"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

L 3531-66

ACCESSION NR: AP5015454

3

setup and details of the installation and of the test measurements are briefly described. Formulas are derived for the determination of the total mass of metal deposited on the substrate and its distribution. Orig. art. has: 4 figures and 15 formulas

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physicotechnical Institute, AN UzSSR) 44,55

SUBMITTED: 07Oct64 ENCL: 00 SUB CODE: IE

NR REF SOV: 003 OTHER: 004

Card 2/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

L 31510-66 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD/JG
ACC NR: AP6008552 SOURCE CODE: UR/0166/66/000/001/0081/0084

AUTHOR: Kel'bert, S.L.; Nagaybekov, R.B.; Yagudayev, A.M. 73

ORG: Physics Technical Institute, AN UzSSR (Fiz'ko-tekhnicheskiy institut AN UzSSR) B

TITLE: Some problems of pulse discharges in a vacuum

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1966, 81-84

TOPIC TAGS: refractory metal, pulse discharge, electrode, metal property

ABSTRACT: The authors study some problems of heavy-current commutation and erosion of electrodes made of refractory metals (Mo, W) in a vacuum. An analysis is made of the diffusion products precipitated on various base layers. The erosion of Mo, W electrodes has been determined in a vacuum in a pulse discharge. A qualitative dependence of the products of erosion on the parameters of the circuit is detected. A possibility is established for the creation of coatings of refractory metals of various density. Orig. art. has: 4 figures.

SUB CODE: 11 / SUBM DATE: 02Jul65 / ORIG REF: 001 / OTH REF: 001

Card 1/1 mc

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, F. D.

Yagudayev, F. D. and Shuppe, G. K. "Negative surface ionization", Trudy Fiz.-tekhn. in-ta (Akad. nauk Uzbek. SSR), Vol. II, Issue 1, 1948, p. 69-94, - Bibliog: p. 93-94.

So: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949).

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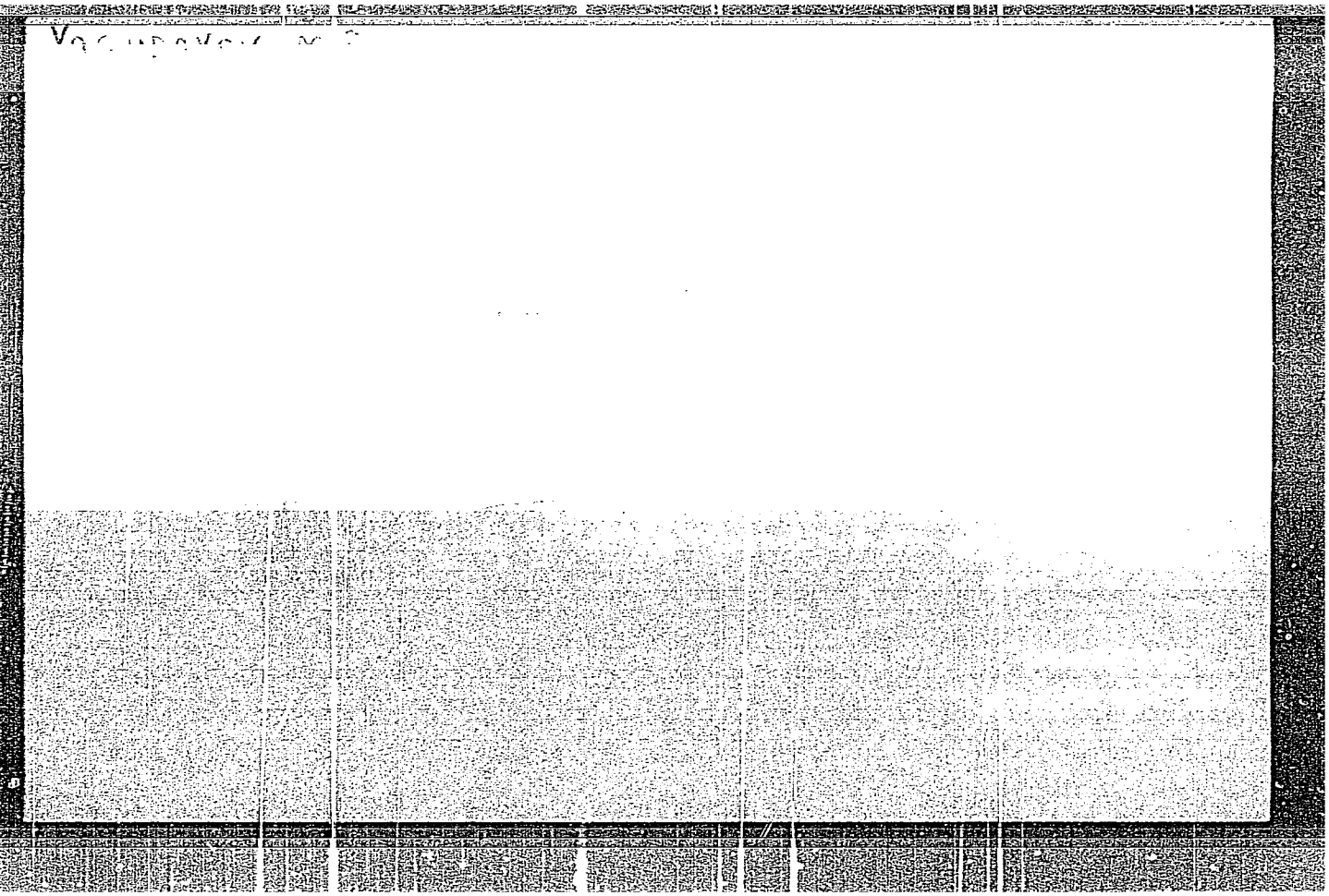

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

ZYRINA, L.V.; YAGUDAYEV, M.D.

Temperature dependence of the cathodic atomization of tungsten.
Trudy SAGU no.65:33-37 '55. (MLRA 9:5)
(Tungsten) (Ion beams)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.D.

Ionoluminescence and its use. B. M. Nosenko and M. D. Yagudaev. *Trudy Sredneaziat. Gosudarst. Univ. im. V. I. Lenina* 6[illegible], No. 12, 19-22(1955).—The relation of the initial intensity of luminescence of willemite (I) to the energy of excitation ions was examd. by the impulse method, by which the ratios of the luminescence yields were obtained through a [illegible] and ionoluminescence. These ratios for different ions were, resp., at [illegible] and 6.0 e.kv. field strength as follows: Li+, 25 [illegible] 26 ± 2.0, 24 ± 2.0; Na+, 75 ± 8, 71 ± 8, 68 ± 6; K+, 101 ± 7, 92 ± 5, 91 ± 7; Cs+, 276 ± 20, 220 ± 10, 170 ± 16. In effect, the intensity of luminescence was a linear function of the energy of the ions. A. P. K.

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV M.D.

51-4-9/26

AUTHORS: Nosenko, B. M., Strukov, N.A. and Yagudayev, M. D.

TITLE: Luminescence of Crystal Phosphors on Excitation with Ions. (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.III, Nr.4, pp.351-355. (USSR).

ABSTRACT: This paper was read at the Fifth All-Union Conference on Luminescence (Tartu, June 1956). It reports results of the work on luminescence on excitation with ions, carried out in the Department of Physics in Mid-Asian State University imeni V.I. Lenin, in Tashkent. The work was partly published in the local journals (Refs.1-4). Ions of "medium" energies were employed. These "medium" energies are defined as the energies at which no ionization occurs due to the Coulomb interaction in the motion of the particles. The upper limit of such "medium" energies is of the order of 5-100 keV, depending on the ionic mass. Only a small number of papers have appeared so far on luminescence due to ionic excitation

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

Luminescence of Crystal Phosphors on Excitation with Ions.

(Refs.5-8). The present authors used comparison of ionoluminescence with cathodoluminescence as the basis of their measurement. The same place on the screen was irradiated by an ion beam and an electron beam. One source of ions and electrons was used, together with a focussing system and a receiver, which included the screen. Uniformity of the ionic beam was controlled by magnetic analysis. To avoid charging of the screen (on which phosphor was placed) by the ion beam, the phosphor was a thin layer (0.3-0.5 mg/cm^2) on an aluminium base, and it was excited by ion pulses of low density. To improve the conductivity of the phosphor it was heated during measurement. The main series of measurement was made on willemite. Ionoluminescence of ZnS-Ag, ZnS ZnSCdS-Cu, $CaSO_4$-Mn, $CaMgSi_2O_6$-Ti, and sublimates KI-Tl, NaI-Tl, $CdBr_2$ and CdI_2, activated with Mn and Pb. The phosphors were excited with positive ions of alkali metals of energies from 0.5-6 keV. The spectral distribution and brightness of emission, and their dependences on the type of exciting ion, on its energy and on the degree of irradiation (ageing effect) were studied.

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Luminescence of Crystal Phosphors on Excitation with Ions. 51-4-9/26

The spectral distribution of emission was the same for iono- and cathodoluminescence. Ageing of phosphors under the action of ions does not change the spectral distribution of emission. Brightness of emission is proportional to ionic-current density (from 10^{-10} to 10^{-6} A/cm^2). The light yield on ionoluminescence depends on the type of ion (heavier ions excite the phosphor less). Table 1 gives values of the ratio of the light yield of ionoluminescence to the light yield of cathodoluminescence (at the same energies) for the phosphor Zn_2SiO_4-Mn, using Li, Na, K and Cs ions of 1.2-6.0 keV. For other phosphors the values of this ratio are of the same order. Under the action of ions the phosphor is decomposed and its luminescent properties deteriorate. The rate of decomposition of a phosphor by various ions of the same energy is the same; it rises with the ion energy. The rate of decomposition of various phosphors is very different. Riehl (Ref.9) found that the rate of ageing on ion irradiation in phosphors based on zinc sulphide does not depend on the activator concentration. The present

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authors found the same to be true for the phosphor $CaSO_4$-Mn. Decomposition (ageing) due to Na, K and Cs ions is irreversible. Decomposition by Li ions is partly reversible. The process of ageing is due to structural damage produced by the moving ion in the crystal. The results obtained in the study of iono-luminescence may be used to explain certain aspects of interaction of ions with solids. Although the path of an ion in a crystal is much less than the path of an electron of the same energy, the density of ionization (or, more correctly, the density of excitation) due to an ion is of the same order as that of an electron. The mechanism of ionization proposed is that on approach of an ion to an atom in a crystal, and on displacement of such an atom, a strong deformation of the electron clouds occurs. In such a process the excess of potential energy may be transferred as the energy of excitation to the electrons in such clouds. Depth of the action of the ions in a crystal can also be found from iono-luminescence. This was done as follows. First the phosphor was irradiated with ions until luminescence was

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Luminescence of Crystal Phosphors on Excitation with Ions.

destroyed (the ageing effect discussed above) in the layer penetrated by ions. The depth of this layer was measured by comparing cathodoluminescence on a fresh and an aged phosphor; in the latter case electrons had to traverse the layer in which luminescence was destroyed by ions before they (electrons) could excite the phosphor. Table 2 shows the estimates of depth of penetration (in Å) of Li, Na, K and Cs ions of 2.4-6.0 keV in willemite. This depth of penetration by ions is found to increase with ion energy. Once again the behaviour of lithium was quite different from that of the other three ions. A method similar to that just described for measurement of the penetration depth can be used to find thickness of the layer removed (pulverized) by irradiation of a phosphor with ions. There are 2 tables and 11 references, 5 of which are Slavic.

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

51-4-9/26

Luminescence of Crystal Phosphors on Excitation with Ions.

ASSOCIATION: Chair of General Physics, Central Asia State University, Tashkent. (Kafedra obshchey fiziki Sredneaziatskogo gosudarstvennogo universiteta, Tashkent.)

SUBMITTED: January 31, 1957; submitted to the Editor of "Izvestiya AN SSSR" on December 8, 1956.

AVAILABLE: Library of Congress.

Card 6/6

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUBAYEV, M.D.

48-5-31/56

SUBJECT: USSR/Luminescence

AUTHORS: Nosenko, B.M., Strukov, N.A. and Yagudayev, M.D.

TITLE: Luminescence of Crystallophosphors Excited by Ions (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, pp 701-703 (USSR)

ABSTRACT: The following phosphors: Zn_2SiO_4-Mn; ZnS-Ag; $CaSO_4$-Mn; CuS; CdS-Cu, and sublimate phosphors: KJ-Tl; NaJ-Tl; $CdBr_2$; CdJ_2, activated by Mn and Pb were investigated. The excitation was performed by positive ions of Li, Na, K, Pb and Cs with energies from 0.5 to 6 kev.

The basic method of investigation was comparison of ionoluminescence with cathodoluminescence.

Results of this investigation are as follows:
The spectral composition of ionoluminescence does not differ from that obtained by electronic excitation.

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

48-5-31/56

TITLE: Luminescence of Crystallophosphors Excited by Ions (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami)

The luminescence spectra of a "fresh" phosphor and a phosphor subjected to a prolonged irradiation by an ion beam are the same. The brightness of luminescence is proportional to the density of ion current and linearly depends on ion energy.

The light output of ionoluminescence depends on the mass of ions. For willemite it amounts to 4 % of cathodoluminescence output at excitation by Li^+ and about 0.5 % at excitation by Cs^+. This quantity is different for various phosphors.

The deterioration of luminescence (aging) of a phosphor is determined by the density of irradiation. The speed of aging is different with various phosphors and does not depend on the concentration of activator. Zinc-sulfides are most liable to aging, and alkali-haloid sublimate-phosphors are the least liable.

A scheme of the aging process and mechanism of ionization, which is brought about by a heavy particle in the solid body, is suggested by the authors.

The report was followed by a discussion.

Card 2/3

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

48-5-31/56

TITLE: Luminescence of Crystallophosphors Excited by Ions (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami)

One Russian reference is cited.

INSTITUTION: Central-Asian State University im.Lenin

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M. D.

2.

S/166/62/000/001/006/009
B125/B104

26.1512

AUTHORS: Daletskiy, G. S., Knigin, P. I., Landsman, A. P., Plyushch, O. P., Shavrin, N. V., Yagudayev, M. D.

TITLE: Effect of solar energy concentration upon the operational properties of (silicon) solar photopiles

PERIODICAL: Akademiya nauk Uzbekskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1962, 49-52

TEXT: A joint investigation with the VNIIT was conducted by the authors in Tashkent from April to June, 1961 on the output power of silicon photoconverters of luminous flux. The aim is to collect data for the construction of a solar power station. The Sun's light was concentrated through an ordinary parabolic cylindrical mirror onto the 288-cm^2 water-cooled silicon photopile constructed at the above Institute. The angle of incidence of the Sun's rays was of no practical significance for the present purpose. The maximum yield function of the piles rose, although somewhat more slowly, even at photocurrents of 6600-7700 watts/m^2, at surface temperatures from 10°C to 70°C and air temperatures from 0 to 15°C (i.e.,

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Effect of solar energy ...

under practical operational conditions). This also holds in the case of considerable temperature differences between the pile and the surrounding medium. It probably takes higher luminous fluxes for saturation to be brought about. The maximum output power was 4-4.2 watts. At an increase of the luminous flux from 0 to 7000 kcal/m·hour, the pile emf rose by only 5-6%. Since pile heating by luminous flux produces a linear power reduction, it is necessary to develop efficient cooling systems. The reciprocal exchange of photoconverters in the pile would also serve to check this power drop. Since the temperature difference between pile and air can attain rather high values in the extremely hot summers of Soviet Central Asia, the power drop can be considerable. The yield function of solar power stations could be augmented to the eight to tenfold by improving the cooling system, by providing uniform illumination all over the pile surface, and by ensuring optimum commutation conditions. There are 6 figures and 1 Soviet reference.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physicotechnical Institute of the AS Uzbekskaya SSR). Vsesoyuznyy n.-i. institut istochnikov toka (All-Union Scientific Research Institute of Current Sources)

SUBMITTED: August 4, 1961

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

DALETSKIY, G.S.; KNIGIN, P.I.; LANDSMAN, A.P.; PLYUSHCH, O.P.; SHAVRIN, N.V.; YAGUDAYEV, M.D.

Studying the effect of concentrated solar energy on the service characteristics of solar (silicon) photobatteries. Izv.AN Uz. SSR.Ser.fiz.-mat.nauk 6 no.1:49-52 '62. (MIRA 15:4)

1. Fiziko-tekhnicheskiy institut AN UzSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut istochnikov toka.
(Solar batteries)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.D.

Solar energy as a substitute for fuel. Priroda 51 no.10:62 O '62. (MIRA 15:10)

(Solar energy)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.D., red.; GORBACHEV, P.P., red.; AKHMEDOV, D.B., red.; ULAN, F.V., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Research on the utilization of solar energy] Issledovaniia po ispol'zovaniiu solnechnoi energii. Tashkent, Izd-vo AN Uzb.SSR. No.1. 1963. 107 p. (MIRA 16:9)
(Solar energy)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

In memory of Moisei Davidovich Agudaev; obituary. Izv. AN Uz.SSR. Ser. fiz.-mat. nauk 7 no.1:84 '63. (MIRA 16:4)

(Agudaev, Moisei Davidovich, 1902-1963)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

TITLE: Power st[illegible]

SOURCE: Geliotekhnika, no. 1, 1965, [illegible]

TOPIC TAGS: photovoltaic energy conversion, solar cell, electric power station, silicon

ABSTRACT: The article describes an experimental photovoltaic solar energy converter which was constructed in 1962 in Uzbekistan. The [illegible]-w photobattery has a working surface [illegible] of 112% silicon photoelements (15 x 10 mm each, [illegible] at a rate of 400 liters per [illegible] its centrality [illegible] light [illegible] flat mirrors arranged at [illegible] 6.7%. The converter has been [illegible] about 4000 liters of water per hour to a height of 5 m. The [illegible] gains a brief review of 15 recent papers (1 Western and 14 Soviet) on developments in photovoltaic solar energy conversion for various applications. The following points are empha-

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

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ACCESSION NR: AP5012024

sized: 1) at solar light fluxes of up to 5 kw/m^2 the output power increases linearly; 2) at light fluxes up to 11 kw/m^2 no saturation is attained, even though the rate of output increase is reduced; 3) collectors must distribute light evenly over the photosensitive surface; 4) the photobattery must be provided with an efficient heat removal system; and 5) a mechanism for automatically orienting the installation toward the sun is necessary. It is concluded that, because of the high cost of silicon (which is still considered the most effective material), photovoltaic converters cannot at present compete economically with other means of energy production. Orig. art. has: 8 figures. [ZL]

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physicotechnical Institute, AN UzSSR)

SUBMITTED: 01Nov64 ENCL: 00 SUB CODE: EE

NO REF SOV: 014 OTHER: 001 ATD PRESS: 4013

Card 2/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

L 52579-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(b) JD

ACCESSION NR: AP5012028 UR/0377/65/000/001/0031/0038

AUTHOR: Yagudayev, M. D. (Deceased); Bashnyak, A. Ye.; Nechayev, Yu. Ye.; Mavashev, Yu. Z.; Rudshteyn, V. L.

TITLE: High-temperature solar furnace 2 m in diameter

SOURCE: Gelitotekhnika, no. 1, 1965, 31-38

TOPIC TAGS: solar furnace, solar energy converter, heliostat, reflector orientation, electronic tracking system

ABSTRACT: A two-meter solar furnace with a heliostat was constructed in 1962 at the solar laboratory of the FTI AN UzSSR in order to permit the study of thermophysical properties of materials at high temperatures. The furnace consists of two units, a parabolic reflector with a mirror (2 m in diameter) and an orientator, each having its own system of azimuthal-zenithal axes. The instrument can be used: (a) for the direct orientation of the reflector to the sun and (b) in connection with the heliostat orientator the optical axis of the [illegible]. The design of the reflector and the [illegible] tracking system is described. Spherical and flat calorimeters were used to determine the heat flux at the focus (1600 kcal/hr. for the two-meter

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ACCESSION NR: AP5012028

furnace without the heliostat and 1400 kcal/hr. with the heliostate) and the density of the heat flux at the focal spot (1-3 x 10^6 kcal $m^2 \cdot hr.$). The determination of the optical characteristics of the high-temperature solar furnace - size and shape of the focal image, distribution of flux density over the focal image, reflection coefficients of the

[illegible] instrument and the possibility of

obtaining large heat fluxes, and [illegible] using [illegible]

and 4 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physics and Engineering

SUBMITTED: 02Nov64 ENCL: 00 SUB CODE: TD, MT

NO REF SOV: 003 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

S/058/63/000/001/059/120
A160/A101

AUTHORS: Krivovyaz, I. M., Yagudayev, M. R.

TITLE: The use of infrared absorption spectra for studying the processes of briquet and cokebriquet formation

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 30, abstract 1D211 ("Uzb. khimiya zh., Uzb. khim. zh.", no. 3, 1962, 77 - 82, summary in Uzbek)

TEXT: It is shown that the infrared spectra may serve as an efficient method for studying the mechanism of briquet and coke briquet formation. It was established that, under the effect of the thermal action in the investigated carbon substances, the decay of the H-bonds ends at a temperature of ~400°C - for intermolecular hydrogen bonds, and at ~600°C - for intramolecular bonds. A general disappearance of the infrared bands of functional carbon groups starts at ~700 - 800°C. The so-called "volatile" part of the carbon are apparently copolymeric links which bind in the initial carbons monotype condensed links (humites) of the non-volatile part. The peculiar features in the structure of the carbons are the

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The use of infrared absorption spectra for... S/058/63/000/001/059/120
A160/A101

different compositions of the links which become a part of the volatile part of the carbon. The macromolecule of the organic substance of carbons is a copolymer of humites.

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

VDOVTSOVA, N.A.; YAGUDAYEV, M.R.

Alkylation of aromatic compounds with diene hydrocarbons. Part 5: Products of alkylation of phenetole with piperylene in the presence of anhydrous orthophosphoric acid. Uzb.khim.zhur. 6 no.6:37-48 '62. (MIRA 16:2)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR.
(Phenetole) (Piperylene)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.R.; VDOVTSOVA, Ye.A.

Alkylation of aromatic compounds with diene hydrocarbons. Part 6: Spectral investigation of products of alkenylation of phenetole with piperylene in the presence of anhydrous orthophosphoric acid. Zhur. ob.khim. 32 no.7:2184-2190 Jl '62. (MIRA 15:7)

1. Institut khimii rastitel'nykh veshchestv AN Uzbekskoy SSR.
(Phenetole) (Piperylene)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.R.; SHEYNKER, Yu.N.

Integral intensity of the deformation oscillation bands of a primary amino group. Dokl.AN SSSR 144 no.1:177-179 My '62.
(MIRA 15:5)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR i Institut khimii prirodnykh soyedineniy AN SSSR. Predstavleno akademikom A.N.Terenin ym.
(Amino group--Spectra)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

VDOVTSOVA, Ye.A.; Prinimal uchastiye: YAGUDAYEV, M.R.

Alkylation of aromatic compounds by diene hydrocarbons. Part 7: Alkenylation of phenetole by piperylene in the presence of ethyl etherate of boron fluoride. Uzb.khim.zhur. 7 no.1:50-56 '63. (MIRA 16:4)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR.
(Phenetole) (Piperylene)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

RASHKES, Ya.V.; YAGUDAYEV, M.R.

Characteristic frequencies of the infrared spectra of aporphine alkaloids. Uzb. khim. zhur. 7 no.2:62-64 '63. (MIRA 16:8)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR.
(Aporphine) (Alkaloids—Absorption spectra)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

GREBENYUK, A.D.; YAGUDAYEV, M.R.

Infrared spectra of the condensation products of 1,1,1 -trichlorocrotonic acid nitrile with benzene in the presence of aluminum chloride. Zhur.ob.khim. 33 no.10:3253-3257 O '63. (MIRA 16:11)

1. Tashkentskiy gosudarstvennyy universitet im. V.I.Lenina i Institut khimii rastitel'nykh veshchestv AN UzSSR.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.R.; SHEYNKER, Yu.N.

Integral intensity of the deformation vibration band of an amino group in infrared spectra of substituted anilines. Izv. AN SSSR. Ser. khim. no.12:2230-2232 D '63. (MIRA 17:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Institut khimii rastitel'nykh veshchestv AN UzSSR.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.R.; RASHKES, Ya.V.; YULDASHEV, P.Kh.

Infrared spectra of vincanine and its derivatives. Uzb. khim. zhur. 7 no.6:54-58 '63. (MIRA 17:2)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.R.; POPOV, Ye.M.; YAKOVLEV, I.P.; SHEYNKER, Yu.N.

Frequencies and intensities of infrared absorption bands of the stretching and deformation vibrations of the NH_2 group in primary amines. Izv. AN SSSR Ser. khim. no.7:1189-1196 Jl '64. (MIRA 17:8)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

KHAMRAYEV, S.S.; YAGUDAYEV, M.R.; ARIPOV, E.A.

Study of structuration in bentonite clays by infrared spectrocopy.
Koll. zhur. 27 no.1:121-124 Ja-F '65. (MIRA 18:3)

1. Institut khimii AN UzSSR, Tashkent.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDAYEV, M.R.; SHEYNKER, Yu.N.

Integral intensity of bands of stretching and deformation vibrations of a primary amino group in different solvents. Uzb.khim.zhur. 8 no.4:86-88 '64. (MIRA 18:12)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR. Submitted August 22, 1963.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

FASMAN, A.B.; KABIYEV, T.; SOKOL'SKIY, D.V., akademik; YAGUDEYEV, T.A.

Promoting the skeletal nickel catalyst by oxygen-containing anions of transition metals. Dokl. AN SSSR 162 no.3:600-602 My '65. (MIRA 18:5)

1. Kazanskiy gosudarstvennyy universitet im. S.M.Kirova. 2. AN KazSSR (for Sokol'skiy).

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

BERENSON, Ye.V., assistent, kandidat meditsinskikh nauk; ZHILINA, V.V., ordinator; YAGUDIN, A.D., ordinator.

Aloe extract therapy in parodontitis. Stomatologiia no.2:20-22 Mr-Ap '54. (MLRA 7:4)

1. Iz kafedry terapevticheskoy stomatologii (zaveduyushchiy - professor Ye.Ye.Platonov) Moskovskogo meditsinskogo stomatologicheskogo instituta (direktor - dotsent G.N.Beletskiy).
(Teeth--Diseases)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

ZHILINA, V.V. LIPATS, A.A., YAGUDIN, A.D.

Pathogenesis and therapy of glossalgia. Stomatologiia no.3: 17-18 My-Je '55. (MLRA 8:9)

1. Iz kafedry terapevticheskoy stomatologii (zav.prof. Ye.Ye. Platonov) Moskovskogo meditsinskogo stomatologicheskogo instituta dir.dotsent G.N. Beletskiy.

(TONGUE, diseases,
pain, pathogen. & ther.)
(PAIN,
tongue, pathogen. & ther.)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDIN, A.M., inzh.; DRUZHININ, G.A., inzh.

The use of short driven concrete piles in the construction of petrochemical enterprises. Prom. stroi. 40 no.9:35-38 '62. (MIRA 15:11)

(Piling (Civil engineering))
(Petroleum refineries)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDIN, M.; BAKSHI-SARACH, V., starshiy inzhener

Mechanizing manual operations at Zaporozh'ye enterprises.
Sots. trud 6 no.12:114-119 D '61. (MIRA 14:11)

1. Zamestitel' nachal'nika proizvodstvenno-tekhnicheskogo otdela Zaporozhskogo sovnarkhoza (for Yagudin). 2. Proizvodstvenno-tekhnicheskiy otdel Zaporozhskogo sovnarkhoza (for Bakshi-Sarach).

(Zaporozh'ye Province--Automation)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDIN, Rashid Yusupovich, inzh.; DUBROVSKIY, Ye.V., red.; RAKITIN, I.T., tekhn. red.

[Automatic control in the petroleum industry] Avtomatizatsiia v neftianoi promyshlennosti. Moskva, Izd-vo "Znanie," 1961. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.4, Tekhnika, no.19) (MIRA 14:12)
(Petroleum industry) (Automatic control)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

SVERDLOV, Gelyariy Maksimovich; YAGUDIN, Roshid Yusupovich; KOVALENKO, B.M., red.; LATUKHINA, Ye.I., ved. red.

[Systems and means for the automation of the technological processes of petroleum production] Sistemy i sredstva avtomatizatsii tekhnologicheskikh ob"ektov neftedobychi. Moskva, Nedra, 1964. 157 p. (MIRA 18:1)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDIN, R. Yu.

- Possibilities of using digital computers in field hydrodynamic investigations of reservoirs and wells. Mash. i neft. obor. No.1:29-31'64 (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut kompleksnoy avtomatizatsii neftyanoy i gazovoy promyshlennosti.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDIN, Rashid Zakirovich; AKINSHIN, I.K., redaktor; YEZDOKOVA, M.L., redaktor; VAYNSHTEYN, Ye.B., tekhnicheskiy redaktor

[Flotation machine in an ore dressing plant; manual for technical schools] Flotator obogatitel'noi fabriki; uchebnoe posobie dlia proizvodstvenno-tekhnicheskogo obucheniia rabochikh. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 247 p. (MLRA 8:6)
(Flotation)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDIN, R.Z.

KLUSHIN, D.N.; YAGUDIN, R.Z.

Scientific session of the State Research Institute of Nonferrous Metals. TSvet.met. 28 no.5:75-77 S-O '55. (MIRA 10:10)
(Nonferrous metals)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

KULAKOV, D.V.; OCHKIN, F.V.; KARPOVA, V.V.; SIMAKINA, N.V.; YAGUDIN, Z.Kh.; GREBENSHCHIKOVA, N.F.; CHEREMUSHKINA, V.M.; YELISEYEV, I.A.; CHERVYAKOVA, A.P.; BEREZOV, A.A.; FEDOTOVA, A.I.; SILKINA, I.V.; NOVIKOVA, V.P.; TANOVA, V.P.; NESVETAYEVA, G.M.; ADSKAYA, V.M.; DRYUCHIN, A.P., otv. red.; KONDRASHOVA, V.I., tekhn. red.

[Economy of Saratov Province in 1960; collected statistics]Narodnoe khoziaistvo Saratovskoi oblasti v 1960 godu; statisticheskii sbornik. Saratov, Gos.stat.izd-vo,1962. 325 p. (MIRA 15:9)

1. Saratov(Province)Statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo upravleniya Saratovskoy oblasti (for Dryuchin).
(Saratov Province--Statistics)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDINA, F.R., BELOUSOV, A.C., POPOVA, V.M., SEMASHKO, N.G., SHITOV, E.V.
TAMM, E.I., VEKSLER, V.I.

Photoproduction of pions from complex nuclei (II/54)

CERN-Symposium on High Energy Accelerators and Pion Physics

Geneva 11-24 June 56
In. Branch #5

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDINA, F.R., BELOUSOV, A.S., POPOVA, V.M., SEMASHKO, N.G., SHITOV, E.V., TAMM, Ye.I., VEKSLER, V.I.,

"Photoproduction of Pions Complex Nuclei," paper presented at CERN Symposium, 1956, appearing in Nuclear Instruments, No. 1, pp. 21-30, 1957

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

21(7)
AUTHORS: Popova, V. M., Semashko, N. C., Yagudina, F. R.

SOV/56-36-5-5/76

TITLE: The Photoproduction of Charged π-Mesons of Low Energy on Composite Nuclei (Fotorozhdeniye zaryazhennykh π-mezonov maloy energii na slozhnykh yadrakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1357-1359 (USSR)

ABSTRACT: The authors investigated the yield of positive and negative photomesons with energies between 0 and 3 Mev at the angles $90^{\circ}\pm20^{\circ}$ (laboratory system) to the direction of the photons. Work was carried out on the synchrotron of the FIAN with a maximum photon energy of 265 Mev. Collimation of the γ-beam was carried out by means of a lead block with a 3.21 mm^2 cleft; a magnetic field of 7000 oe eliminated the charged particles. The following foils were used as targets: Be - 0.0659 g/cm^2, C - 0.0446 g/cm^2, Al - 0.0377 g/cm^2, Cu - 0.141 g/cm^2. In the case of simple Coulomb scattering

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the average angle in these thin foils was not greater than 5°, the energy losses amounted to 0.1 Mev for 3 Mev mesons; the targets were fastened to fine caprone fibers (0.0015 mm thick), which were located outside the beam. Mesons were recorded by means of NIKFI-K plates with an emulsion layer of 400 μ thickness. During irradiation the target and the plate were in a vacuum chamber which was surrounded by a lead- and graphite protective shield (cf. Fig 1). Evaluation of the plates with respect to pion stars (negative pions) and $\pi - \mu$ decays (positive pions) was effected with a degree of efficiency of 96 - 98 %. Energy measurements were carried out with an accuracy of $\pm$ 3 %. When calculating the meson production cross sections, charge exchange and inelastic meson nucleon scattering were not taken into account; for slow mesons these effects are, however, small. Results are shown by figure 2 in form of a diagram, which shows the pion yield in dependence of Z. Curve 1 corresponds to the meson production on the surface nucleons of the nucleus, and curve 2 corresponds

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to the production on all nucleons of the nucleus. [Abstracter's note: The text given in connection with figure 2 says exactly the contrary, so that probably the authors committed an error]. Figure 3 shows the ratio between the yields of positive and negative mesons as a function of Z. The curve $\sigma^+/\sigma^-(Z)$ shows a steep decline with growing Z, which may be explained as being due to the interaction between the departing mesons and the Coulomb field of the nucleus. A comparison between experimental results and the theoretical calculations by A. M. Baldin and A. I. Lebedev (Ref 8) shows that meson production apparently occurs on the surface nucleons of the nucleus. The authors finally thank V. I. Veksler for supervising the work, and they also thank A. M. Baldin and A. I. Lebedev for discussions. There are 3 figures and 8 references, 3 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

The Photoproduction of Charged π -Mesons of Low Energy on Composite Nuclei

SOV/56-36-5-5/76

SUBMITTED: November 21, 1958

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

GORZHEVSKAYA, E.G.; POPOVA, V.M.; YAGUDINA, F.R.

Photoproduction of π^+-mesons on hydrogen near the threshold. Zhur. eksp. i teor. fiz. 38 no.1:276-278 Jan '60. (MIRA 14:9)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
(Mesons) (Photonuclear reactions) (Hydrogen)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

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S/056/60/039/006/018/063
B006/B056

24.6900

AUTHORS: Adamovich, M. I., Panova, N. M., Popova, V. M., Yagudina, F.R.

TITLE: Ratio of the Cross Sections of Negative and Positive Photomeson Production on Beryllium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1585 - 1588

TEXT: The yield of charged photomesons is, in general, proportional to $A^{2/3}$, but the ratio for high-energy pions $\pi^- - \pi^+$, denoted by N^-/N^+, shows a considerably higher value for some nuclei, thus also for beryllium. Thus, N^-/N^+, for 56-Mev mesons produced by photons of E_{max} = 256 Mev, is equal to 3.3 ± 0.3, whereas, according to the $A^{2/3}$ law, it ought to amount to only 1.51. For slow mesons, the law is, however, correct. To explain this discrepancy, the authors measured the ratio σ^-/σ^+ for pions of medium energies on beryllium. By means of the 250-Mev photon beam from the synchrotron of the FIAN, a 3-mm thick beryllium target was irradiated; the mesons leaving the target under an angle of 90^0 to the photon beam

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

Ratio of the Cross Sections of Negative and Positive Photomeson Production on Beryllium

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were recorded in a НИКФИ-Р (NIKFI-R) 400μ thick emulsion. Of all tracks of pions stopped in the emulsion, those within the energy interval of 12 - 40 Mev were selected, for which the correction for Coulomb interaction between pion and residual nucleus is negligible, and in addition, the ratio σ^-/σ^+ for free nucleons is known. Altogether, 981 π^- - and 370 π^+ mesons were recorded; it was found that $N^-/N^+ = 2.65 \pm 0.22$, and that the pion yields are practically independent of E_π. The yields may be described by the equations $N^-(E_\pi,\theta) = \int_{E_n^-}^{E_{max}} C\sigma^-(E_\pi,\theta)f(E_\gamma)dE_\gamma$ and

$N^+(E_\pi,\theta) = \int_{E_n^+}^{E_{max}} C\sigma^+(E_\pi,\theta)f(E_\gamma)dE_\gamma$, where C denotes the number of nuclei per cm^2 of the target, $\sigma^\pm(E_\pi,\theta)$ the pion production cross section for E_π and the angle θ, $f(E_\gamma)$ is the photon spectrum $\sigma^-/\sigma^+ = k(N^-/N^+)$; for $E_{max} = 250$ Mev, $\bar{E}_\pi = 26$ Mev, $\theta = 90^\circ$ one obtains $k = 0.68$. N^-/N^+ was

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Ratio of the Cross Sections of Negative and Positive Photomeson Production on Beryllium

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experimentally determined as 2.65 ± 0.22; thus, one obtains $\sigma^-/\sigma^+ = 1.8 \pm 0.15$ as a ratio of the mean cross sections in the photon energy interval of from $E_n^{\pm}$ to E_{max} and in the meson energy interval of 12 - 40 Mev. This value agrees well with those found by other authors. The anomalous behavior of the yield ratio N^-/N^+ may be explained by the fact that the π^- and π^+ mesons have different production thresholds. The authors thank Professor P. A. Cherenkov, Professor V. I. Gol'danskiy, E. G. Gorzhevskaya, and S. P. Kharlamov for discussions. There are 2 figures, 1 table, and 10 references: 3 Soviet and 7 US.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: July 12, 1960

Card 3/3

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

ADAMOVICH, M.I.; GORZHEVSKAYA, E.G.; POPOVA, V.M.; YAGUDINA, F.R.

Method for measuring the photoproduction cross section of π^+ -mesons on hydrogen near the threshold. Zhur.eksp.i teor. fiz. 40 no.3:974-976 Mr '61. (MIRA 14:8)

1. Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR.
(Mesons) (Ionization chamber) (Photonuclear reactions)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDINA, F.R.

S/056/61/041/006/023/054
B102/B138

AUTHORS: Adamovich, M. I., Gorzhevskaya, E. G., Larionova, V. G., Panova, N. M., Popova, V. M., Kharlamov, S. P., Yagudina, F.R.

TITLE: The energy dependence of the photoproduction cross section of π^+ mesons on hydrogen near the threshold

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1811-1817

TEXT: The paper gives results of π^+ photoproduction cross section measurements made in the photon energy range from 167 to 212 Mev at an angle $\theta = \arccos(k_0 - 0.93)/kq$, i. e. the angle in the c. m. s. at the contribution of the non-physical region to the dispersion integral vanishes. k denotes the photon momentum, 0.93 is its threshold, q and ω are momentum and total energy of the pion, θ the angle of emission of the meson; $\hbar = c = \mu = 1$. The energy range was chosen so as to satisfy the relation $k\omega - kq \cos\theta = 0.93$; it holds exactly for 195-Mev photons, for 167 and 212 Mev it is 0.88 and 0.99, which are both close to the threshold value. The photon ray from the synchrotron of the FIAN with a maximum

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The energy dependence of the ...

energy of 250 Mev was collimated and directed on to the hydrogen target, a brass cylinder of 17μ wall thickness, placed in a vacuum chamber. The detector was a stack of 50 layers of [illegible]K-400 (NIKFI BK-400) emulsion plates. It was placed between two 2cm-thick emulsion blocks and fixed so that the mesons struck its end. The emulsions were evaluated as usual, by MBI-1 (MBI-1) microscopes. All π-μ decay events were selected. An area of 340 cm^2 yielded 3322 π-μ decays and 64 π^- decays. The differential photoproduction cross sections were plotted after applying corrections for energy loss, scattering meson decay and background (Fig. 3). The results are in good agreement with dispersion theory, where the imaginary part of the resonance amplitude is determined empirically. The experimental results were treated by the method of least squares to find the threshold value of the matrix element of π^+ photoproduction $\chi^{-1}d\sigma/d\Omega$ and its dependence on q^2;

$\chi = (q/k)(1+\nu/M)^{-2}$, M - nucleon mass. For $0.17 \leq q^2 \leq 0.74$

$$\frac{1}{\chi}\frac{d\sigma}{d\Omega}\left[10^{-29}\frac{cm^2}{cm\,ep\,ad}\right] = (1{,}90 \pm 0{,}15) - (0{,}34 \pm 0{,}22)\,q^2. \quad (5)$$

$$\frac{1}{\chi}\frac{d\sigma}{d\Omega}\left[10^{-29}\frac{cm^2}{cm\,ep\,ad}\right] = (2{,}39 \pm 0{,}21) - (2{,}87 \pm 0{,}93)\,q^2 + (2{,}80 \pm 1{,}0)\,q^4. \quad (6)$$

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The energy dependence of the ...

was found. The threshold value was determined from power expansions of the squares of the matrix elements, $a_o = (1.90 \pm 0.15) \cdot 10^{-29}$ cm^2/steradian, which is in good agreement with the theoretical value, $a_o = 2.04 \cdot 10^{-29}$ cm^2/steradian. Experimentally, $\sigma^-/\sigma^+ = 1.34 \pm 0.11$ was found. Using the theoretical a_o value, the calculated value is $\sigma^-/\sigma^+ = 1.28$. The pion photoproduction cross section as a function of the photoproduction amplitudes is given by

$$d\sigma/d\Omega = (q/k)(|F_1|^2 + |F_2|^2 - 2\mathrm{Re}\,F_1^* F_2 \cos\theta + \tfrac{1}{2}\sin^2\theta(|F_3|^2 + |F_4|^2 + 2\mathrm{Re}\,F_3^* F_4 + 2\mathrm{Re}\,F_1^* F_4 + 2\mathrm{Re}\,F_2^* F_4 \cos\theta)). \quad (9)$$

with

$$F_1 = \sqrt{2}F_{10} - \sqrt{2}F_{11}\cos\theta, \quad F_2 = \sqrt{2}F_{21},$$
$$F_3 = \sqrt{2}F_{20} + \sqrt{2}F_{21}/(1-\beta\cos\theta), \quad F_4 = \sqrt{2}F_{31}/(1-\beta\cos\theta);$$

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

The energy dependence of the ...

β denotes pion velocity. From experimental data for 15 and 165° in the c. m. s. the amplitudes were calculated for 185-Mev photons:

$$[(F_{10})_1 = (1{,}81 \pm 0{,}034)\cdot 10^{-3}, \quad (F_{11}+F_{30})_1 = -(0{,}105 \pm 0{,}034)\cdot 10^{-3},$$
$$(F_{10})_3 = -(1{,}81 \pm 0{,}034)\cdot 10^{-3}, \quad (F_{11}+F_{30})_3 = (0{,}105 \pm 0{,}034)\cdot 10^{-3}.$$

The authors thank Professor P. A. Cherenkov for help, A. M. Baldin and A. I. Lebedev for discussions and A. A. Svetlov, Engineer, for assistance.
There are 5 figures, 2 tables, and 15 references: 3 Soviet and 12 non-Soviet. The four most recent references to English-language publications read as follows: J. Hamilton, W. S. Woolcock. Phys. Rev. 118, 291, 1960; N. P. Samios. Phys. Rev. Lett., 4, 470, 1960; M. Derrick et al. Phys. Rev. Lett., 5, 230, 1960; A. F. Dunaitsev et al. Proc. 1960 Ann. Intern. Conf. on high energy physics at Rochester, Publ. Univ. Rochester 1961, p. 181.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: July 31, 1961

Card 4/4

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

S/056/62/043/003/057/063
B104/B102

AUTHORS: Adamovich, M. I., Gorzhevskaya, E. G., Yagudina, F. R.

TITLE: The production of π^+-photomesons at angles of 25-36° in the energy range 152-162 Mev

PERIODICAL: Zhurnal eksperimentàl'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 1113-1116

TEXT: This study was directed to establishing the differential photoproduction cross section of π^+-mesons when the momentum transfer $k\omega - kq\cos\theta$ is close to its threshold value of 0.93, k and q being respectively the momenta of photon and pion, and ω the total ion energy in the c.m.s. The mesons emitted by a thin polyethylene film at an angle of about 30° from the photon beam were examined by a method described previously (M. I. Adamovich et al., ZhETF, 40, 974, 1961). $E_{\gamma max}$ was 175 Mev. All π-μ decay events were recorded. The ends of the pion and muon traces were established for checking. The results (Table) are in good agreement with the calculations. The threshold value of $(1/\chi)d\sigma/d\Omega$ is $(2.18 \pm 0.37)\cdot 10^{-29}$ cm^2/sterad. The threshold value calculated from

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The production of π^+-photomesons at...

Panov's formula is $1.99 \cdot 10^{-29}$ cm^2/sterad. The mean values of $d\sigma/d\Omega$ and $(1/\chi)d\sigma/d\Omega$ agree well with the values for $k\omega - kq \cos\theta = 0.93$ as extrapolated from experimental data. There are 2 figures and 1 table.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: July 3, 1962

Table. Results of measurements.

Legend: E_γ - mean photon energy, laboratory system; E_π - mean pion energy in the energy interval of the photons; M - proton mass; $\chi = (q/k)(1+\omega/M)^2$.

E_γ, MeV	E_π, MeV	q^2	$k\omega - kq\cos\theta$	$d\sigma/d\Omega$, 10^{30} см^2/стерад	$\frac{1}{\chi}\frac{d\sigma}{d\Omega}$, 10^{30} см^2/стерад
153,4	3,8	0,023	0,91	0,32±0,054	2,70±0,46
155,7	7,3	0,048	0,86	0,39±0,070	2,26±0,41
157,6	9,7	0,069	0,84	0,43±0,077	2,12±0,38
159,3	11,6	0,088	0,83	0,40±0,076	1,77±0,34
160,8	13,3	0,104	0,82	0,39±0,097	1,59±0,40

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDINA, F. R.

ADAMOVICH, M. I.; GORZHEVSKAYA, E. G.; KHARLAMOV, S. P.; LARIONOVA, V. G.; YAGUDINA, F. R.

(4)

"Photoproduction of Positive Pions from Hydrogen near Threshold"

report presented at the 11th Intl. Conference on High Energy Physics, Geneva, 4-11 July 1962

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

ADAMOVICH, M.I.; GORZHEVSKAYA, E.G.; YAGUDINA, F.R.

Production of π^--photomesons at angles of 25°-36° in the energy range of 152-162 Mev. Zhur. eksp. i teor. fiz. 43 no.3:1113-1116 '62. (MIRA 15:10)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Mesons) (Photons)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

L 16678-65 EWT(m)/T/EWA(m)-2 SSD/AFWL

ACCESSION NR: AP4045625 S/0020/64/158/002/0309/0312

AUTHOR: Adamovich, M. I.; Larionova, V. G.; Lebedev, A. I.; Kharlamov, S. P.; Yagudina, F. R.

TITLE: Analysis of photogeneration of positive pions at photon energies of 175 to 230 Mev

SOURCE: AN SSSR. Doklady*, v. 158, no. 2, 1964, 309-312

TOPIC TAGS: photogeneration, positive pion, γ-π-ρ interaction, nuclear reaction

ABSTRACT: The comparison of experimental data on photogeneration of positive pions in hydrogen near the threshold, with the theoretical estimation is important for the evaluation of various effects instrumental in the process, particularly the effect of resonance π-π interaction (ρ meson). The authors conducted such a comparison in a wide range of angles and energies. The experiment was made with the 260 Mev synchrotron of the Physical Institute of AN SSSR using piles of nuclear photoemulsions for detection. The π-μ-decays were recorded, and also the ends of the π-meson and of pions traces. The differential cross section for

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

L 16678-65
ACCESSION NR: AP4045625

3

the photogeneration of π^+ was measured for 9 angles at photon energies from 175 to 230 Mev, in 5 Mev steps. The agreement with the theoretical estimation depends on the chosen constant of the γ-π-p interaction. The authors are grateful to Prof. P. A. Cherenkov for his interest, and to R. Uvarova for numerical calculations. Orig. art. has: 3 figures, 1 table

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics, Academy of Sciences, SSSR)

SUBMITTED: 01Mar64 ENCL: 00

SUB CODE: NP NO REF SOV: 001 OTHER: 007

Card 2/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

L 4384-66 EWT(m) DIAAP

ACC NR: AP5020265 UR/0367/65/002/001/0135/0143

AUTHOR: Adamovich, M. I.; Larionova, V. G.; Lebedev, A. I.; Kharlamov, S. P.; Yagudina, F. R.

TITLE: Determination of the isotopic spin components of the $\gamma + N \rightarrow N + \pi$ amplitude at threshold

SOURCE: Yadernaya fizika, v. 2, no. 1, 1965, 135-143

TOPIC TAGS: gamma scattering, scattering cross section, differential cross section, proton scattering, photonuclear reaction

ABSTRACT: The differential cross sections for the process $\gamma + p \rightarrow n + \pi^+$ for laboratory-system pion angles 18, 24, 36, 56, 64, and 76° have been measured in the photon energy region 165-230 MeV. The experiments were performed with the FIAN (Physics Institute of the Academy of Sciences) 265-Mev electron synchrotron, using a liquid-hydrogen target. The pion detector was a stack of NIKFI BK-600 nuclear pellicles. The bremsstrahlung flux was measured with a quantum meter. The positive-pion photoproduction amplitude in the S state was obtained for zero pion momentum by extrapolating the empirical dependence of the cross section on the pion momentum to the threshold. Data on the process $\gamma + n \rightarrow p + \pi^-$ were analyzed in the same manner and the corresponding negative-pion photoproduction amplitude obtained. These amplitudes, together with the similar amplitude x for neutral-pion photoproduction, are used to

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L 4384-66

ACC NR: AP5020265

3

find the isoscalar and isoscalar parts of the photoproduction amplitudes, which are compared with the theoretical predictions. The agreement is not particularly good, mostly because of the low accuracy with which the S-wave photoproduction amplitudes are known. "The authors thank Professor P. A. Cherenkov and A. M. Baldin for their interest and for a discussion of this work." Orig. art. has: 5 figures, 8 formulas, and 4 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 17Jan66 ENCL: 00 SUB CODE: NP

NR REF SOV: 002 OTHER: 013

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

L 12007-66 EWT(m)/T/EWA(n)-2

ACC NR: AP6001779 SOURCE CODE: UR/0386/65/002/010/0490/0494

AUTHOR: Adamovich, M. I.; Larionova, V. G.; Lebedev, A. I.; Kharlamov, S. P.; Yagudina, F. B.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Determination of the $\gamma\pi\rho$ interaction constant

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 10, 1965, 490-494

TOPIC TAGS: Gamma interaction, meson interaction, photon scattering, dispersion equation

ABSTRACT: The authors attempt an indirect determination of the $\gamma\pi\rho$ interaction constant Λ, from data on single photoproduction of pions from nucleons. The contribution of the ρ meson to the photoproduction amplitudes is separated by comparing the experimental data with theoretical calculations based on rigorous dispersion relations, since such an analysis is sensitive to the accuracy with which the dispersion integrals are calculated. The authors' main purpose in this paper is (i) to find for the photoproduction processes a differential characteristic for which the theoretical uncertainties are minimal or nil, and (ii) analyze the cor-

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L 12007-66

ACC NR: AP6001779

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responding experimental data for the purpose of determining the constant A. To avoid the uncertainties connected with the imaginary parts of the photoproduction amplitudes, they confine themselves to a consideration of the near-threshold region of photon energies. The contribution of the subtraction constant is neglected. By making use of published data and their own results (Dokl. AN SSSR v. 158, 309, 1964) on the differential cross sections of the process $\gamma + p \rightarrow n + \pi^+$, the authors conclude that more accurate values of the differential cross sections of the processes $\gamma + p \rightarrow n + \pi^+$ and $\gamma + n \rightarrow p + \pi^-$ in the near-threshold region of energy can yield more definite information on the constant A. To obtain data on the latter process it is necessary to study further the processes $\gamma + d \rightarrow p + p + \pi^-$ and $\pi^- + p \rightarrow n + \gamma$. Authors are grateful to Corresponding Member AN SSSR P. A. Cherenkov and Professor A. M. Baldin for useful discussions and interest. Orig. art. has 2 figures and 6 formulas.

SUB CODE: 20/ SUBM DATE: 05Oct65/ ORIG REF: 003/ OTH REF: 002

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

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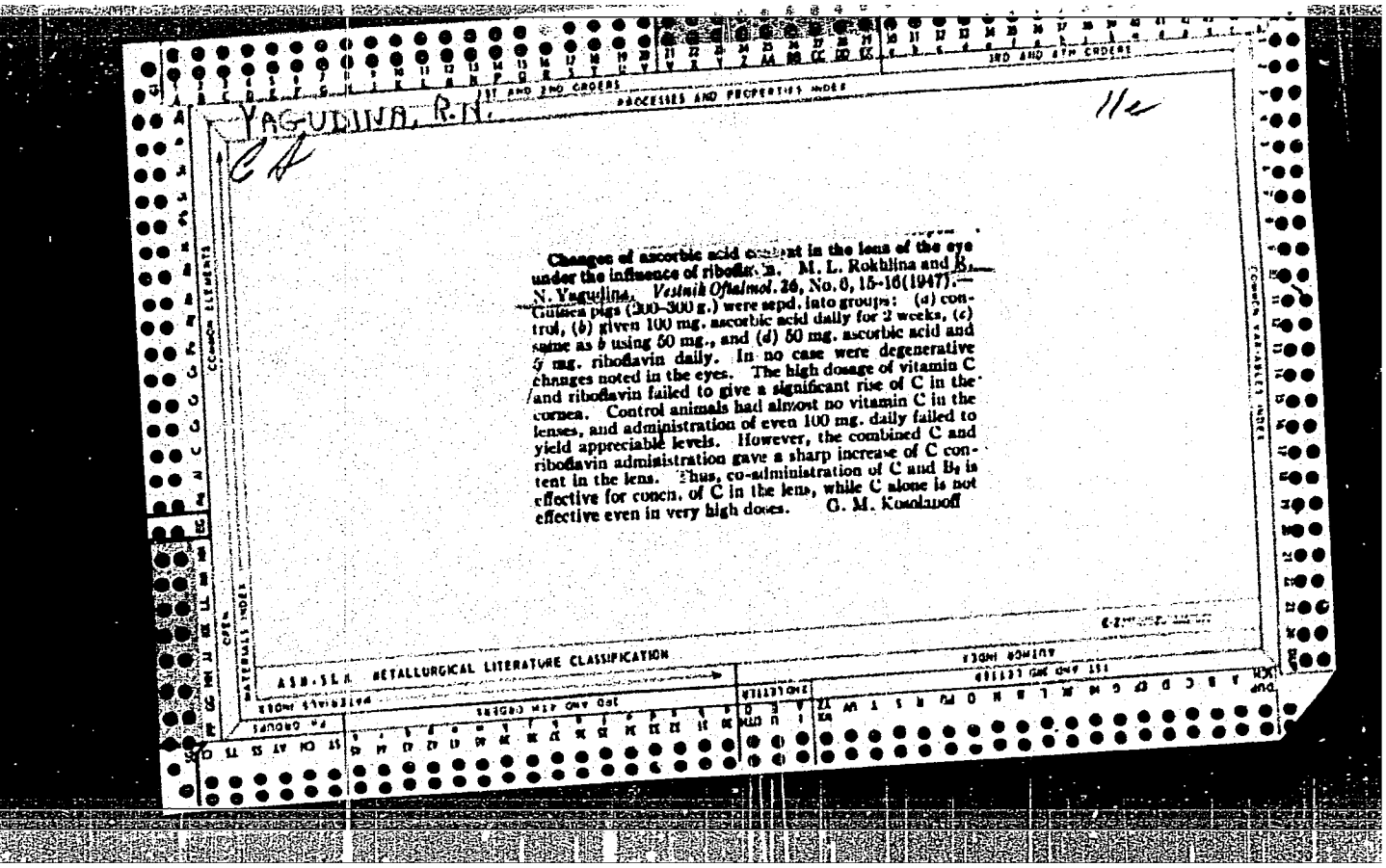

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

X

YAGUDINA, S. I. Cand Agr Sci -- (diss) "Certain ~~Characteristics~~ Peculiarities of the Growth and ~~Fecundation~~ Fructification of the Large-~~Fruited~~ Sized Orchard Strawberry in the Tashkent Oasis." Mos, 1957. 15 pp 20 cm. (Mos Order of Lenin Agricultural Academy im K. A. Timiryazev), 110 copies (KL, 26-57, 111)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUDINA S.I.

USSR/Cultivated Plants - Fruits. Berries. M

Abs Jour : Ref Zhur Biol., No 18, 1958, 82523

Author : Mirzayev, M.M., Yagudina, S.I.

Inst : ..

Title : Strawberry Cultivation with Square Pocket Planting

Orig Pub : Byul. nauchno-tekhn. inform., 1957, vyp. 1, 5-10

Abstract : In 1954-1956, Uzbek Scientific Research Institute of Horticulture imeni Shreder conducted trials to determine the best plan of planting strawberry which would permit maximum utilization of mechanized tillage. The development of the leaves and roots in the variant of square-pocket planting with 80 x 80 and 70 x 70 squares with 2 plants in a pocket, was considerably more vigorous in comparison with the control simpel row planting on 80 x 25 centimeters, and the yield of Kul'ver variety in the 80 x 80 centimeters variant was 120.7 centners/ha or 138% of the control (121.4 centners/ha), in the variant

Card 1/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

USSR/Cultivated Plants - Fruits. Berries. M

Abs Jour : Ref Zhur Biol., No 18, 1958, 82523

with 70 x 70 centimeters square - 139%, the yield of Tashkentskaya in the variant with 80 x 80 square - 131.7 centners/ha or 113%; in the variant with 70 x 70 centimeters - 137.4 centners/ha or 118%. An 54% enlargement of the berries compared with the control was noted. The development of parental rosettes on 1 hectare was 396-693 thousand with square-pocket planting and 260-510 thousand with the row planting. -- Z.A. Zlotina

Card 2/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

USSR / Cultivated Plants. Fruits, Berries. M-7

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58737

Author : Yagudina, S. I.
Inst : Not given
Title : New Strawberry Varieties

Orig Pub : Byul. nauchno-tekhn. inform., 1957, vyp 1, 11-15

Abstract : Scientific collaborators in Uzbekistan produced 3 new strawberry varieties in 1948-1950: Pamyat' Shredera, Uzbekistanskaya and Pozdnyaya Sladkaya. These varieties are characterized by their excellent taste: they are resistant to gray rot and are not greatly affected by white spottiness. They withstand rigorous winter conditions (up to 32° frost) well. They yield 8-15 t/ha when irrigated. They taste so well that they belong to the category of high dessert

Card 1/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58757

varieties. Their fruit bearing lasts from March up to the end of April. -- Z. A. Zlotina

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

MIRZAYEV, M.M.; KUZNETSOV, V.V.; CHEREVATENKO, A.S.; CHERNOVALOVA, V.P.; TOSHMATOV, L.T.; KUL'KOV, O.P.; AMINOV, Kh.; ZHIVOTINSKAYA, S.M.; SHREDER, A.G.; LEPLINSKAYA, A.A.; PAVLOV, A.K.; SHAPIROV, S.K.; KALMYKOV, S.S.; YAGUDINA, S.I.; GULYAMOV, Kh.; DZHALALOV, Dzh.[translator]; SAIDAKHMEDOV, S.[translator]; BONDARENKO,M., red.; KADYROVA, R., red.; BAKHTIYAROV, A., tekhn. red.

[Fruit of Uzbekistan] Frukty Uzbekistana. Tashkent, Gos. izd-vo UzSSR, 1960. 6 books in fold. Abrikos, persik, sliva. 84 p. Granat, inzhir, khurma. 40 p. IAblonia, grusha, aiva. 96 p. Mindal', orekh. 26 p. Vishnia, chereshnia. 18 p. Zemlianika, malina, smorodina. 36 p. (MIRA 16:7)

(Uzbekistan--Fruit--Varieties)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUND, G. K.

"The Design of Some Marine Hydraulic Engineering Installations on Natural Foundations With Allowances for Changes in the Modulus of Deformation of Ground as Depth Is Increased." Cand Tech Sci, Moscow Order of Labor Red Banner Construction Engineering Inst imeni V. V. Kuybyshev, Min Higher Education USSR, Moscow, 1955. (KL, No 10, Mar 55)

SO: Sum. No. 670, 29 Sep 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUNKOVA, V.P.

Theory of personality. Vop.psikhol.2 no.5:133-144 S-O '56.
(MLRA 10:1)

1. Institut psikhologii Akademii pedagogicheskikh nauk RSFSR.
(Personality)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUNKOVA, V.P.

Symposium on the comprehensive study of artistic creativeness.
Vop. psikhol no.3:184-187 My-Je'63. (MIRA 17:2)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

KUZNETSOV, N.D., inzh.; OBOROTISTOVA, M.L., inzh.; YERMOLAYEV, A.U., inzh.
YAGUNOV, A.A., inzh.; KRASNOV, A.I.; RYSIN, V.I., inzh.

Exchange of experience among the enterprises of economic councils. Torf. prom. 38 no.7:31-34 '61. (MIRA 14:12)

1. Syavskiy lesokhimkombinat Gor'kovskoy oblasti (for Kuznetsov). 2. Shaturskiy torfotrest Mosoblsovnarkhoza (for Oborotistova). 3. Predpriyatiye Osintorf sovnarkhoza BSSR (for Yermolayev). 4. Monetnoye torfopredpriyatiye Sverdlovskogo sovnarkhoza (for Yagunov). 5. Makeikha-Zybinskoye predpriyatiye Yaroslavskogo sovnarkhoza (for Krasnov). 6. Torfopredpriyatiye Radovitskiy mokh Mosoblsovnarkhoza (for Rysin).
(Peat machinery)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUNOV, B. A.

36170 K voprosy o vybore elektroprivoda dlya spetsial'nykh tyazhelykh stankov. V sb: Spetsializir. stanki v mashinostroyenii. M-L., 1949, S. 85-96.

SO: Letopis' Zhrunal'nykh Statey, No. 49, 1949

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUNOV, I. G.

(Kliniko-rentgenologicheskie i anatomo-gistologicheskie paralleli)
Amputation stumps of he extremities, clinical x-r y and anatomic-histologic comparisons Moskva, Gos. izd-vo med. lit-ry medgiz, 1950. 101 p.

DAFM

1. Amputation.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

GURTOVOY, L.Ye., prof.[deceased]; IVANITSKAYA, Ye.P., doktor med. nauk; MAZHBITS, A.M., prof.; PREYSMAN, A.B., prof.; STARTSEVA, L.N., kand. med. nauk; TRUYEVTSEVA, G.V., kand. med.nauk; SHUB, R.L., zasl. deyatel' nauki Latviyskoy SSR prof.; YAGUNOV, S.A., prof.[deceased]; PERSIANOV, L.S., prof., otv. red.; ZHMAKIN, K.N., prof., zasl. deyatel' nauki RSFSR, red.; RYABOV, G.Z., red.; ROMANOVA, Z.A., tekhn. red.

[Multivolume manual on obstetrics and gynecology] Mnogotomnoe rukovodstvo po akusherstvu i ginekologii. Moskva, Medgiz. Vol.4. Book 1. [General gynecology] Obshchaia ginekologiia. 1963. 674 p. (MIRA 16:9)

1. Chlen-korrespondent Akademii meditsinskikh nauk (for Yagunov, Persianinov).

(GYNECOLOGY)

3000434

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

BOLOTNIKOV, V.; YAGUNOVA, F.

"Song of Mezhdurechensk" film. Reviewed by V.Bolotnikov, F.IAgunova. Sov.shakht. 10 no.12 [illegible]3 D '61. (MIRA 14:12)
(Kuznetsk Basin--Coal miners)
(Kemerevo--Motion pictures, Documentary)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUNOVA, V.A.

PHASE I BOOK EXPLOITATION SOV/3559

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. 5 (Investigations of Heat-Resistant Alloys, Vol 5) Moscow, Izd-vo AN SSSR, 1959. 443 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V.A. Klimov; Tech. Ed.: I.F. Kuz'min; Editorial Board: I.P. Bardin, Academician, G.V. Kurdyumov, Academician, N.V. Ageyev, Corresponding Member, USSR Academy of Sciences (Resp. Ed.), I.A. Oding, I.M. Pavlov, and I.F. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgical engineers, research workers in metallurgy, and may also be of interest to students of advanced courses in metallurgy.

COVERAGE: This book, consisting of a number of papers, deals with the properties of heat-resisting metals and alloys. Each of the papers is devoted to the study of the factors which affect the properties and behavior of metals. The effects of various elements such as Cr, Mo, and W on the heat-resisting properties of various alloys are studied. Deformability and workability of certain metals as related to the thermal conditions are the object of another study described. The problems of hydrogen embrittlement, diffusion and the deposition of ceramic coatings on metal surfaces by means of electrophoresis are examined. One paper describes the apparatus and methods used for growing monocrystals of metals. Boron-base metals are critically examined and evaluated. Results are given of studies of interatomic bonds and the behavior of atoms in metal. Tests of turbine and compressor blades are described. No personalities are mentioned. References accompany most of the articles.

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SOV/126-8-2-6/26

AUTHORS: Popov, K.V. and Yagunova, V.A.

TITLE: Directed Diffusion of Hydrogen in Solid Solution Produced by Deformation, and the Strength of the Metal

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 2, pp 187 - 192 (USSR)

ABSTRACT: Among hypotheses of hydrogen embrittlement of steel is that this is due to internal pressure produced in micro-voids as a result of directed diffusion of hydrogen during plastic deformation (Ref 1). The authors describe their work aimed at testing this hypothesis. Test pieces 8 mm in diameter of Type 20 steel were subjected to saturation in a normal aqueous solution of sulphuric acid with added arsenic. During saturation, blisters appeared on the surface, cracks being found underneath them (showing the incorrectness of the view (V.F. Loshkarev - Ref 6) that hydrogen could never produce enough pressure to disrupt the metal). Treating the blisters (Figure 1)

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Directed Diffusion of Hydrogen in Solid Solution Produced by Deformation, and the Strength of the Metal

as the walls of a thick-walled hemispherical vessel (Figure 2), the authors estimate the minimum pressure for the blister to rise to be about 2 500 atm. The coefficient of diffusion of hydrogen in the steel at room temperature was found, using two series of test pieces, the first being subjected to cathodic polarization for one and the second for two hours. The hydrogenated test pieces were turned to diameters of 6, 4 and 2.5 mm, while two were left intact. In the cylinders thus obtained, hydrogen was determined by hot-vacuum extraction. The results represented the distribution of hydrogen across the cross-section of the test pieces (Table 3), the value of the coefficient being 2.3×10^{-6} cm^2/sec. The authors also calculate the least width of a crack which can, in a deformation

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time of 60 seconds, become filled with hydrogen to a pressure of 2 500 atm. by diffusion from solid-solution grains bounding the crack. They assumed the width to be considerably less than the other dimensions and that its walls are parallel (Figure 4). They deduce equations which, together with empirical values for the diffusion coefficient, the hydrogen concentration and the pressure produced by diffusion, give a crack width of 0.6×10^{-5} cm. The authors consider, on the basis of the observed (H. Schumann - Ref 10) higher rate of diffusion in deformed metals and of the fact that deformation-time frequently exceeds their assumed 60-second value, that their estimates of pressure are probably low. They conclude that directed diffusion into structural defects during plastic deformation may be one cause of hydrogen brittleness of steel.

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Directed Diffusion of Hydrogen in Solid Solution Produced by Deformation, and the Strength of the Metal

There are 4 figures, 1 table and 10 references, 6 of which are Soviet, 1 English, 2 French and 1 German.

ASSOCIATION: Vostochno-sibirskiy filial Sibirskogo otdeleniya AN SSSR (East Siberian Branch of the Siberian Department of the Ac.Sc.USSR)

SUBMITTED: July 7, 1958

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUNOVA, V.A.

PHASE I BOOK EXPLOITATION SOV/4502

Akademiya nauk SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, tom 6 (Investigations of Heat-Resistant Alloys, Vol. 6) Moscow, 1960. 319 p. Errata slip inserted. 3,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova. Nauchnyy sovet po probleme zharoprochnykh splavov.

Editorial Board: I. P. Bardin (Deceased) Academician, G. V. Kurdyumov, N. V. Ageyev, Corresponding Member, Academy of Sciences USSR (Resp. Ed.), I. A. Oding, I. M. Pavlov, and I. F. Zudin, Candidate of Technical Sciences; Ed. of Publishing House: V. A. Klimov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This book is intended for research workers in the field of physics of metals and for metallurgists, particularly those working on heat-resistant alloys.

COVERAGE: This collection of 45 articles deals with various problems in the production of heat-resistant alloys. Special attention is paid to the mechanisms of deformation of such metals as aluminum, copper, iron, and nickel. Various defects and failures of metals are analyzed, and means for increasing the heat-resistance and plasticity are described. Among the special problems discussed are: electrolytic conductivity of iron-aluminum alloys in the solid state; the mobility of atoms in nickel-iron alloys, depending upon defects of their crystalline structure; the kinetics of change in isolated pores; the irreversible thermal transformation of solid bodies, etc. No personalities are mentioned. References follow each article.

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0

YAGUNOVA, V.A.; POPOV, K.V.; ZHADANOVA, K.P.

Effect of chromium content on the speed of hydrogen diffusion and dolubility in iron-chromium alloys. Issl. po zharopr. splav. 6:231-237 '60. (MIRA 13:9)

(Iron-chromium alloys--Hydrogen content)

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18820D (1413, 1416, 2808)

S/126/61/012/002/001/019
E073/E335

AUTHORS: Yagunova, V.A. and Popov, K.V.

TITLE: Hydrogen Embrittlement of Alloys of Iron With Chromium as a Function of the Temperature and the Testing Speed

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol. 12, No. 2, pp. 176 - 182

TEXT: The aim of the work was to elucidate the causes of the non-monotonous dependence of the plasticity of hydrogen-saturated metal on the test temperature. According to published views, the degree of hydrogen embrittlement depends to a considerable extent on the speed of hydrogen diffusion. Therefore, in addition to varying the temperature, the diffusion speed was influenced by using steels with differing chromium contents (0.5 and 5%). Chromium was chosen as an alloying addition in view of the fact that it reduces the diffusion speed of hydrogen in iron. Forged rods, 3 mm in diameter and 15 mm long were chosen for the mechanical tests. These were

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Hydrogen Embrittlement ....

annealed under conditions ensuring approximately equal grain size in both alloys. The plasticity was estimated from the contraction in tensile tests at temperatures between +20 and -196 °C and deformation speeds between 200 and 0.045 mm/min. The specimens were saturated with hydrogen electrolytically in a molar solution of sulphuric acid, adding sodium arsenate (3 mg arsenic per litre of solution). The hydrogen content determined by heating in vacuum at 600 °C was about 2 ml./100 g. Down to -120 °C tests were carried out in propanol, cooled with solid carbon dioxide or liquid nitrogen. The tests were carried out in liquid nitrogen at -196 °C. A temperature minimum of the plasticity was detected which was most pronounced at low strain rates. The minimum is in the temperature range -60 to -100 °C and with decreasing rates of deformation it shifts towards the lower boundary of this temperature range. Cold brittleness was detected at -196 °C; the plasticity dropped sharply both for hydrogen-saturated

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as well as hydrogen-free specimens. Alloys with 5% chromium showed a cold-brittleness threshold at a higher temperature than alloys with 0.5% Cr. The minimum plasticity shifts towards lower temperatures with decreasing speeds of deformation. Chromium had no influence on the hydrogen embrittlement at high rates of deformation; at low rates of deformation embrittlement was more pronounced in the alloy with 5% chromium than in the alloy containing 0.5% Cr. This difference was the more pronounced the lower the test speed. The presence of a minimum on the curves of contraction versus test temperature can be explained by the occurrence of additional barriers impeding movement of dislocations. These additional barriers are dislocations made immobile by clouds of hydrogen atoms. Disappearance of the barriers may be the consequence of displacement of dislocations that have been stopped earlier, together with hydrogen clouds surrounding them.
There are 5 figures, 1 table and 20 references: 9 Soviet and 11 non-Soviet. The four latest English-language references quoted are: Ref. 1 - J.T. Brown, W.M. Baldwin - J. Metals, 1954, Sec. 2, 6, No. 2, 298; Ref. 12 - N.J. Petch and
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Hydrogen embrittlement 26552 S/126/61/012/002/001/019
E073/E335

P. Stables - Nature, 1952, 169, 842; Ref. 14 - F. Kazinczy - J. Iron and Steel Inst., 1954, 177, 85; Ref. 18 - F. Kazinczy - Engineers Digest, 1956, 17, No. 1, 11.

ASSOCIATION: Vostochno-sibirskiy filial SO AN SSSR
(East-Siberian Branch of SO AS USSR)

SUBMITTED: May 9, 1960 (initially)
April 18, 1961 (after revision)

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APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001961820004-0"