one of the most important problems in improving the characteristics of laser radiation. Divergence in the case of an ideal resonator of the Fabry-Perot interferometer type for the lowest transverse type of oscillations is $\phi_0 = 1.22\ \lambda/d$, where d is the diameter of the region in the near zone occupied by the radiation, under conditions of low loss. In actual solid-state lasers there is a considerable increase in the divergence of radiation as compared with that theoretically possible. Among the reasons for this are conditions for excitation of the active medium, its optical imperfections, defects in the

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USSR

BONDARENKO, M. D., et al, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 4, Apr 71, pp 529-538

resonator mirrors, etc. All these reasons together, as a rule, lead to a complex irregular distribution of the amplitude and phase of the field in the near zone of the resonator. The amplitude and phase configurations of the near field and the degree of its spatial coherence make a contribution to the angular distribution of radiated energy. A study of the effect of each of these factors on the magnitude of the radiation divergence of a laser is one of the important problems in quantum electronics. The field structure in the far zone is calculated with the aid of the method on the basis of an experimentally determined configuration of the near field of the radiation of a ruby laser. The calculated structure is in good agreement with the structure observed experimentally.

2/2

USSR

SOSKIN, M. S., Doctor of Physicomathematical Sciences

"Tuned Lasers and the Study of Condensed Media by Means of Stimulated Emission Processes"

Kiev, Visnyk Akademii Nauk Ukrains'koi RSR, No 4, Apr 71, pp 7-16

Abstract: The Institute of Physics, Academy of Sciences Ukrainian SSR, began its work in optical quantum electronics in 1962 at the initiative and under the direction of Academician of the Academy of Sciences Ukrainian SSR A. F. PRYKHOT'KO and Professor V. L. BROUDE. The present article indicates the main directions in this field and describes the results of studies by the Division of Optical Quantum Electronics. The main areas in the study of stimulated emission processes being pursued by the author's division are: 1) the optics and spectroscopy of stimulated emission; 2) the development of methods for controlling the spectral and spatial angle characteristics of lasers and the creation of tuned lasers; 3) the development of generation methods for the study of condensed media, particularly the study of electron-phonon inter-

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USSR

SOSKIN, M. S., Visnyk Akademiyi Nauk Ukrayins'koyi RSR, No 4, Apr 71, pp 7-16

actions, the spectral microparameters of disordered media, excitation energy migration, relaxation processes which accompany luminescence and generation. The work of creating and studying tuned unimodal lasers and the frequency scanning made during generation is under the direction of Candidate of Physicomathematical Sciences V. I. KRAVCHENKO. Induced Raman scattering in dispersive cavities and conditions for the autodisruption of solid-state laser generation are being studied by a group of scientists under the direction of Candidate of Physicomathematical Sciences K. M. GAL'KOVA. In the area of tuned lasers with dispersive cavities, a neodymium glass laser with frequency scanning during generation has been developed and manufactured and is now on exhibit in Moscow and Kiev.

The principal areas for further research and developmental work in the field of creating new types of lasers are: improving methods for controlling laser frequency and divergence; effecting multiple nonmechanical scanning of the generation spectrum at a high speed; combining methods which have been developed for the purpose of creating a laser whose properties are close to those

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USSR

SOSKIN, M. S., Visnyk Akademiyi Nauk Ukrayins'koyi RSR, No 4, Apr 71, pp 7-16

of an ideal unimodal tuned laser. The principal problems in the area of using generation processes for the study of condensed media are: creating a single physical picture of the generation of spectrally inhomogeneous media; obtaining complete data on the spectral-kinetic properties of solid and liquid media with different degrees of order; the properties of lattices and their interaction with active centers; the creation of new, highly-effective active media.

3/3

USSR

UDC 621.375.82

MANUIL'SKIY, A. D., ODULOV, S. G., SOSKIN, M. S.

"A New Method for Studying Heterogeneously Broadened Spectra of the Active Media of Lasers"

V sb. Peredacha energii v kondensirovan. sredakh (Energy Transfer in Condensed Media -- Collection of Works), Yerevan, 1970, pp 116-124 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1059)

Translation: The generation of silicate (LGS-24/2) and phosphate (KGSS-56) glasses in a cavity resonator in which many excited internal modes are closed to internal reflection from the polished surfaces of the sample is investigated. It was observed that with a lowering of temperature the total width of the spectra increases greatly. The dependence of the magnitude of homogeneous broadening of luminescence in the 1.06 μ band on temperature in both glasses was derived on the basis of temperature measurements of the width of the generation spectrum. It was observed that with a lowering of temperature the homogeneous width does not tend to zero, but in the high-temperature region the homogeneous expansion is accelerated. In phosphate glass the dependence of the homogeneous broadening on temperature is considerably weaker than in silicate glass. It is concluded that homogeneous broadening in glasses is determined basically by direct interaction with fluctuations in the matrix, and the width observed is related to broadening of the final level of the transition. The change in the rate of energy transfer between Nd^{3+} at various temperatures is discussed. V. N. Sh.

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USSR

UDC: 621.373:530.145.6

ZABOKRITSKIY, B. Ya., SIDOROV, S. V., SOSKIN, M. S.

"On the Mechanism of Two-Transition Generation in Neodymium Glasses"

V sb. Peredacha energii v kondensirovan. sredakh (Energy Transmission in Condensed Media--collection of works), Yerevan, 1970, pp 91-101 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D217)

Translation: The authors are the first to take neodymium glass as an example for studying "two-transition" generation of rare earth ions in a glass matrix with emission realized in a dispersion cavity (transitions from level $^4F_{3/2}$ to levels $^4I_{11/2}$ and $^4I_{9/2}$). The basic properties of simultaneous emission in the regions of 0.92 and 1.06 μ are determined: threshold conditions, time cycle and spectral composition of radiation, as well as the mutual effect of generation on both transitions. A weakly pronounced relationship is found for the threshold characteristics of generation for both transitions. The results are discussed. A. K.

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USSR

UDC: 621.373:530.145.6

MANUIL'SKIY, A. D., ODULOV, S. G., SOSKIN, M. S.

"A New Method of Studying Nonuniformly Broadened Spectra of Active Laser Media"

V sb. Peredacha energii v kondensirovan. sredakh (Energy Transmission in Condensed Media--collection of works), Yerevan, 1970, pp 116-124 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D212)

Translation: The authors studied emission of silicate and phosphate glasses activated by trivalent neodymium cation in the 1.06 μ region. The emission spectrum produced by these specimens over a wide temperature range is typical of spectrally nonhomogeneous media. The temperature dependence of homogeneous broadening of the spectrum of an individual ion is determined. It is shown that when the temperature falls, the uniform width of transitions of trivalent neodymium cations on the investigated segment of the frequency band of luminescence does not tend to zero. In the high-temperature region, the increase in uniform broadening is accelerated. It was found that the uniform width of the spectrum in these glasses is determined chiefly by interactions with lattice vibrations. A. K.

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1/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SPACE ANGULAR CHARACTERISTICS OF LIQUID LASER OF THE POCL SUB3:ND PRIME3POSITIVE BASE -U-

AUTHOR-(03)-SALKOVA, YE.N., SOSKIN, M.S., POGORETSKIY, P.P.

COUNTRY OF INFO--USSR

SOURCE--UKRAYIN. FIZ. ZN. (USSR), VOL. 15, NO. 5, P. 824-6 (MAY 1970)

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIQUID STATE LASER, RESONATOR, METAL ION, NEODYMIUM, PHOSPHOROUS COMPOUND, OXYGEN COMPOUND, CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1802 STEP NO--UR/0185/70/015/005/0824/0826

CIRC ACCESSION NO--AP0133707

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133707

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPACE ANGULAR CHARACTERISTICS OF A LIQUID LASER ON THE POCL SUB3:ND PRIME3POSITIVE BASE WERE INVESTIGATED EXPERIMENTALLY. THE DATA OBTAINED ARE EXPLAINED WELL ON THE BASIS OF THREE MODELS OF THE LIQUID LASER EQUIVALENT RESONATOR.

UNCLASSIFIED

472 040 UNCLASSIFIED

TITLE--USE OF NONLINEAR ABSORPTION TO CORRECT THE RADIATION WAVEFRONT OF SOLID STATE LASERS -U-

AUTHOR-(05)-SOSKIN, M.S., POGORETSKIY, P.P., GRYAZNOV, YU.M., LEBEDEV, O.L., CHASTOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, APR. 1970, P. 740-742

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, LASER RADIATION FILTER, NONLINEAR EFFECT, LASER BEAM DIVERGENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

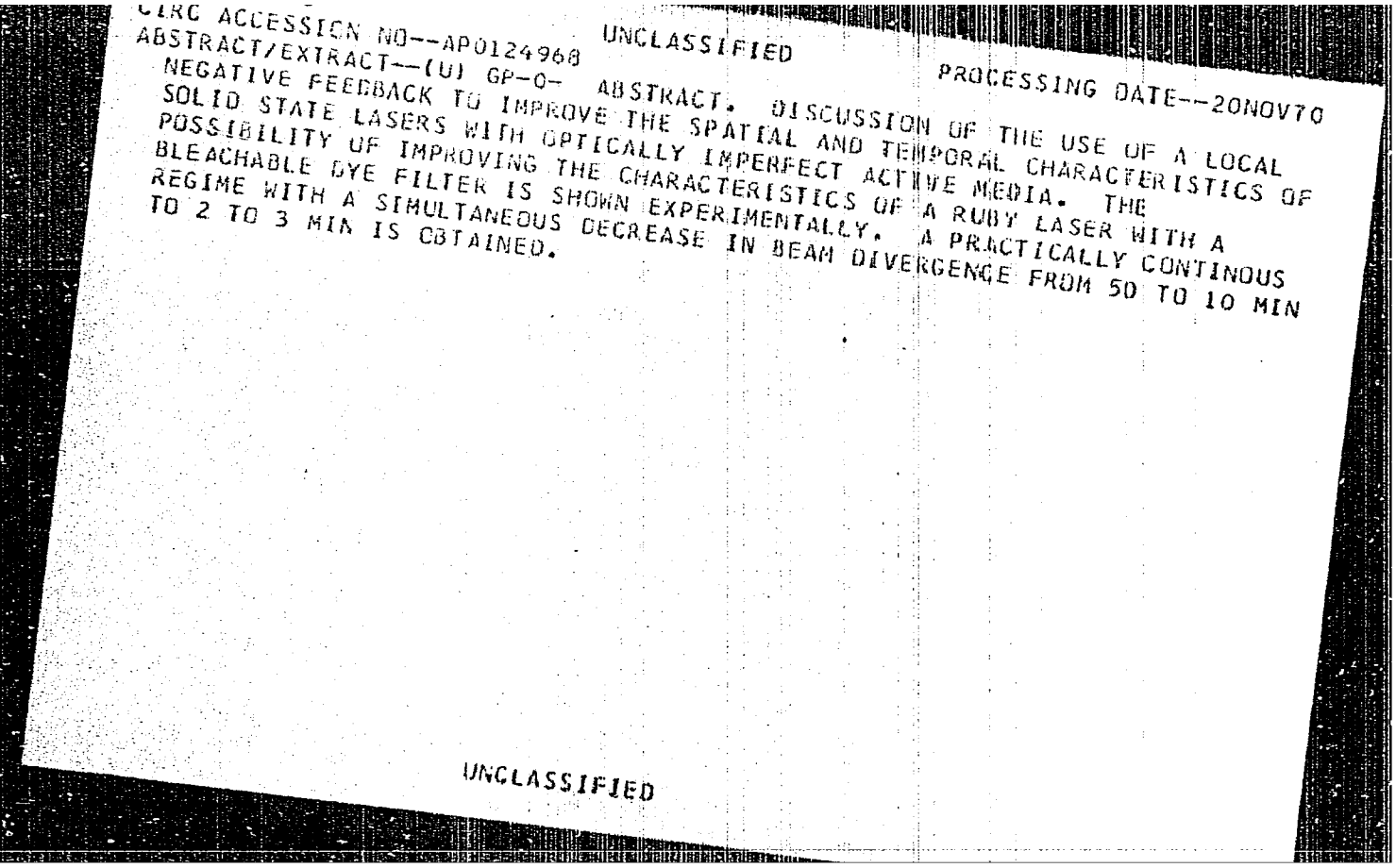
PROXY REEL/FRAME--2000/1317

STEP NO--UR/0368/70/012/000/0740/0742

CIRC ACCESSION NO--AP0124968

UNCLASSIFIED

PROCESSING DATE--20NOV70



CIRC ACCESSION NO--AP0124968 UNCLASSIFIED PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE USE OF A LOCAL NEGATIVE FEEDBACK TO IMPROVE THE SPATIAL AND TEMPORAL CHARACTERISTICS OF SOLID STATE LASERS WITH OPTICALLY IMPERFECT ACTIVE MEDIA. THE POSSIBILITY OF IMPROVING THE CHARACTERISTICS OF A RUBY LASER WITH A BLEACHABLE DYE FILTER IS SHOWN EXPERIMENTALLY. A PRACTICALLY CONTINOUS REGIME WITH A SIMULTANEOUS DECREASE IN BEAM DIVERGENCE FROM 50 TO 10 MIN TO 2 TO 3 MIN IS OBTAINED.

UNCLASSIFIED

USSR

DENISYUK, YU. N., SOSKIN, S. I.

UDC 535.317.1

"Holographic Correction of Deformation Aberrations of the Main Mirror of a Telescope"

Leningrad, Optika i Spektroskopiya, No 6, Dec 71, pp 992-999

Abstract: A method is proposed for correcting by holographic methods aberrations caused by inaccuracies in fabrication or by an arbitrary deformation in the process of using the main mirror of a mirror-lens telescope. The method involves a correcting source placed close to the optical system, making it possible to apply the method for any objects, including those intended for recording distant and almost inaccessible objects such as the objectives of telescopes and photographic equipment. The method was developed for application to mirror-lens telescope objectives with a large main mirror. It is noted that such objectives are very widely used, since large mirrors are easier to fabricate than lenses, but that these objectives have a serious shortcoming in that they are very sensitive to deformations of the main mirror. The purpose of this method is the continuous control and correction of distortions caused by these deformations.

1/2

USSR

DENISYUK, YU. N. et al, Optika i Spektroskopiya, No 6, Dec 71, pp 992-999

The telescope is equipped with a special interferometer attachment for recording the hologram of the main mirror. This hologram is then put into the optical system of the telescope. It is shown theoretically and experimentally that an image of the object with a quality higher than in a telescope without correction is then obtained. Photographs are included showing the image in its original form and then as produced by the telescope with the interferometer installed.

2/2

USSR

DENISYUK, Yu. N.; SOSKIN, S. I.

"Scanning of a Wave Field by an Optical System of Arbitrary Aperture"

Leningrad, Optika i Spektroskopiya; July, 1971; pp 121-7

ABSTRACT: The authors present a means of recording holograms by a method of scanning a wave field of an object by an optical system of arbitrary aperture, in the center of the input pupil of which is located a reference point source and in the plane of the image, a photoreceiver whose dimensions are circumscribed by a field diaphragm. It is shown that a hologram produced by such a method can generate the images of objects located in a given field of view the dimensions of which are determined by an expression which is a function of the dimensions of the aperture and field diaphragms. The Fourier transform of this function defines the detail of recording the wave field. The power involved in the recording system is considered. A luminous point observed in a given field of view is given as an example of the simplest type of object, and a connection is established between the dimensions of the input pupil and the signal-to-noise ratio. It is shown that increasing the aperture is advantageous only up to that point at which the angle of diffraction of the optical system becomes equal to the angle of the field of view.

There are 30 equations involved in the calculations. The article includes three figures. There are 5 bibliographic references.

1/1

TECHNICAL TRANSLATION

FSTC-HT-23- 392-72

radiation

ENGLISH TITLE: HOLOGRAPHIC METHOD OF IMPROVING THE DIVERGENCE IN RADIATION OF THE RUBINIC ONG IN THE REGIME OF FREE GENERATION

FOREIGN TITLE: GOLOGRAFICHESKIY METOD ULUCHSHENIYA RASKHO- DIMOSTI IZLUCHENIYA RUBINOVOGO ONG V REZHIME SVOBO DNOY GENERATSII

AUTHOR: M. D. Bondarenko et al.

SOURCE: Ukrainskiy fizicheskiy zhurnal Vol. 14, No. 11 Nov. 1969

M.S.

GRAPHICS NOT REPRODUCIBLE

Translated for FSTC by ACSI

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The translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

USSR

UDC 669.017:539.56:669.788

KARPENKO, G. V., LITVIN, A. K., TKACHEV, V. I., and SOSHKO, A. I., Physico-mechanical Institute, Academy of Sciences Ukrainian SSR, L'vov

"Problem on the Mechanism of Hydrogen Brittleness"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 4, 1973, pp 6-12

Abstract: The article consists of an examination of Soviet and non-Soviet works dealing with hydrogen brittleness of metals in conjunction with studies by the authors on the effect of hydrogen in steels U8A and 2Kh13. The authors' interpretation of hydrogen "embrittlement" is based on the general theory of the effect of a medium on mechanical properties, with consideration of the specific (for hydrogen) temperature relationship of interaction with a metal; it makes it possible to explain the unmonotonous curve of the temperature relationship of strength properties, intensification of hydrogen brittleness at the minimum rate of deforming (caused by the time function of the chemosorption process), and other experimental facts which are not explained in known hypotheses. According to the authors the phenomenon of hydrogen brittleness should be examined as a mechanicochemical effect of selective microplastification of metal caused by chemosorption of hydrogen which is activated by stresses. 2 figures, 36 bibliographic references.

1/1

USSR

UDC: 621.318.57-529

MOGILEVSKIY, G. V., SOSKOV, A. G., RAYMIN, V. Ye., SMILYANSKIY, I. I.

"A Kipp Oscillator for a Time Relay"

USSR Author's Certificate No 254629, filed 28 Oct 68, published 12 Mar 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A66 P)

Translation: This Author's Certificate introduces a kipp oscillator for a time relay. The device contains two transistors of different conductivity types, a discharge resistor, and a controlling and a main capacitor connected between the base of one transistor and the collector of the other. The required slope for the curve expressing hold time as a function of controlling voltage is attained by selecting the time for recharging the main condenser an order of magnitude greater than for the controlling capacitor. One illustration. N. S.

1/1

USSR

Steels

UDC: 669.189:539.219.1/.2

SOSKOV, D. A., SHVED, F. I., and TSIPUNOV, A. G., Chelyabinsk

"Effect of Solidification Conditions of Steel on the Degree of Its Dendritic Chemical Inhomogeneity"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 14-20

Abstract: This study concerns the characteristics of impurity distribution in a dendritic structure of steel subjected to directional crystallization at various rates. It was found that chromium distribution in a dendritic cell of carbon steel is determined by the carbon content and the crystallization rate (the duration of metal in the two-phase state). The constancy of chromium concentration in the dendritic axis at about 0.6 to 0.85 of the mean concentration has been confirmed. The dendritic inhomogeneity with respect to chromium (within the tested range of the experimental solidification) is caused primarily by separation diffusion at the interface of solid and liquid phases, the diffusion through the boundary layer, and stirring the liquid phase beyond the limits of this layer. Atom diffusion in the solid phase has no appreciable effect on chromium distribution in the cell

1/2

USSR

SOSKOV, D. A., et al, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 14-20

as a whole; this process, however, changes the shape of the concentration curve in the center of the interaxial section, near the cementite inclusions. Changes in chromium concentration over the cross section of a dendritic cell may be described mathematically by dividing the cell into three sectors with various types of changes in the effective distribution factor and the rate of displacement of the phase boundary.

2/2

USSR

UDC 616.153.1:577.158.71.04-092.9:616.981.452-092

AVANYAN, L. A., and SOSNIKHINA, T. M., Scientific Research Antiplague Institute of the Caucasus and Transcaucasus, Stavropol'

"Biochemical Characteristics of Erythrocytes of Guinea Pigs With Hypocatalasemia and the Sensitivity of These Animals to Plague Bacteria"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No 4, 1972, pp 371-376

Abstract: Because hypo- and acatalasemia have been associated with higher susceptibility to plague among wild rodents, the biochemical characteristics of this deficiency and sensitivity of laboratory guinea pigs to P. pestis were studied. First it was shown that such a deficiency is transmitted genetically as an autosome-recessive trait, and normally appears in offspring of parents with a catalase activity less than 30 mg H_2O_2/mg Hb. Deficient guinea pigs were found to have a blood catalase activity 6 times lower than that of normal animals and composed 15.44% of the sampled population. While erythrocyte counts, Hb levels, and total glutathione were identical in both groups, reduced glutathione was lower and oxidized glutathione was higher in erythrocytes of deficient animals, probably due to suppressed glutathione reductase activity. In fact, such activity was observed to be over 3 times lower in deficient animals. Erythrocyte hemolysis tests indicated that erythrocytes of deficient animals have higher

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USSR

AVANYAN, L. A. and SOSNIKHINA, T. M., Voprosy Meditsinskoy Khimii, Vol 17, No 4, 1972, pp 371-376

sensitivity to HCl and H_2O_2. Infection of guinea pigs with P. pestis resulted in 54% survival for normal animals and only 20% for hypocatalasemic animals. Thus it is hypothesized that wild rodents with hypocatalasemia or other deficiencies that impair H_2O_2 detoxification would be more susceptible to plague, and that one of the effects of plague bacteria is to inhibit catalase activity and increase H_2O_2 formation.

2/2

USSR

UDC 621.373.826:550.3

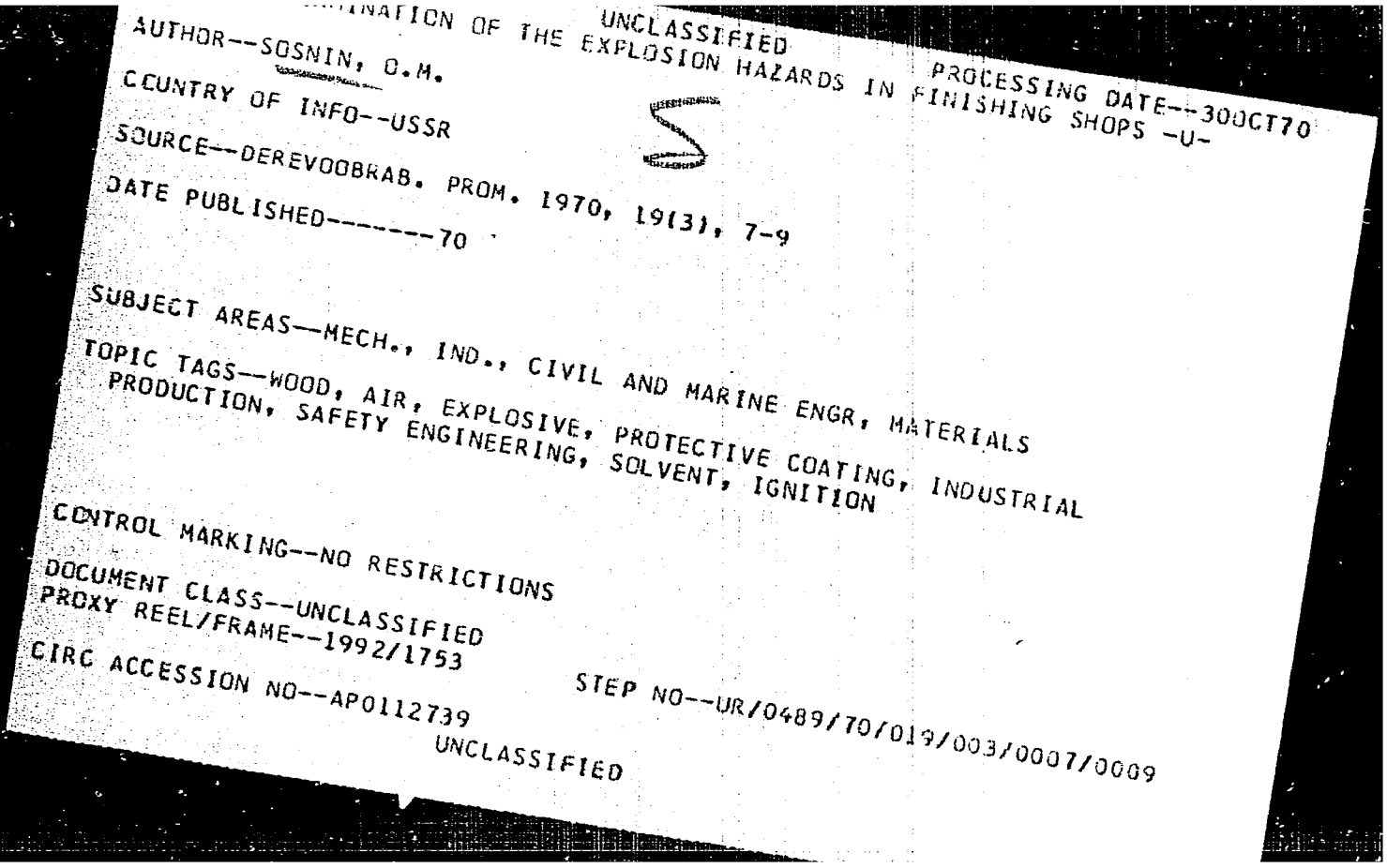
ZUYEV, V. Ye., KOSTIN, V. V., MARICHEV, V. N., and SOSNIN, A. V.

"Propagation of Laser Radiation of 2.36 Micron Wavelength in the Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 162-164 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D442)

Translation: Results are given of measurements of the attenuation of a laser with $\lambda = 2.36\ \mu$ (the laser using $CaF_2:Dy^{2+}$) under complex meteorological conditions. It is shown that the dispersion by particles of atmospheric aerosol plays the decisive role. In several cases, the attenuation factor at $\lambda = 2.36\ \mu$ is greater than at $\lambda = 0.63\ \mu$. One table, bibliography of four. A. L.

1/1



UNCLASSIFIED

...INATION OF THE EXPLOSION HAZARDS IN FINISHING SHOPS -U-

PROCESSING DATE--30OCT70

AUTHOR--SOSNIN, O.M.

COUNTRY OF INFO--USSR

SOURCE--DEREVOOBRAB. PROM. 1970, 19(3), 7-9

DATE PUBLISHED-------70

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

TOPIC TAGS--WOOD, AIR, EXPLOSIVE, PROTECTIVE COATING, INDUSTRIAL PRODUCTION, SAFETY ENGINEERING, SOLVENT, IGNITION

CONTROL MARKING--NO RESTRICTIONS

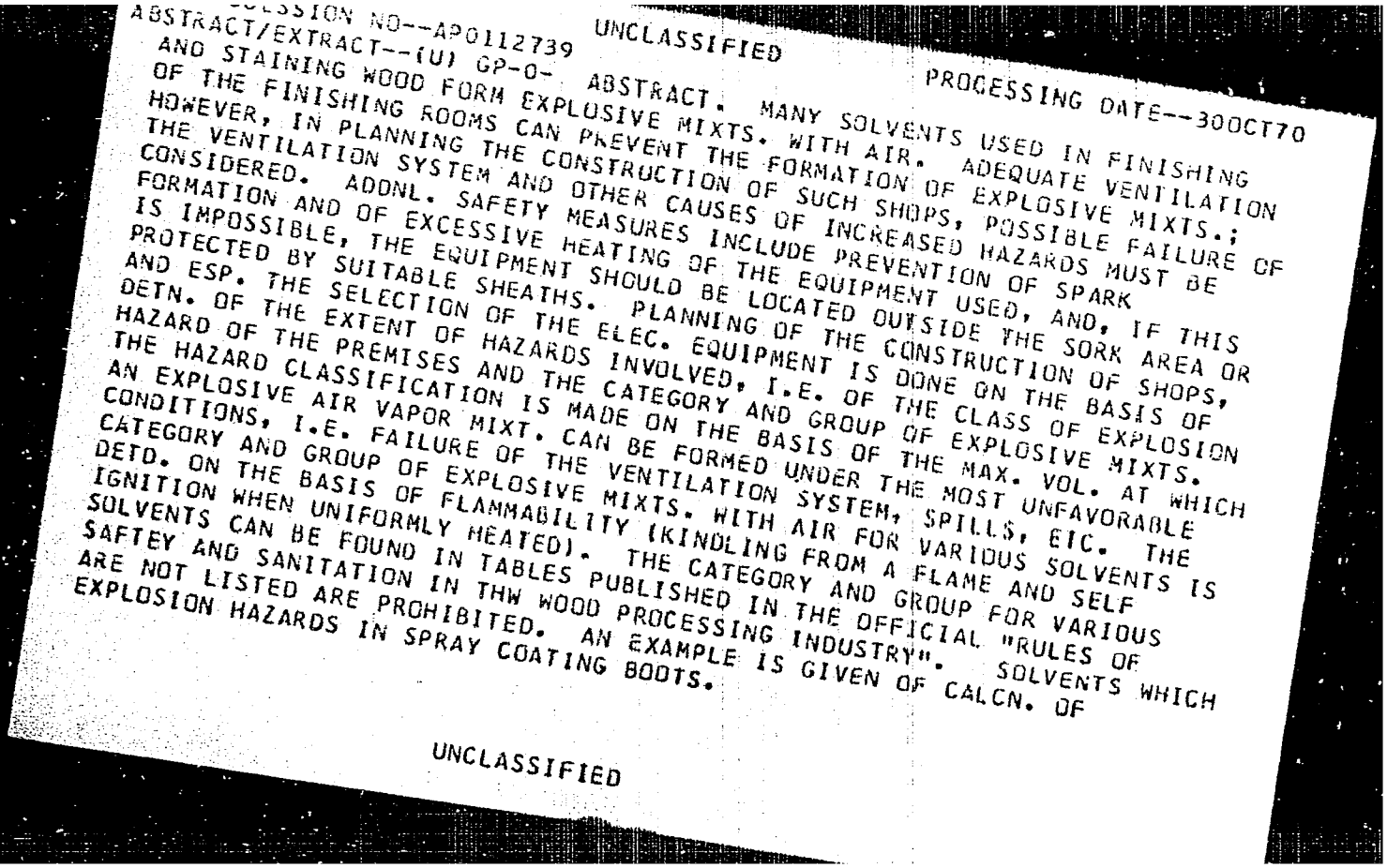
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1753

CIRC ACCESSION NO--AP0112739

STEP NO--UR/0489/70/019/003/0007/0009

UNCLASSIFIED



ACCESSION NO--AP0112739 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MANY SOLVENTS USED IN FINISHING AND STAINING WOOD FORM EXPLOSIVE MIXTS. WITH AIR. ADEQUATE VENTILATION OF THE FINISHING ROOMS CAN PREVENT THE FORMATION OF EXPLOSIVE MIXTS.; HOWEVER, IN PLANNING THE CONSTRUCTION OF SUCH SHOPS, POSSIBLE FAILURE OF THE VENTILATION SYSTEM AND OTHER CAUSES OF INCREASED HAZARDS MUST BE CONSIDERED. ADDNL. SAFETY MEASURES INCLUDE PREVENTION OF SPARK FORMATION AND OF EXCESSIVE HEATING OF THE EQUIPMENT USED, AND, IF THIS IS IMPOSSIBLE, THE EQUIPMENT SHOULD BE LOCATED OUTSIDE THE SORK AREA OR PROTECTED BY SUITABLE SHEATHS. PLANNING OF THE CONSTRUCTION OF SHOPS, AND ESP. THE SELECTION OF THE ELEC. EQUIPMENT IS DONE ON THE BASIS OF DETN. OF THE EXTENT OF HAZARDS INVOLVED, I.E. OF THE CLASS OF EXPLOSION HAZARD OF THE PREMISES AND THE CATEGORY AND GROUP OF EXPLOSIVE MIXTS. THE HAZARD CLASSIFICATION IS MADE ON THE BASIS OF THE MAX. VOL. AT WHICH AN EXPLOSIVE AIR VAPOR MIXT. CAN BE FORMED UNDER THE MOST UNFAVORABLE CONDITIONS, I.E. FAILURE OF THE VENTILATION SYSTEM, SPILLS, ETC. THE CATEGORY AND GROUP OF EXPLOSIVE MIXTS. WITH AIR FOR VARIOUS SOLVENTS IS DETD. ON THE BASIS OF FLAMMABILITY (KINDLING FROM A FLAME AND SELF IGNITION WHEN UNIFORMLY HEATED). THE CATEGORY AND GROUP FOR VARIOUS SOLVENTS CAN BE FOUND IN TABLES PUBLISHED IN THE OFFICIAL "RULES OF SAFTEY AND SANITATION IN THW WOOD PROCESSING INDUSTRY". SOLVENTS WHICH ARE NOT LISTED ARE PROHIBITED. AN EXAMPLE IS GIVEN OF CALCN. OF EXPLOSION HAZARDS IN SPRAY COATING BOOTS.

UNCLASSIFIED

USSR

Sosnin, O. V., Torshenov, N. G., Novosibirsk

UDC: 539.376

"Creep and Rupture of Type OT-4 Titanium Alloy in the 400-550°C Temperature Interval"

Kiev, Problemy Prochnosti, No 7, 1972, pp 55-59.

Abstract: Results are presented from experiments on creep and long-term strength of flat specimens of OT-4 alloy at 400, 450, 500 and 550°C. The regularity of the change in creep deformation ε^* at the moment of rupture as a function of experimental duration and test temperature is demonstrated. An estimate is given of the time to rupture on the basis of the energy criterion for long-term strength.

1/1

USSR

SOSNIN, O. V., Novosibirsk

UDC 539.376.532.135

"Problem of Existence of Creep Potential"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 5, 1971, pp 85-89

Abstract: The hypothesis of existence of potential functions of creep flow rates is used when developing approximate methods of solving the problems of creep theory. The correctness of the hypothesis has not previously been subjected to experimental checking, especially for materials having work hardening during the creep process. An experimental study was made of the creep of tubular samples of medium carbon steel under the joint effect of tensile stress and torsion. The results confirm the noncontradictory nature of the existence of creep potential.

The experiments were performed on pipe samples with an outside and inside diameter of 20 mm and 18 mm, respectively, 80 mm long made of 45 steel. The test pieces were annealed in a vacuum at $5 \cdot 10^{-4}$ mm Hg for an hour at a temperature of 750° C, and the creep experiments were performed at 400° C. The axial stress was determined as the ratio of the tensile stress to the

USSR

SOSNIN, O. V., Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 5, 1971, pp 85-89

transverse cross sectional area of the pipe, and the shear was determined as the ratio of the torsional moment to the product of the transverse cross sectional area times the mean radius. The test data are plotted graphically showing that at the time of overload and for sometime after overloading the creep process continues with the same intensity. In all stages of the stressed state, for equal stresses, the creep flow rates coincided independently of the preceding loading process.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DIRECTIONALITY OF STRAIN HARDENING IN THE PRESENCE OF CREEP -U-

AUTHOR--SOSNIN, O.V.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, MAY-JUNE 1970, P. 120-124
DATE PUBLISHED--------70

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

TOPIC TAGS--METAL CREEP, METAL TUBE, STRAIN HARDENING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605008/C07 STEP NO--UR/0484/70/000/000/0120/0124

CIRC ACCESSION NO--AP0139958
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF CREEP TESTS IN WHICH TUBULAR SAMPLES WERE SUBJECTED TO THE COMBINED EFFECTS OF TENSILE STRESSES AND BENDING MOMENTS. THE RELATION BETWEEN THE STRESSES AND MOMENTS WAS VARIED IN THE COURSE OF THE TESTS. AN ANALYSIS OF THE RESULTS REVEALS THAT THERE EXIST CERTAIN POSSIBILITIES OF DESCRIBING ANALYTICALLY THE PROCESSES UNDER STUDY.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--CREEP AND FAILURE OF THE OT-4 TITANIUM ALLOY AT A CONSTANT TEMPERATURE -U-

AUTHOR-(02)-SOSNIN, O.V., TORSHENOV, N.G.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAY 1970, P.28-32

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--METAL CREEP, FATIGUE STRENGTH, TITANIUM ALLOY, TEST METHOD/(U)OT4 TITANIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1439 STEP NO--UR/3663/70/002/000/0028/0032

CIRC ACCESSION NO--AP0135110

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135110

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE RESULTS OF CREEP AND FAILURE TESTS PERFORMED FOR A TITANIUM ALLOY AT A TEMPERATURE OF 500 DEG C. IT IS SHOWN THAT AT THE MOMENT OF FAILURE, THE VALUE OF THE SPECIFIC WORK DISSIPATED DURING THE CREEP PROCESS IS CONSTANT WITHIN THE STRESS RANGE STUDIED (10 TO 26 KGG PER SQ MM) AND IS INDEPENDENT OF THE LOADING HISTORY. IT IS ALSO SHOWN THAT THE INTENSITY OF THE PROCESS (IN THE SENSE OF DISSIPATION INTENSITY) DEPENDS UNIQUELY ON THE INSTANTANEOUS VALUES OF THE STRESSES AND DISSIPATED WORK.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT GIDRODINAMIKI, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

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UDC 539.376

SOSNIN, O. V., TORSHENOV, N. G.

"Creep and Destruction of the Titanium Alloy OT4 at Constant Temperature"

Problemy Prochnosti, No 5, May, 1970, pp 28-32

Abstract: The results of experiments on the creep and destruction of titanium alloy OT-4 at a temperature of 500° C and stresses of $10 \leq \sigma \leq 26$ kg force/mm^2 are presented. The experiments were carried out in three series. In the first series of experiments the load did not change until complete rupture of the specimen. The second series of experiments was carried out with interruptions during which the specimen was completely unloaded and was allowed to cool to room temperature. After several hours it was heated again, and at 500° C the initial load was reapplied. It was found that the interruption in the experiment did not affect the succeeding process of creep. In the third series of experiments the load was varied step-wise, the stress in the reloadings being defined each time as the ratio of the axial load to the initial cross-section area of the specimen. From the results of the third series of the experiments it follows that an equation of state should exist which links the intensity of the process in the sense of the power of dispersion to the value of the current

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SOSNIN, O. V., et al, Problemy Prochnosti, No 5, May, 1970, pp 28-32

stress and the dispersed work. This equation of state is given. On the basis of the third series of experiments, the conclusion may be drawn that the sum of all the load steps is equal to the critical value obtained from the experiments of the first and second series.

2/2

USSR

UDC 669.24:538.221

BORODKINA, M. M., PESIN, V. S., SMIRNOVA, L. G., SOSNIN, V. V., and STAROSTIN, Yu. V., Institute of Precision Alloys of the Central Institute of Ferrous Metallurgy imeni I. P. Bardin

"Magnetic Properties and Texture of a Thin Band of Nickel-Iron-Molybdenum Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1188-1194

Abstract: A study was made of the magnetic properties (coercive force, induction, and the rectangularity factor) and the texture of bands of Ni-Fe-Mo alloys (75-87%Ni, 0-5.5%Mo) 20, 5, and 2 μm thick. The optimum cooling rate ensuring the highest α value depends on Ni and Mo contents and the final reduction value in rolling. The optimum final reduction increases with decreasing thickness. The predominance of the $\langle 111 \rangle$ or $\langle 100 \rangle$ textures is essentially for α in the case of relatively thick bands ($\geq 5\,\mu$m). For 20-μm-thick bands, there is a correlation between the relation of the $\langle 111 \rangle$ & $\langle 100 \rangle$ orientations and the rectangularity factor α. For 5-μm-thick bands, a correlation is observed only at high reductions, and for 2-μm-thick bands there is no correlation. In the thinnest bands, a mechanism which is independent of the magnetocrystalline anisotropy and which can be related to orientated imperfections produced by rolling with high reduction rates, is probably predominant. Six figures, two tables, twelve bibliographic references.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT7

TITLE--STRUCTURAL REASONS FOR THE PRODUCTION OF TRANSFORMER STEEL WITH CUBIC TEXTURE -U-

AUTHOR-(03)-SOSNIN, V.V., MOLOTILOV, B.V., CHERVONENKOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 367-70

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, METAL TEXTURE, ALLOY PHASE TRANSFORMATION, IRON ALLOY, SILICON ALLOY, HOT ROLLING, SOLID SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1525 STEP NO--UR/0048/70/034/002/0367/0370

CIRC ACCESSION NO--AP0120306

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120306

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STRUCTURAL CHANGES ARE DISCUSSED, OCCURRING IN A FE-SI ALLOY WITH 3PERCENT SI WHEN CAST METAL WITH AN AXIAL (001) TEXTURE IS ANNEALED AND HOT ROLLED. THE RESULTING TEXTURE, WHICH SOULD BE (001) (100), DEPENDS ON FACTORS LIKE THE DEGREE OF TEXTURE DEVELOPMENT IN THE INGOT, THE AMT. OF ALLOYING ADDNS. IN THE SOLID SOLN., AND AN ABSENCE OF PHASE TRANSFORMATIONS. FACILITY: TSNIICHM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 911.3.616.9.591.52(575.3)

SOSNINA, E. F.

"Differences in the Degree of Infection of Murine Rodents with Arthropods in Natural Foci and Populated Points"

V sb. 5-ya Mezhvuz. zoogeogr. konferentsiya Vliyanie antropogen. faktorov na formir. zoogeogr. kompleksov" Ch. I. (Fifth Joint High Education Institution Zoogeographic Conference on the Effect of Anthropogenic Factors on the Formation of Zoogeographic Complexes," Part I — collection of works), Kazan, 1970, pp 114-117 (from RZh- 36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.70 by Yu. Dubrovskiy)

Translation: Infection of rodents (Turkestan and lamellidental rats, field and house mice) by arthropods was studied in four habitats: natural foci and populated points in Tadzhikistan hills and plains. There is a decrease in number and species composition for arthropods living in synantropic, as compared to natural conditions. The species most impoverished are Ixodes and hombiculid mites, as well as a number of nest-burrow inhabitants. Permanent parasites can reach great numbers in populated areas. Human activity chiefly affects specific parasites of synantropic rodents, including the

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USSR

SOSNINA, E. F., V sb. 5-ya Mezhvuz. zoogeogr. konferentsiya Vliyanie antropogen. faktorov na formir. zoogeogr. kompleksov" Ch. I. (Fifth Joint Higher Education Institution Zoogeographic Conference on the Effect of Anthropogenic Factors on the Formation of Zoogeographic Complexes." Part I -- collection of works), Kazan, 1970, pp 114-117 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.70 by Yu. Dubrovskiy)

permanent parasites. These and their hosts are becoming very widespread as a result of expanding transport networks. These general points are illustrated with data on characteristics of the parasitefauna of Turkestan rats in various types of living conditions.

1/3 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CYCLOPENTENE AND 1,METHYL,2,CYCLOPENTENE REACTIONS IN THE PRESENCE OF RARE EARTH OXIDES -U-

AUTHOR-(02)--SOSNINA, I.YE., MESHCHERYAKOVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--VESTN. MOSK. UNIV., KHIM. 1970, 11(1) 106-11

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIC GROUP, ALKENE, CHEMICAL REACTOR, CATALYST ACTIVITY, NAPHTHALENE, ISOMERIZATION, RARE EARTH COMPOUND, LATHANUM OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1713 STEP NO--UR/0189/70/011/001/0106/0111

CIRC ACCESSION NO--AP0104915

UNCLASSIFIED

2/3 008 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0104915

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTIONS OF CYCLOPENTENE (I) AND 1,METHYL,2,CYCLOPENTENE (II) IN THE PRESENCE OF LA SUB2 O SUB3, NO SUB2 O SUB3, GD SUB2 O SUB3, AND ER SUB2 O SUB3 (III) WAS STUDIED AT 375-575DEGREES IN BY PASS AND PERIODIC MICROCATALYTIC REACTORS. THE INFLUENCE OF C FORMATION AND CATALYST POISONING BY C SUB5 H SUB5 N WAS STUDIED. THE CATALYSTS (CF. CA 61: 13179A) WERE INITIALLY CALCINED AT 550-720DEGREES. FOR THE BY PASS REACTOR 6 G CATALYST WAS SUPPORTED ON 50 ML SIO SUB2, AND THE HYDROCARBON SPACE VELOCITY WAS 0.2 HR-L., IN THE PERIODIC REACTOR 0.8-1 G UNSUPPORTED CATALYST WAS USED AT A HYDROCARBON LEVEL OF 203 MG IN HE STREAM (35-45 ML-MIN). THE BEST RESULTS (IN THE BY PASS REACTOR) WERE OBTAINED ON ER SUB2 O SUB3 (CALCINED AT 575DEGREES) AT 500DEGREES: I GAVE 23PERCENT CYCLOPENTADIENE (IV) AND II GAVE 23PERCENT 1,METHYL,1,CYCLOPENTEN (V). THE REACTION OF I AT LARGER THAN 475DEGREES GAVE ALSO NAPHTHALENE (VI) (UP TO 12PERCENT). THE MIXT. OBTAINED FROM II CONTAINED ALSO 1,METHYL,3,CYCLOPENTENE (VII) (AT ALL TEMPS. 4-6PERCENT) AND AT LARGER THAN 400DEGREES METHYLCYCLOPENTADIENE (VIII) 7, C SUB6 H SUB6 (IX) 6, AND CYCLOHEXADIENE 0.5-1PERCENT. INCREASED CATALYST CALCINING TEMP. REQUIRED INCREASED REACTION TEMP. AND THE ACTIVITY OF THE CATALYST FOR THE ISOMERIZATION OF II DECREASED 1.5 FOLD. THE PROCESS TEMP. IN THE PERIODIC REACTOR WAS (FOR I) 375-525DEGREES AND (FOR II) 275-400DEGREES WITHOUT CHANGE OF THE CONVERSION DEGREE OF I TO IV AND II TO V AND VI, THE YIELD OF VI WAS 1-2PERCENT, VIII AND IX WERE ABSENT. THE POISONING OF ER SUB2 O SUB3 DECREASED ITS ACTIVITY, ESP. FOR THEISOMERIZATION OF II TO V.

UNCLASSIFIED

3/3 008 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0104915

ABSTRACT/EXTRACT--THE HIGHEST C FORMATION (IN THE PERIODIC REACTOR) IN THE ISOMERIZATION OF II WAS OBSD. IN THE FIRST 3 RUNS; AFTER 10 RUNS IX WAS PRESENT IN THE PRODUCT; IN THE REACTION OF I, VI WAS OBSD. AFTER 12-14 RUNS.

UNCLASSIFIED

USSR

UDC: 620.179.05: 538.54.083.8

TRILISSKIY, V.M., MALINKA, A.V., SOSNINA, L.L., YURCHENKO, S.V., SOSNOVSKIY, M.I. and CHERNEY, L.I.

"Automatic Eddy-Current Installation for Control of Continuity, Diameter and Wall Thickness of Seamless, Stainless Pipes"

Sb. Electromagnit. methody nerazrushayushch. Kontrolya (Symposium on Electromagnetic Methods of Nondestructive Control) Minsk, Nauka i Tekhnika Publishing House, 1971, pp 139-142 (from Referativnyy Zhurnal-Metrologiya i Izmeritel'naya Tekhnika, No 8, 1972, Abstract No 8.32.224)

Translation: An automatic installation to detect defects, and to measure the wall thickness and the outside diameter of seamless, cold-drawn, stainless pipes of 6-12 mm diameter is described. The basic part of the automatic installation is the control system, including the servo-mechanism, common circuits, centering and drawing mechanisms, electronic analyzing blocks and actuator mechanisms. The control

USSR

TRILISSKIY, V. M., et al., Sb. Electromagnit. methody nerazrushayushch. Kontrolya, 1971, pp 139-142

system includes also a mimic bus consisting of several MTx-90 tubes and making it possible to monitor the operation of the mechanisms and instruments. The electronic part of the control system makes it possible to detect separately the external and internal defects, the deviations of the wall thickness and mean diameter. The instruments are set according to calibrating devices. Two indicating blocks contain an electronic radiation tube with rotary scanning, synchronized with the rotation of printed pickups. The line is handled by a single operator. The pipes pass through an automatic control device. The defects are marked with dye. The pipe ends are marked by means of an electric arc device. After marking, the pipes are sorted into containers.

2/2

USSR

UDC 531.383

SOSNITSKIY, S. P., Kiev

"On Studying the Stability of the Horizon Gyrocompass"

Moscow, Mekhanika tverdogo tela, No 3, May/Jun 71, pp 26-28

Abstract: The stability of a space gyrocompass is studied considering the vertical component of the force of inertia of the translational motion which is small in absolute value but considerably effects the qualitative nature of the oscillations of the sensing element. It is shown that parametric resonance for the horizon gyrocompass does not represent the same danger as for the space gyrocompass. It is commented that the very fact of the possibility of parametric oscillation of the horizon gyrocompass caused by the presence of a vertical component of the force of inertia of the translational motion and fairly small in absolute magnitude is very interesting. It is concluded that the horizon gyrocompass is subject to parametric scillation to a lesser degree than the non-space compass; the vertical component of the force of inertia of the translational motion imparts an oscillation to the space gyrocompass and this component is generally not taken into account in studies because of its smallness.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--COMPLEX RESONANCE OF A TWO ROTOR GYROCOMPASS -U-

AUTHOR--SOSNITSKIY, S.P.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, MAR. 1970, P. 125-129

DATE PUBLISHED----MAR 70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--GYROCOMPASS, SHIP NAVIGATION, PARAMETRIC RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0883 STEP NO--UR/0198/70/006/000/0125/0129

CIRC ACCESSION NO--AP0116393

UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0116393 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE INFLUENCE OF ENERGY DISSIPATION ON THE STABILITY OF A TWO ROTOR GYROCOMPASS MOUNTED ON A SHIP WHICH MOVES ALTERNATELY IN SEMICIRCLES AND ALONG STRAIGHT LINES. THE CASE OF COMPLEX PARAMETRIC RESONANCE IS EXAMINED, AND THE INSTABILITY REGIONS OF THE COMPASS ARE DETERMINED IN THE FIRST APPROXIMATION WITH AND WITHOUT ALLOWANCE FOR ENERGY DISSIPATION. IT IS SHOWN THAT ENERGY DISSIPATION (WHOLE PRESENCE CANNOT BE AVOIDED) ALWAYS LEADS TO AN ENLARGEMENT OF THE INSTABILITY REGION. IN THE NONRESONANT CASE, HOWEVER, IN WHICH THE CIRCULATION PERIOD OF THE SHIP IS SMALL COMPARED TO THE PERIOD OF THE NATURAL OSCILLATIONS OF THE GYROCOMPASS, DISSIPATION MAKES THE COMPASS ASYMPTOTICALLY STABLE. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT MATEMATIKI, KIEV, UKRANIAN SSR.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--BEHAVIOR OF SOLUTIONS TO THE EQUATIONS OF A SPATIAL GYROHORIZON COMPASS -U-

AUTHOR--SOSNITSKIY, S.P.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIIA A FIZIKO-TEKHNICHNI I MATEMATICHNI NAUKI. VOL. 32, MAY 1970, P. 459-461

DATE PUBLISHED----MAY70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--GYROHORIZON, GYROCOMPASS, MOTION EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/2001

STEP NO--UR/0441/70/032/000/0459/0461

CIRC ACCESSION NO--AT0133836

UNCLASSIFIED

2/2 027 UNCLASSIFIED

CIRC ACCESSION NO--AT0133836 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE EQUATIONS OF PERTURBED MOTION OF A SPATIAL GYHORIZON COMPASS. THE FIRST INDEPENDENT INTEGRALS OF THESE EQUATIONS ARE OBTAINED. IT IS SHOWN THAT A POINT REPRESENTING A SOLUTION OF THE EQUATION MOVES IN A CONDITIONALLY PERIODIC MANNER ALONG A TWO DIMENSIONAL TORUS. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT MATEMATIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

Power, Turbine, Engine, Pump

USSR

UDC: 621.438.71.001.5

MANUSHIN, E. A., MIKHAL'TSEV, V. Ye., PUGIN, G. A., SOSNOV, Yu. V.

"An Experimental Turbine for a Gas Temperature of 1200°C With Two-Loop Air-Liquid Cooling"

Tr. Mosk. vyssh. tekhn. uch-shcha im. N. E. Baumana (Works of the Moscow Higher Technical Academy imeni N. E. Bauman), 1970, No 134, pp 133-140 (from RZh-Turbostroyeniye, No 8, Aug 70, Abstract No 8.49.72)

Translation: On the basis of research at the Moscow Higher Technical Academy, the Leningrad "Ekonomayzer" Plant made an experimental semi-industrial pilot model of a high-temperature gas-turbine installation with air-liquid cooling of the working blades. In order to finish the cooling system, an experimental gas turbine was designed at the Moscow Higher Technical Academy, the full-scale dimensions of the blading being taken from the dimensions of the first stage of the cooled turbine in the high-temperature gas-turbine installation. A description is given of the stand and debugging tests of the experimental high-temperature gas-turbine installation at 4500-9000 rpm. An analysis of the thermal state of the guide vanes showed that the air cooling system, in reducing the vane temperature by 150-200°C, provides satisfactory cooling at temperature of up to 960°C. Six illustrations, one table, bibliography of three titles. L. P. D.

1/1

USSR

SOSNOVA, G. S.

UDC 629.7.036.54-66:536.46

"The Combustion of Boron and Aluminum to Their Highest Oxides at High Pressure and Temperature"

Moscow, Goreniye i Vzryv -- Sbornik (Combustion and Explosion -- Collection of Works), Nauka, 1972, pp 455-458 (from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34.140. Resume)

Translation: Measurement of the detonation speeds of the composite explosives ammonium nitrate -- boron and ammonium nitrate -- aluminum showed that at temperatures of 2500-4000°K and pressures above 25 kbar, boron and aluminum oxidize to B_2O_3 and Al_2O_3 respectively, thereby releasing an energy from the oxidation reaction in the detonation wave. There is shown the difference in the behavior of the metals during combustion, based on their physicochemical properties. 4 figures. 10 references.

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UNCLASSIFIED
PROCESSING DATE--23OCT70
019
TITLE--STEREOCHEMISTRY OF NITROGEN HETEROCYCLES. XXIII. ACETIC AND DIPHENYLACETIC ESTERS OF STEREOISOMERS OF
AUTHOR-(04)-KHLUDNEVA, K.I., SOSNOVA, V.V., SOKOLOV, D.V., LITVINENKO, G.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(2), 43-7
DATE PUBLISHED-------70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--STEREOCHEMISTRY, HETEROCYCLIC NITROGEN COMPOUND, ACETATE, QUINOLINE, IR SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1901
STEP NO--UR/0360/70/020/002/0043/0047
CIRC ACCESSION NO--AP0123685
UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203120016-4"

2/2 019 UNCLASSIFIED

CIRC ACCESSION NO--AP0123685 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO SYNTHESIZE THE TITLE ESTERS, THE HCL SALT OF EACH OF THE 5 MOST AVAILABLE STEREOISOMERS OF THE TITLE HETEROCYCLE WAS HEATED WITH AC SUB2 O AND ACCL, OR WITH PH SUB2 CHCOCL WITHOUT SOLVENT. THE SINGLE ISOMERS DIFFER IN THE ABSORBABILITY ON AL SUB2 O SUB3, WHICH IS AFFECTED BY THE MUTUAL CONFIGURATION OF THE RINGS AND THE SPATIAL ORIENTATION OF ME AND AC OR DIPHENYLACETYL GROUPS. THE R SUBF VALUES IN AN ELUTION WITH ET SUB2 O ON A THIN AL SUB2 O SUB3 LAYER RANGE FRM 0.09 TO 0.96 AND FROM 0.03 TO 0.85 WITH ACETIC AND DIPHENYLACETIC ESTERS, RESP.; EACH DIPHENYLACETIC ESTER IS ABSORBED MORE STRONGLY THAN THE RESP. ACETIC ESTER. THE POSITIONS AND SHAPES OF SOME ABSORPTION BANDS IN THE IR SPECTRA ARE INFLUENCED BY THE SPATIAL ORIENTATION AND CHARACTER OF THE ACYLOXY GROUP. FACILITY: INST. KHIM. NAUK, ALMA-ATA, USSR.

UNCLASSIFIED

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.

2/2

USSR

UDC 612.822.3.014.482

SOSNOVSKAYA, E. M., Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR

"Bioelectrical Activity of the Brain in Individuals Subjected to Single Whole-Body and Local Irradiation"

Moscow, Meditsinskaya Radiologiya, No 6, 1971, pp 35-43

Abstract: EEG studies on 8 persons subjected to massive doses of whole-body or local (brain, arms) radiation (therapeutic or the result of an accident) from 7 days to 9 years after exposure. The electrical activity of those who received whole-body irradiation was characterized by a reduction of the alpha rhythm against a background of general disorganization of the brain waves with a tendency toward a shift to the rapid frequencies. Those whose heads or arms were irradiated did not exhibit any weakening of the alpha wave, but the slow components of the EEG definitely intensified. The extent of the changes in brain bioelectric potential and severity of the neurological symptoms were dose-dependent.

1/1

Public Health, Hygiene and Sanitation

USSR UDC 616.12-009.86-02:613.648/-07:[616.831-073.731+616.831-073.97

KIRSANOVA, G. I., and SOSNOVSKAYA, E. M., Institute of Labor Hygiene and Occupational Diseases (Professor A. A. Letavet, Director), Academy of Medical Sciences USSR, Moscow

"Cerebral Circulation and the Bioelectric Activity of the Brain With Neurocirculatory Dystonia in Persons Subjected to Occupational Irradiation"

Moscow, Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakova, Vol 71, No 11, 1971, pp 1,605-1,611

Abstract: Cerebral circulation and cortical biopotentials were studied in 167 persons subjected to irradiation. The presence of a clinical neurocirculatory dystonia syndrome and total radiation doses of 50-450 rem were the main criteria. Clnical neurological examination, rheoencephalographic, and encephalographic test results were compared with opthalmodynamometric and opthalmoscopic investigations. No significant cerebral circulation disorders were demonstrated. Some depression of cerebral vascular reactivity and satisfactory functional compensation were noted. The bioelectric brain potentials revealed a tendency toward a rapid fluctuation range and certain changes in reaction to functional loads. EEG changes increased in proportion to increased radiation doses. A certain prevalence of neurocirculatory

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USSR

KIRSANOVA, G. I., and SOSNOVSKAYA, F. M., Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakova, Vol 71, No 11, 1971, pp 1,605-1,611

dystonia of the hypotonic type was observed, especially in persons having been subjected to the highest total radiation dose and those with a clinical syndrome of chronic radiation sickness.

2/2

USSR

UDC 617-001.28-036.12-07:616.831.-073.97

SOSNOVSKAYA, F. M., Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR, Moscow

"Study of Brain Dioelectrical Activity in Persons Exposed to Chronic Ionizing Radiation"

Moscow, Zhurnal Nevropatologii i Psikhiatrii, No 2, 1971, pp 205-209

Abstract: Analaysis of the EEG's of 78 persons occupationally exposed to ionizing radiation for 5 to 20 years (total doses ranged from 50 to 400 rem) failed to reveal any gross functional impairment of the CNS in the great majority. The group as a whole exhibited a decrease in alpha activity and intensification of slow oscillations in varying degrees (pathological slow oscillations were found in 16% of the cases). Diffuse acute low-amplitude waves were observed in one-third of the EEG's. There was also a tendency for the background activity to shift to the rapid frequencies. The changes clearly intensified in relation to the total dose of radiation received and the presence of clinical symptoms of radiation sickness (Neurocirculatory dystonia, asthonic and neurotic symptoms).

1/1

USSR

UDC 616.145.11-008.1-02:616-001.28-057

KIRSANOVA, G. I., and SOSNOVSKAYA, F. M., Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR

"Clinical and Physiological Characteristics of Venous Disturbances of the Cerebral Circulation After Exposure to Radiation"

Moscow, Meditsinskaya Radiologiya, No 1, 1972, pp 16-22

Abstract: Examination of 167 persons with neurocirculatory dystonia who had been occupationally exposed to low doses of ionizing radiation for over 10 years revealed 84 who were suffering from unusually persistent headaches. These occurred very often after sleep, long shower, on a bus or train, after intense intellectual work, and constrained body position. Rheoencephalographic studies showed decreased arterial tone as well as signs of insufficient venous release from the cranial cavity. Similar phenomena were observed in persons suffering from chronic radiation sickness or who had recovered from acute radiation sickness but not in neurotics complaining of stubborn headaches. (Intravenous injection of theophylline ethylenediamine increased the tone of the cerebral blood vessels in those exposed to radiation and relieved their headaches but had no effect on the neurotics). The intensity of the venous disturbances was related to the size of the total irradiation dose and it

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203120016-4"

USSR

KIRSANOVA, G. I., and SOSNOVSKAYA, F. M., Meditsinskaya Radiologiya, No 1, 1972, pp 16-22

increased with the age of the individual. The EKG's of the irradiated individuals were characterized by a weakening of the alpha rhythm and increase in beta activity.

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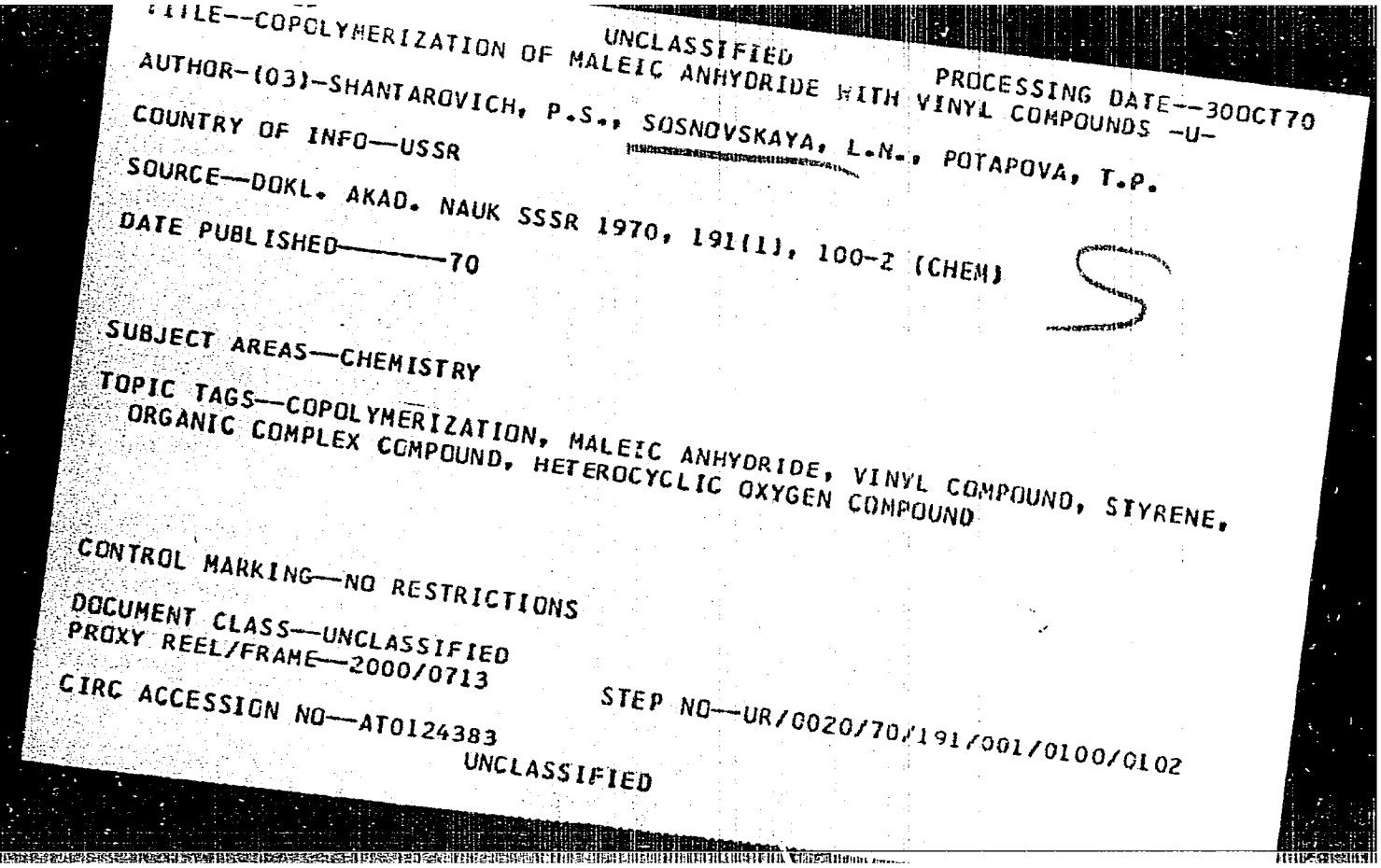


UNCLASSIFIED

TITLE--COPOLYMERIZATION OF MALEIC ANHYDRIDE WITH VINYL COMPOUNDS -U-

PROCESSING DATE--30OCT70

AUTHOR-(03)-SHANTAROVICH, P.S., SOSNOVSKAYA, L.N., POTAPOVA, T.P.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 100-2 (CHEM)

DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMERIZATION, MALEIC ANHYDRIDE, VINYL COMPOUND, STYRENE, ORGANIC COMPLEX COMPOUND, HETEROCYCLIC OXYGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0713

STEP NO--UR/0020/70/191/001/0100/0102

CIRC ACCESSION NO--AT0124383

UNCLASSIFIED

272 015

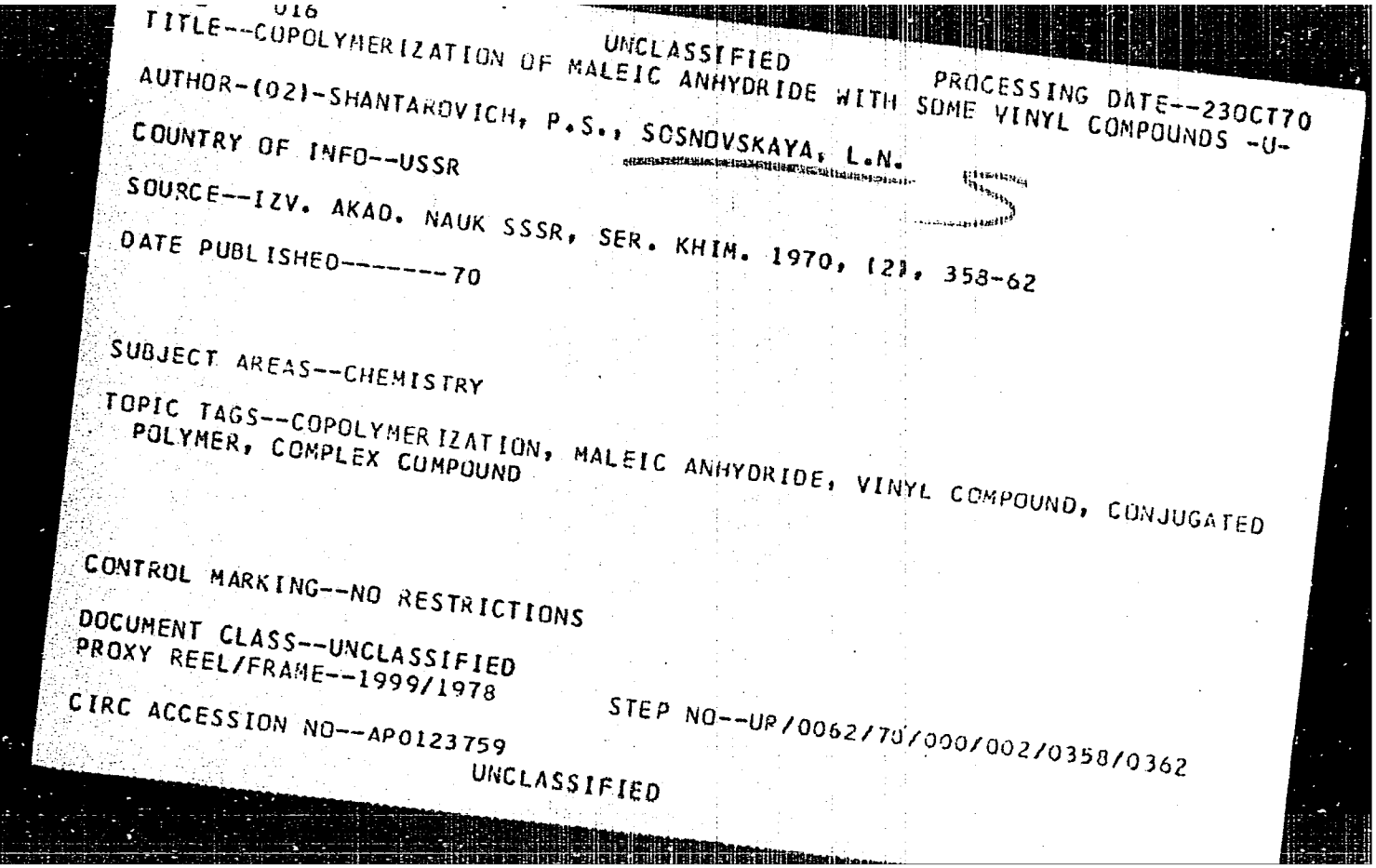
UNCLASSIFIED

CIRC ACCESSION NO--AT0124383 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ACCEPTED THEORY (T. ALFREY ET AL., 1945) OF PHCH:CH SUB2 (I) COPOLYMN. WITH MALEIC ANHYDRIDE (II) THE CONST. COPOLYMER COMPN. (SIMILAR TO 1:1 I-II) AND THE SEQUENTIAL ORDERING OF ALTERNATIVE I-II UNITS OBTAIND WITH DIFFERENT STARTING MONOMER MIXTS. IS EXPLAINED BY THE INABILITY OF I TO REACT WITH THE COPOLYMER CONTG. I END GROUP. THIS SI CONTRARY TO THE EXPTL. EVIDENCE OBTAINED IN I HOMOPOLYMNS. ON THE BASIS OF THE EXPTL. AND LITERATURE DATA A NEW COPOLYMN. MODEL IS PROPOSED FOR THE I-II AND I-II-H SUB2 C:CHOAC (III) SYSTEMS: THE COPOLYMER CAN REACT ONLY WITH THE POLAR FREE RADICAL COMPLEXES, SUCH AS IV OR V, AND NOT WITH THE MONOMERS. THE CALORIMETRY SHOWED THAT IV OR V ARE FORMED IMMEDIATELY WHEN II IS DISOLVED IN I OR III.

FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED



016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--COPOLYMERIZATION OF MALEIC ANHYDRIDE WITH SOME VINYL COMPOUNDS -U-

AUTHOR-(02)-SHANTAROVICH, P.S., SOSNOVSKAYA, L.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 358-62

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMERIZATION, MALEIC ANHYDRIDE, VINYL COMPOUND, CONJUGATED POLYMER, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1978

STEP NO--UR/0062/70/000/002/0358/0362

CIRC ACCESSION NO--AP0123759

UNCLASSIFIED

016

UNCLASSIFIED

CIRC ACCESSION NO--AP0123759

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE OBTAINED FOR BZ SUB2 O SUB2 CATALYZED POLYMN. OF MALEIC ANHYDRIDE (I), AND ITS COPOLYMN. WITH CH SUB2:CHOAC, CH SUB2:CHCO SUB2 H AND PHCH:CH SUB2 IN VARIOUS ORG. SOLVENTS AT 55DEGREES. THE REACTION INVOLVED CHAIN TRANSFER AND REQUIRED MUCH INITIATOR IN CASE OF THE BLOCK POLYMN. THE CHAIN TRANSFER CONST. TO THE MONOMER WAS HIGH AND THE D.P. WAS LOW. I COMONOMER COMPLEXES WERE FORMED AND PARTICIPATED IN THE COPOLYMN. THIS RESULTED IN A 1:1 COMPN. OF THE COPOLYMER CHAIN, REFLECTING THE IONIC NATURE OF THE INTERMEDIATE COMPLEX.

FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

SOSNOVSKIY, A. A.

Radio-Engr.

SU: JPRS 5643
01 June 1972

Radio Engineering

SPECIFICS FOR CONSTRUCTION FUNCTIONS OF THE CORRELATION PROCESS AT THE OUTPUT OF A KEY DETECTOR

UDC 620.7.059.7.001

A. A. Sosnovskiy, Candidate of Technical Sciences

Pages 21-27

In correlometers with electronic delay for storing the investigated process, correlation key detectors are used. Just as, for example, in reference [1]. The signal is distorted on passage through the

signal vary. In this case the correlometer records the correlation function of the distorted signal which introduces the correlation function in this article an effort has been made to eliminate the distortions of the spectrum and the autocorrelation function of the random process passing through the key detector.

Figure 1. Block diagram of the signal input device to a correlometer

Key: 1. Correlator
2. Key detector
3. Interrogation pulse

Let us assume for the analysis that the signal input device to the correlometer is constructed by the schematic in Figure 1. The signal x(t) goes

USSR

UDC: 620.179.05: 538.54.083.8

TRILISSKIY, V.M., MALINKA, A.V., SOSNINA, L.L., YURCHENKO, S.V., SOSNOVSKIY, M.I. and CHERNEY, L.I.

"Automatic Eddy-Current Installation for Control of Continuity, Diameter and Wall Thickness of Seamless, Stainless Pipes"

Sb. Electromagnit. methody nerazrushayushch. Kontrolya (Symposium on Electromagnetic Methods of Nondestructive Control) Minsk, Nauka i Tekhnika Publishing House, 1971, pp 139-142 (from Referativnyy Zhurnal-Metrologiya i Izmeritel'naya Tekhnika, No 8, 1972, Abstract No 8.32.224)

Translation: An automatic installation to detect defects, and to measure the wall thickness and the outside diameter of seamless, cold-drawn, stainless pipes of 6-12 mm diameter is described. The basic part of the automatic installation is the control system, including the servo-mechanism, common circuits, centering and drawing mechanisms, electronic analyzing blocks and actuator mechanisms. The control

USSR

TRILISSKIY, V. M., et al., Sb. Electromagnit. methody nerazrushayushch. Kontrolya, 1971, pp 139-142

system includes also a mimic bus consisting of several MTx-90 tubes and making it possible to monitor the operation of the mechanisms and instruments. The electronic part of the control system makes it possible to detect separately the external and internal defects, the deviations of the wall thickness and mean diameter. The instruments are set according to calibrating devices. Two indicating blocks contain an electronic radiation tube with rotary scanning, synchronized with the rotation of printed pickups. The line is handled by a single operator. The pipes pass through an automatic control device. The defects are marked with dye. The pipe ends are marked by means of an electric arc device. After marking the pipes are sorted into containers.

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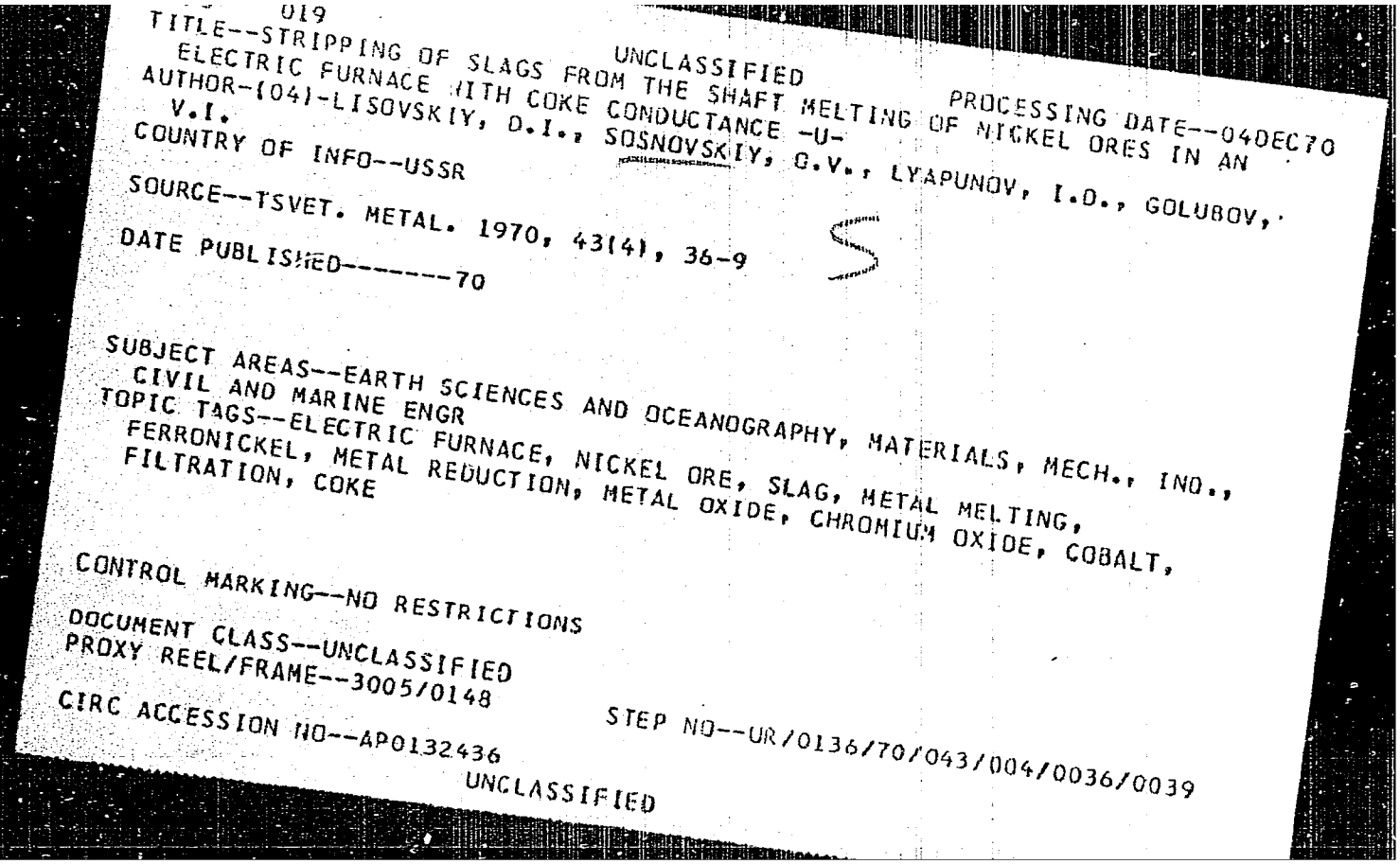

019 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STRIPPING OF SLAGS FROM THE SHAFT MELTING OF NICKEL ORES IN AN ELECTRIC FURNACE WITH COKE CONDUCTANCE -U-

AUTHOR-(04)-LISOVSKIY, O.I., SOSNOVSKIY, O.V., LYAPUNOV, I.D., GOLUBOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(4), 36-9

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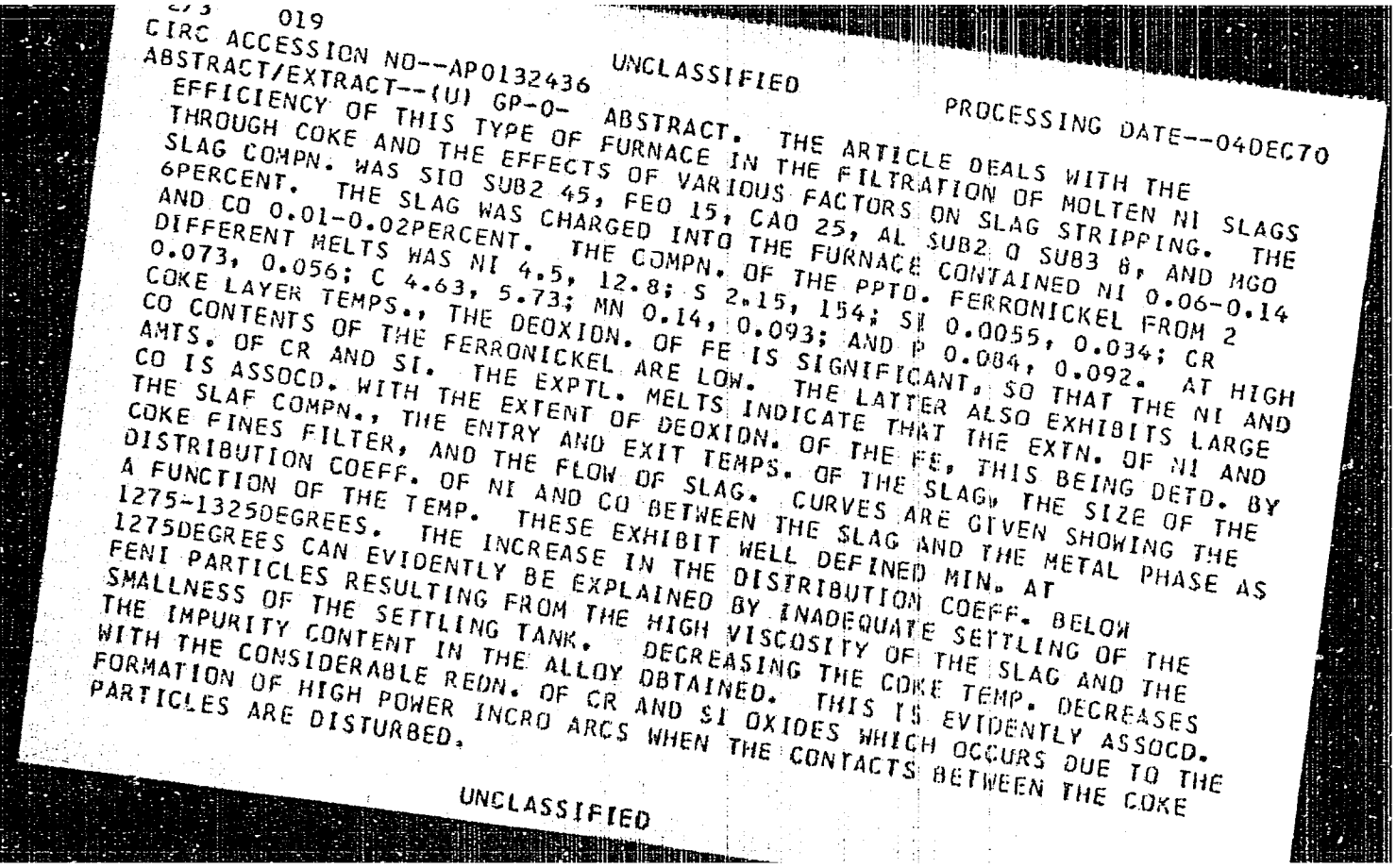

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CIRC ACCESSION NO--AP0132436 UNCLASSIFIED PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH THE EFFICIENCY OF THIS TYPE OF FURNACE IN THE FILTRATION OF MOLTEN NI SLAGS THROUGH COKE AND THE EFFECTS OF VARIOUS FACTORS ON SLAG STRIPPING. THE SLAG COMPN. WAS SIO SUB2 45, FEO 15, CAO 25, AL SUB2 O SUB3 8, AND MGO 6PERCENT. THE SLAG WAS CHARGED INTO THE FURNACE CONTAINED NI 0.06-0.14 AND CO 0.01-0.02PERCENT. THE COMPN. OF THE PPTD. FERRONICKEL FROM 2 DIFFERENT MELTS WAS NI 4.5, 12.8; S 2.15, 154; SI 0.0055, 0.034; CR 0.073, 0.056; C 4.63, 5.73; MN 0.14, 0.093; AND P 0.084, 0.092. AT HIGH COKE LAYER TEMPS., THE DEOXION. OF FE IS SIGNIFICANT, SO THAT THE NI AND CO CONTENTS OF THE FERRONICKEL ARE LOW. THE LATTER ALSO EXHIBITS LARGE AMTS. OF CR AND SI. THE EXPTL. MELTS INDICATE THAT THE EXTN. OF NI AND CO IS ASSOCD. WITH THE EXTENT OF DEOXION. OF THE FE, THIS BEING DETD. BY THE SLAF COMPN., THE ENTRY AND EXIT TEMPS. OF THE SLAG, THE SIZE OF THE COKE FINES FILTER, AND THE FLOW OF SLAG. CURVES ARE GIVEN SHOWING THE DISTRIBUTION COEFF. OF NI AND CO BETWEEN THE SLAG AND THE METAL PHASE AS A FUNCTION OF THE TEMP. THESE EXHIBIT WELL DEFINED MIN. AT 1275-1325DEGREES. THE INCREASE IN THE DISTRIBUTION COEFF. BELOW 1275DEGREES CAN EVIDENTLY BE EXPLAINED BY INADEQUATE SETTLING OF THE FENI PARTICLES RESULTING FROM THE HIGH VISCOSITY OF THE SLAG AND THE SMALLNESS OF THE SETTLING TANK. DECREASING THE COKE TEMP. DECREASES THE IMPURITY CONTENT IN THE ALLOY OBTAINED. THIS IS EVIDENTLY ASSOCD. WITH THE CONSIDERABLE REDN. OF CR AND SI OXIDES WHICH OCCURS DUE TO THE FORMATION OF HIGH POWER INCRO ARCS WHEN THE CONTACTS BETWEEN THE COKE PARTICLES ARE DISTURBED.

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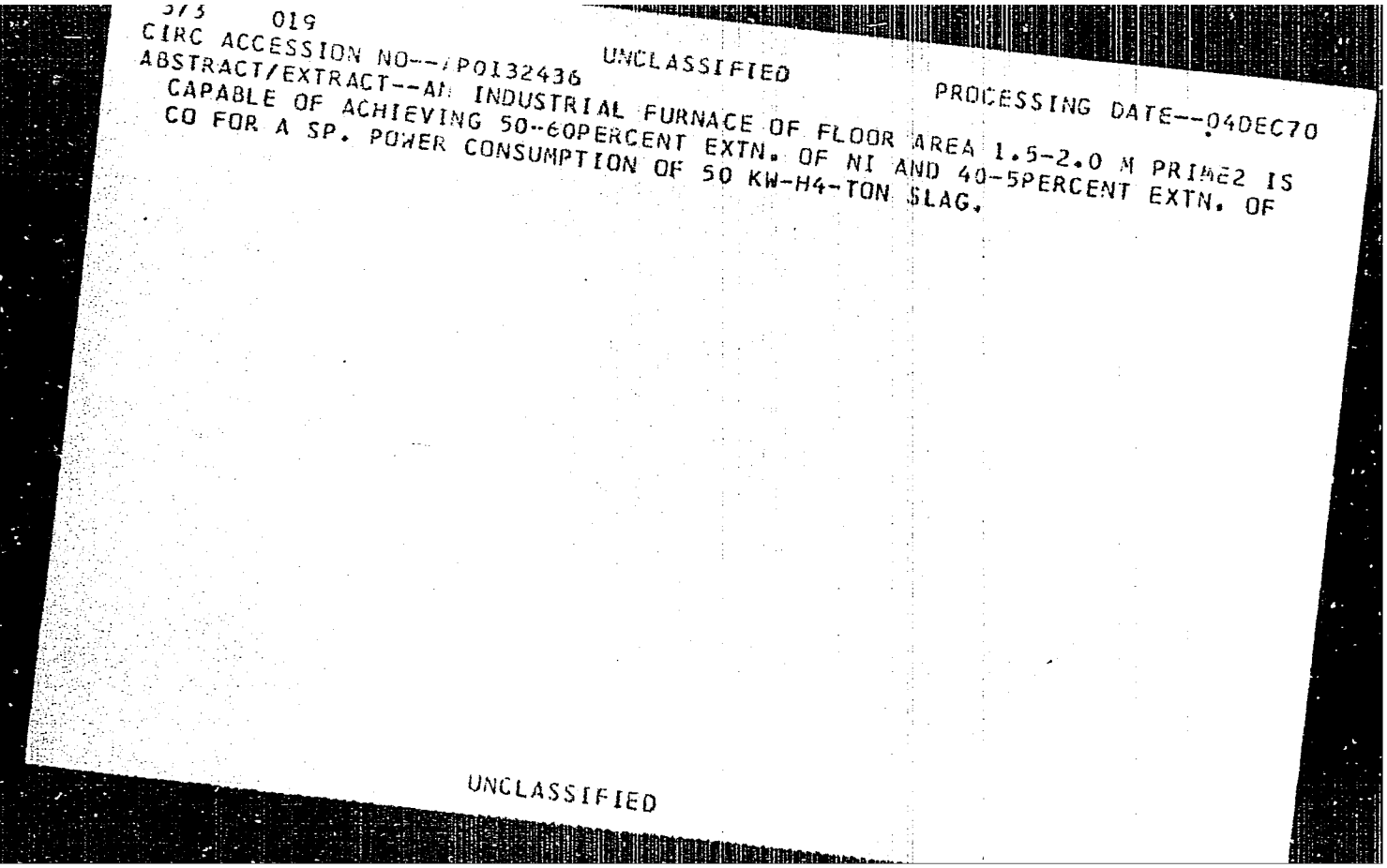

373 019
UNCLASSIFIED
CIRC ACCESSION NO--/P0132436 PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--AN INDUSTRIAL FURNACE OF FLOOR AREA 1.5-2.0 M PRIME2 IS CAPABLE OF ACHIEVING 50--60PERCENT EXTN. OF NI AND 40-5PERCENT EXTN. OF CO FOR A SP. POWER CONSUMPTION OF 50 KW-H4-TON SLAG.

UNCLASSIFIED

USSR UDC 547.63 + 547.562.4'562.1

GITIS, S. S., SEINA, Z. N., KAMINSKAYA, E. G., IVANOVA, V. M., BELOSHAGINA, V. V., SOSONKIN, I. M., and KAMINSKIY, A. YA., VNIPIM [All-Union Scientific Research and Planning Institute of (unknown; possibly Monomers)], Tula, and CHIKURINA, L. V., VNIIV [All-Union Scientific Research Institute of Synthetic Fibers]

"p,p'-Bis-(carboxyphenylsulfonyl)-diphenyl Oxide and Some of Its Derivatives -- Monomers for the Production of Thermostable Fibers"

Moscow, Khimicheskiye Volokna, No 1, 1971, pp 45-47

Abstract: The article suggests the synthesis of new monomers, viz. derivatives of p,p'-bis-(carboxyphenylsulfonyl)-diphenyl oxide, for the production of thermostable polymer materials. A study of the first stage of the synthesis -- tosylation of diphenyl ether -- showed that the process yields two principal products whose elementary composition corresponds to the general formula $CH_3-Ar-SO_2-Ar-O-Ar-SO_2-Ar-CH_3$, as well as a third substance whose composition corresponds to the composition

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GITIS, S. S., et al., Khimicheskiye Volokna, No 1, 1971, pp 45-47

of the monotosylation product $Ar-O-Ar-SO_2-Ar-CH_3$. The structure of the synthesized products was confirmed by IR and electron spectroscopy, as well as polarography. Fibers based on the resultant monomers are strong and elastic.

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USSR

SOSSI, L. and KARD, P. UDC: 535.345.1

"Propagation of Light in a Thin, Nonuniform Dielectric Layer"

Tallin, Izvestiya Akademii Nauk Estonskoy SSR, vol 21, No 2, 1972, pp 155-161

Abstract: This paper is based on an earlier article by the same authors in the same journal (17, 1968, p 41) in which formulas were obtained for the reflection and transmission coefficients of monochromatic light normally incident on a fine, nonuniform dielectric layer; the index of refraction of the film transforms continuously to the index of refraction of the original medium at the outside boundary of the film. The purpose of the present article is twofold: first, to reconstruct the equations of the earlier article such that their terms will have a simple physical interpretation; second, to derive simpler formulas without obscuring these physical interpretations. Simple formulas for the coefficients of reflection and transmission of light in the film are also obtained. The authors are associated with the Tartu State University.

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SO: JPRS 56148
01 JUNE 1971

IV. SOME PROBLEMS OF RADAR SIGNAL DETECTION

UDC 621.7.058.6.001

DETECTION OF A QUASIDETERMINISTIC SIGNAL WITH SIMULTANEOUS MEASUREMENT OF ITS PARAMETERS

V. G. Valeyev, Candidate of Technical Sciences
Yu. G. Sosulin, Candidate of Physical and Mathematical Sciences

Pages 172-173

Introduction

In radar, the target detection conditions usually precede the measurement of the target coordinates. Here, the time T required to obtain the estimates of the measured coordinates is made up of the interval T_{det} spent on detection and the measurement interval T_{meas}, that is, $T = T_{det} + T_{meas}$.

In some cases, instead of alternate detection and measurement, simultaneous realization of both procedures turns out to be possible. ..., the measurement results come into force only after establishment of the fact of the presence of a target. Simultaneous detection and measurement permit reduction of the analysis time of the received signal.

The synthesis of optimal receivers for joint detection and measurement is possible by using the methods discussed, for example, in reference [1]. Although these methods were developed for the detection and filtration of Markov signals, it is possible to use them with identical success in the problems of measuring random parameters, that is, parameters which are independent in the observation interval. Such problems arise, in particular, when measuring the coordinates of bodies traveling according to the laws of ballistics where the nature of variation of the measured parameter $\lambda(t)$ is represented in the form of a linear combination of known time functions $\varphi_i(t)$ with the random coefficients x_i:

$$\lambda(t) = \sum x_i \varphi_i(t).$$

The possibility of applying the methods of reference [1] to the problems of receiving signals with random parameters arises from the fact that the random variable can be considered as the limiting case of a Markov process, the time correlation of which significantly exceeds the observation time.

USSR

SOSULIN, YU. G.

UDC 621.391.2

"Estimation-Correlation Principle of Receiving Signals Against a Noise Background and A Priori Information"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 281-291

Abstract: Effective methods of joint detection and filtration (measurement) in the class of Markov signals and noise are leading to the construction of detectors operating on the evaluation-correlation principle. In this article it is shown that from the approximating properties of Markov processes and previous results, a generalization of this principle follows which is valid in practice for any signals and noise. The effect of a priori information on the formulation of the evaluation-correlation principle is discovered, and some simplifications are made in the general algorithms expedient for engineering practice. The useful properties of evaluation-correlation algorithms are discussed and means of implementing them are indicated.

Specifically, the evaluation-correlation principle of detecting arbitrary signals against a background of white gaussian noise and in the presence of arbitrary noise is studied, and various versions of formulas expressing this

UDC 629.78.018.1(088.8)

USSR

BOROG, V. A., SANKOV, Ye. I., ROKITYANSKIY, R. I., SOSUL'NIKOV, I. L., TSVETKOV, Ye. A.

"Installation for Creation of an Air Stream"

USSR Author's Certificate No 309268, filed 20/05/66, published 3/09/71, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 2, 1972, Abstract No 2.41.132 P from the Resume).

Translation: This invention relates to equipment for aerodynamic research, namely installations for the creation of an air stream. Installations for the creation of an air stream are known, containing a platform and a non-moving cover installed on the platform, forming an air channel together with an attached shaped nozzle fixed relative to it, in which there is a motor with a fan and a guiding grid. These installations do not allow acrodynamic loading of individual units of an assembled aircraft at various levels and at an angle to its primary planes. The installation suggested for the creation of an air stream differs from known installations in that the cover is fastened to the platform by hydraulic lifters allowing it to be moved forward and backward and rotated by a fixed angle in the vertical plane. Furthermore, the end portion of the cover is made with guides which rotate the attached nozzle around the axis of the air channel, while the device for fixation of the nozzle relative to the cover is equipped with a hydraulic drive. 2 Figures.

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SOSULIN, YU. G., Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 281-291

The invariance of the estimation-correlation principle with respect to a priori indeterminancy of signals and noise is demonstrated, and methods of synthesizing detectors with incomplete a priori information are presented. A detection receiver which is optimal in the absence of a priori information about the signal is found. The estimation-correlation principle is generalized to the multialternative problems of statistical pattern recognition theory.

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UDC 669.293:621.793.6

USSR

SOSUL'NIKOVA, M. A., L'VOV, V. S., KARMANOVA, A. V., and KULIKOVA, L. N., Siberian Metallurgical Institute

"Mechanism of Low-Temperature Deterioration of Protective Coatings on Metals"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 2, 1970, pp 118-120

Abstract: An investigation was made of the mechanism of low-temperature oxidation of niobium disilicide produced by the thermodiffusion of specimens of technically pure niobium (98.5% Nb; 1.11% Ta) in a powdered mixture of Si, Al_2O_3, and NH_4Cl in a temperature interval 500-1000° C. The mechanism of low-temperature deterioration of the coating is presented and a temperature is found at which the process at the fastest rate.

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UDC; 621.317.341:621.317.335

USSR

AL'TSHULER, Yu. G. SOSUNOV, V. A., YAZIKOV, V. N.

"An Automatic Instrument for Measuring the Complex Coefficients of Transmission of Two-Terminal — Pair Networks, and its Use for Studying the Parameters of Materials"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 73-74 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A387)

Translation: The authors describe the circuit of an instrument for automatic measurement of complex transfer constants. The device utilizes a combination of two-phase microwave discriminators, one based on a double waveguide connector (tee) (cophase-antiphase bridge), and the other based on a 3-dB loop coupler (quadrature bridge). The working characteristics of these discriminators are shifted in phase by 90°; therefore using them in the circuit of the instrument for automatic measurement of complex transfer constants makes possible panoramic display of the measured quantities. The instrument was developed in response to the need for measuring

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USSR

AL'TSHULER, Yu. G., SOSUNOV, V. A., YAZIKOV, V. N., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1, 1970, pp 73-74.

and monitoring the parameters of liquid dielectrics in the continuous mode. Measurements showed that the method has high sensitivity in measuring the moisture content of petroleum on superhigh frequencies. Two illustrations.
E. L.

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