ZUBENKO, V.Kh.

Effect of presowing hardening of seeds against droughts on yields of corn raised as a postharvest crop. Fiziol.rast. 6 no.3:333-335 My-Je '59. (MIRA 12:8)

1. Department of Plant Husbandry, the Kuban Agricultural Institute.
(Kuban--Corn (Maize)) (Seeds) (Plants, Effect of aridity on)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

ZUBENKO, V.Kh., agronom

Summer-sown crops as additional feed sources. Zhivotnovodstvo 21 no.6:66-68 Je '59. (MIRA 12:8)

1. Kubanskiy sel'skokhozyaystvennyy institut.
(Kurgannaya District--Corn (Maize))

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

ZUBENKO, V.Kh., kand.sel'skokhozyaystvennykh nauk

Stubble crop of corn as an important source of supplementary feeds. (MIRA 16:5)
Zhivotnovodstvo 22 no.7:22-23 '60.

1. Kubanskiy sel'skokhozyaystvennyy institut.
(Kuban--Corn as feed)

S/032/61/027/009/004/019
B117/B101

AUTHORS: Bogomolov, K. S., Zubenko, V. V., Kondakhchan, A. O., and Umanskiy, M. M.

TITLE: Comparison characteristics of new X-ray films

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 9, 1961, 1117-1122

TEXT: The photochemical industry of the USSR recently started the production of new X-ray films with different photographic properties. (The new X-ray films were elaborated at the Shostkinskiy khimzavod (Shostka Chemical Plant) by A. O. Kondakhchan, S. A. Verkhovets, V. V. Vasil'yev, L. A. Khomich, Z. I. Pavlenko, and tests were conducted by I. I. Shal'nov and N. P. Blok. At the Kazanskiy zavod (Kazan' Plant), the films were elaborated by I. A. Novik, and B. B. Tsyrlina, and the tests were conducted by G. V. Derstuganov). The object of the present study was to determine the main characteristics of the new films, including sensitometric characteristics of the visible light, white X radiation at 60 kv tube voltage and soft monochromatic radiation of different wavelengths. Most of the methods of determining the characteristics mentioned are generally

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Comparison characteristics of ...

known. Only the method of determining the sensitometric characteristics with soft X radiation is described. The monochromatic radiation was obtained by the reflection from the monochromator crystal. Quartz (reflecting face 101), silicon (111) and, in some cases, LiF (100) were used. A narrow spectral range corresponding to the maximum of white radiation at 40 kv tube voltage was isolated for radiation with a wavelength of $\lambda = 0.45$ Å. The radiation intensity was kept constant by stabilizing the voltage of the entire installation and the anodic current of the tube. This was controlled by counting the impulses with a Geiger counter placed directly behind the film. To find the characteristic curve, a series of markings with different exposure times was obtained on the film. The temperature of the developer was kept constant at $18 \pm 0.5^{\circ}C$. Developing time was 8 min according to recommendations by manufacturers. A standard developer for X-ray film, and a developer of the zavod "Chistyye soli" (Plant "Chistyye soli") were used. The developed films were photometrically investigated on a microphotometer of the МФ-4 (MF-4) type. On the basis of data obtained, characteristic curves $D = f(\log E)$ were plotted, where D = density of the blackening, and E = exposure. The relative film sensitivity $S_{d=0.85}$ and $S_{g=1.0}$, constant γ and the background density D_0 were determined from the characteristic curve.

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

S/032/61/027/009/004/019
B117/B101

Comparison characteristics of ...

The sensitivity for monochromatic X radiation was determined in a similar way in combination with an УФАМ(UFDM) intensifying screen. The investigations showed that the relative sensitivity of different films depended on the wavelength. The difference in sensitivity of films is reduced as the wavelength increases. The same is observed when using intensifying screens. The intensification coefficient of the screen increases with increasing light sensitivity of films. The new types of X-ray films can be used for X-ray structural, X-ray spectrum analyses, material tests (defectoscopy), etc. The main characteristics of the X-ray films investigated are listed in Table 1, the sensitivity of some X-ray films for monochromatic X radiation of different wavelengths in Table 2, and the sensitivity when using intensifying screens in Table 3. There are 6 tables, and 1 non-Soviet reference.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)
Nauchno-issledovatel'skiy kinofotoinstitut (Scientific Research Institute of Motion Picture Photography)

Card 3/8

BOGOMOLOV, K.S.; ZUBENKO, V.V.; KONDAKHCHAN, A.O.; UMANSKIY, K.M.

Comparative characteristics of new X-ray films. Zav.lab. 27 no. 9:1117-1122 '61. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet, Nauchno-issledovatel'skiy kinofotoinstitut.

(Photography—Films) (Radiography)

UMANSKIY, M.M., ZUBENKO, V.V., ZOLINA, Z.K.

Precision measurements of unit cell parameters (determination of the parameter of tungsten). Kristallografiia 5 no.1:51-55 Ja-F '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Tungsten) (Crystal lattices)

24.7100

78598
SOV/70-5-1-7/30

AUTHORS: Umanskiy, M. M., Zubenko, V. V., Zelina, Z. K.

TITLE: Concerning the Precision Measurement of Unit Cell Parameters

PERIODICAL: Kristallografiya, 1960, Vol 5, Nr 1, pp 51-55 (USSR)

ABSTRACT: A commission of the International Union of Crystallography allowed laboratories in 16 different countries to determine the identity periods of silicon, tungsten, and diamond, and found 0.013% difference in the results (which was considerably higher than the errors considered possible by various authors). Having received the same tungsten from W. Parrish, previously studied by the above laboratories, the authors studied it using well-adjusted cameras RKU-95 and RKU-114, whose diameters at various points did not differ by more than 0.02 mm. Narrow pinholes reduced the vertical divergence of beams to 0.3 to 0.5°. By placing the cameras in an air thermostat and controlling it by precise thermocouples, a stable temperature within ±0.2°C was provided. The

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Concerning the Precision Measurement of Unit Cell Parameters

78698
SOV/70-5-1-7/30

powder cylinders were 0.1 mm except for 1 specimen of 0.4 mm. The diffraction photographs were measured by comparator IZA-2 supplemented with an ocular of higher magnifying power. The diffraction line doublings for the sensitive regions ($\theta > 55^\circ$) of the same powder photographs of silicon and tungsten, were measured by 10 persons independently, 2 to 3 times by each; consequently, over 500 experimental values of θ were calculated and differed within $\pm 0.007^\circ$ ($25''$); while those based on 1 person's measurements varied within $\pm 0.03^\circ$ ($11''$). 43 photographs were taken from 11 powder specimens at 25° C by Cu, Ni, Co, W, and Fe radiation and the identity period, a, was computed assuming it a linear function of

$$\left(\frac{1}{2}\left(\frac{\cos^2\theta}{\sin\theta} + \frac{\cos^2\theta}{\theta}\right)\right)$$

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Concerning the Precision Measurement of Unit Cell Parameters

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SOV/70-5-1-7/39

Since the reliability of a, computed on the basis of different θ values and relative intensity I of diffractions, varies proportional to $I\tan\theta$, the value of a, extrapolated to θ maximum, was obtained according to

$$a = \frac{CD - BE}{AD - B^2},$$

where

$$A = \sum I_i \lg \varphi_i \quad D = \sum \frac{1}{2} I_i \lg \varphi_i$$
$$B = \sum \frac{1}{2} I_i \lg \varphi_i \quad E = \sum a_i \frac{1}{2} I_i \lg \varphi_i$$
$$C = \sum a_i I_i \lg \varphi_i$$

The obtained values of a were then corrected for refraction of X-rays according to $a_{corrected} = a_{extrapolated}$ $(1 + \delta)$, where

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Concerning the Precision Measurement of Unit Cell Parameters

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SOV/70-5-1-7/30

$$\delta = 1 - n = 2{,}70 \cdot 10^{-6} \frac{Z\rho}{A} \lambda.$$

n is refraction index; Z is atomic number, ρ is density; A is atomic weight. The figures, taking into account the average error $\Delta\theta = 25''$, are compiled in Table 3. The error ratio $a/a = 0.0016\%$ can perhaps be reduced if maximum θ approaches 90°, but larger θ require corrections for dispersion, polarization, and Lorentz factors. The error in the a determination increases rapidly with decreasing θ, as was the case using Fe radiation. The precision measurements by the use of diffractometers are still in the experimental stage and are expected to increase the accuracy of measurements. There are 3 tables; and 10 references, 4 Danish, 2 Soviet, 2 U.K., 1 U.S., 1 German. The U.S. and U.K. references are: W. Parrish, Precision Measurement of Lattice Parameters, Report Nr 2, 1958; E. R. Pike, A. J. C. Wilson, Brit. J. Appl. Phys., 10, 57-68, 1959; J. B. Nelson,

Card 4/5

Concerning the Precision Measurement of Unit Cell Parameters

78093
SOV/70-5-1-7/30

Table 3. Summary of unit cell parameters for tungsten obtained by different radiations

Radiation	θ_{max}	$\theta_{recalculated}$	$\Delta\theta$, sec	Correction for refraction	a, Å
Cu	79°55'	3,16514	6	0,00016	3,16530
Ni	79°11'	3,16502	6	0,00018	3,16520
Co	78°31'	3,16506	7	0,00021	3,16527
W	82°45'	3,16504	4	0,00014	3,16518
				Average	3,16524±5
Fe	75°44'	3,16491	8	0,00025	3,16516

D. P. Riley, Proc. Phys. Soc., 57, 160, 1945.

ASSOCIATION: Moscow State University Imeni M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova)

SUBMITTED: September 3, 1959

Card 5/5

SOV/70-4-2-21/36

AUTHORS: Zubenko, V.V., Kvitka, S.S. and Umanskiy, M.M.

TITLE: The High-temperature X-ray Camera RKVT-1200 (Vysoko-temperaturnaya rentgenovskaya kamera RKVT-1200)

PERIODICAL: Kristallografiya, 1949, Vol 4, Nr 2, pp 244-247 (USSR)

ABSTRACT: A universal high-temperature camera is difficult to design and it has been found better to divide the range into 20-90°, where the whole camera is thermostatted; 20-400° where protection of the film from heat and light is not difficult and the specimen often needs no protection from the atmosphere and 400 - 1200° where a wire-wound furnace with a simple electrical thermostat can be used. The 20-400° type has been already described: RKVT-400 in the work of Zubenko and Umanskiy (Ref 2).

The RKVT-1200 camera is suitable for examining polycrystalline materials up to 1 200 °C. The specimen is oscillated or rotated and lines from $\theta = 6$ to 84° are recorded on film in a semi-cylindrical cassette. A vacuum of better than 10^{-3} mm Hg can be maintained in

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

The High-temperature X-ray Camera RKVT-1200

the furnace. The body of the camera is water-cooled. The rotor and gearing of the electric motor drive are inside the vacuum but the stator is outside. The shaft for turning the specimen centering screws enters the camera by a rubber cuff. The film cassette is kinematically clamped. Knife edges cast shadows on the film at standard θ angles. A thermocouple valve LT-2 (Pirani gauge) is built into the camera for vacuum measurement and lies on the opposite side of the working space to the pump. It takes 1.5 - 2 hours to reach working temperature and vacuum. Thermal transformations ($\alpha \rightarrow \gamma$ Fe) and the thermal expansion of CeB_6 have been studied. The latter material has an expansion coefficient of $7.9 \pm 0.4 \times 10^{-6}/^{\circ}C$. The CeB_6 was enclosed in a quartz capillary with walls of thickness 0.02 mm. Exposures took 6 - 10 hours.
There are 4 figures and 4 Soviet references.

SOV/70-4-2-21/36

The High-temperature X-ray Camera RKVT-1200

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: August 22, 1958

Card 3/3

LEVIN, L. S.; ZOLINA, Z. K.; ZUSMEROO, V. V.; KHEYKER, D. M.; UVAROVSKIY, N.N.

"The Precision Determinations of Lattice Constants"

a report presented at Symposium of the International Union of Crystallography Leningrad, 21-27 May 1959

ZUBENKO, V. V.

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PHASE I BOOK EXPLOITATION

SOV/6176

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences USSR, Resp. Ed.

Deystviye vadernykh izlucheniy na materialy (The Effect of Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR, 1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A. Adasinskiy; Editorial Board: P. L. Grusin, G. V. Kurdyumov, B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. P. Pravdyuk; Ed. of Publishing House: M. G. Makarenko; Tech. Eds: T. V. Polyakova and I. N. Dorokhina.

Card 1/14

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

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SOV/6176

The Effect of Nuclear Radiation (Cont.)

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research orginization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense γ-radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

Card 2/14

Pravdyuk, N. F., Yu. I. Pokrovskiy, and V. I. Vikhrov. Effect of Neutron Irradiation on Internal Friction in Mono- and Polycrystals of Zinc 235

Zakharov, A. I. Effect of Neutron Irradiation and Plastic Deformation on Young's Modulus and Internal Friction 242

Konobeyevskiy, S. T., and F. P. Butra. Radiographic Effects in Neutron-Irradiated Crystals 251

Kolontsova, Ye. V. Radiation and Deformation Disturbances in Crystals 257

Telegina, I. V., Ye. V. Kolontsova and V. V. Zuberka. Radiation Disturbances in Crystals of Lithium Fluoride 264

Andronikashvili, E. L., N. G. Politov, and L. F. Vorozheykina. Effect of Lattice Disturbances on Mechanical and Optical Properties of Potassium Chloride Crystals. 268

2 U/6

USSR/Laboratory Equipment - Instruments, Their Theory, Construction and Application. H.

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 19764

Author : V.V. Zubenko, M.M. Unanskiy.
Title : X-ray Determination of Thermal Expansion Factor of Polycrystalline Substances in Interval Between -50 and 100°.

Orig Pub : Kristallografiya, 1956, 1, No 4, 436-441

Abstract : The x-ray focussing camera for precise determination of parameters of elementary cells of polycrystalline substances in the interval from -50° to + 100° is described. The complete camera together with the specimen and film is thermostatic. The way how to determine the effective film diameter by making light marks on films at the research temperature is shown. Examples of determination of thermal expansion factors of Al and Ni are cited.

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

ZUBENKO, V.V., DVANSKIY, M.M.

Determination of the thermal expansion of single crystals by means of X-ray diffraction patterns. Kristallografiia 2 no.4: 508-513 '57. (MLRA 10:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(X-ray crystallography)

ZUBENKO, V.V.

70-4-10/16

AUTHORS: Zubenko, V.V. and Umanskiy, M.M.

TITLE: X-ray Determination of the Thermal Expansion of Single Crystals. (Rentgenograficheskoye opredeleniye termicheskogo rasshireniya monokristallov).

PERIODICAL: Kristallografiya, 1957, Vol.2, Nr 4, pp.508-513 (USSR).

ABSTRACT: Two X-ray single-crystal goniometers fitted with arrangements for heating the specimen to a precisely determined temperature and measuring its lattice constants with high accuracy are described. The first is developed from the ordinary Soviet oscillation camera (RKB) and will operate up to 400 C. Reflections are recorded only near the equator with a maximum θ value of 84 C. A cylindrical furnace, electrically heated, surrounds the specimen and is insulated from the film by asbestos cement and by air. The film is mounted on a massive, water-cooled former. A glass collimator (65 mm long and 0.4 mm i.d.) is used to eliminate the thermal conduction which a metal one would permit; the exposure time is reduced by a factor of 1.5-2. A set of thermocouples working into an automatic potentiometer serve to stabilise the temperature to some tenths of a degree. The other camera has a liquid jacket surrounding the specimen

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X-ray Determination of the Thermal Expansion of Single Crystals.

and a cassette of 11.4 cm diameter. The jacket is supplied from an external thermostat bath, the circuit incorporating, if necessary, a vessel containing melting ice. A thermocouple close to the specimen is used as before for temperature regulation. The mechanical part of the camera is like that of the Soviet model PKB-86. A temperature range of -50 to 85 C can be covered. Averaged over the range 20-270 C the coefficients of expansion of corundum were found to be $5.6 + 0.1 \times 10^{-6}$ perpendicular to the axis and $6.6 + 0.1 \times 10^{-6}$ parallel to the axis. $a = 4.7483 + 0.0001$ and $c = 12.963 \pm 0.001$ KX at 22 C. For $Li_2SO_4.H_2O$ at 20-22 C $a = 5.455 + 0.002$ and $c = 8.1675 + 0.0006$ KX. In the c-direction the expansion coefficient is $15.6 + 0.5 \times 10^{-6}$. β does not change with temperature to $+ 5'$ and is 107.58 C. For d-potassium tartrate the dimensions were found (by Z. I. Ezhkova) to be $a = 15.458 + 0.004$, $b = 5.038 + 0.002$, $c = 20.054 + 0.002$ KX, $\beta = 90°50'$. The expansion coefficient $\alpha_{33} = 31.5 \pm 1.0 \times 10^{-6}$.

Card 2/3

X-ray Determination of the Thermal Expansion of Single Crystals.

There are 6 figures and 10 references, 5 of which are Slavic.

ASSOCIATION: Moscow State University im. M.V.Lomonosov.
(Moskovskiy Gosudarstvennyy Universitet im. M.V.Lomonosova)

SUBMITTED: February 22, 1957.
AVAILABLE: Library of Congress.

Card 3/3

UMANSKIY, M.M.; ZOLINA, Z.K.; ZUBENKO, V.V.; KOZLOVSKIY, V.F.

Comparison of the efficiencies of BSV-1, BSV-2, BSV-4, BSV-6, BSV-8, and BSV-9 tubes in structure studies. Kristallografiia 8 no.2:300-301 Mr-Ap '63. (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

ZUBENKO, V.V.; UMANSKIY, M.M.

X-ray determination of the coefficient of thermal expansion in semicrystalline substances at temperature ranges from -50°C to + 100°C. Kristallografiia 1 no.4:436-441 '56. (MLRA 10:1)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(X-ray crystallography) (Expansion (Heat))

26.2312
9.3120 (1003, 1137, 1140)

S/109/60/005/008/019/024
E140/E355

AUTHORS: Zubenko, Yu.V. and Sokol'skaya, I.L.

TITLE: Field Emission of Tungsten Carbide and Thoriated Tungsten Carbide

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol. 5, No. 8, pp. 1327 - 1337 + 2 plates

TEXT: Monocrystal tungsten point cathodes were heated in an atmosphere of diffusion oil vapour, changing into monocrystal tungsten carbide W_2C. The field emission patterns of these points and their dependence on potential and temperature were studied by recording the volt-ampere characteristics at vacuum 10^{-9} mm Hg; the emission patterns were observed during adsorption and evaporation of metallic thorium.
The thorium increased the field emission on both tungsten and tungsten carbide. The rate of thorium evaporation from tungsten carbide is substantially less than from pure tungsten although the heats of evaporation are the same. The heat of evaporation obtained, 4 eV, is half the value obtained by a

S/109/60/005/008/019/024
E140/E355

Field Emission of Tungsten Carbide and Thoriated Tungsten Carbide

number of other authors for polycrystalline wires. This is the first study of the behaviour of tungsten and tungsten carbide using a single object. The behaviour observed is explained in terms of crystallographic theory. There are 13 figures and 17 references: 4 Soviet and 13 non-Soviet.

SUBMITTED: December 21, 1959

Card 2/2

ZUBENKO, Yu.V.

Field emission of layers of titanium on tungsten and tungsten carbide. Radiotekh. i elektron. 8 no.7:1239-1245 Jl '63. (MIRA 16:8)

(Field emission) (Carbides—Electric properties) (Tungsten—Electric properties)

ZUBENKO, Yu.V.; SHAKIROVA, S.A.; SOKOL'SKAYA, I.L.; BELYAKOV, Yu.I.

Use of an omegatron in studying the composition of gases liberated from some vacuum coatings subject to electron bombardment. Radiotekh. i elektron. 9 no.2:357-359 F '64. (MIRA 17:3)

ZUBENKO, Yu.V.

Barium adsorption and vaporization on rhenium single crystals. Fiz. tver. tela 6 no.1:123-127 Ja '64. (MIRA 17:2)

1. Leningradskiy gosudarstvennyy universitet.

ACCESSION NR: AP4017608 S/0109/64/009/002/0357/0359

AUTHOR: Zubenko, Yu. V.; Shakirova, S. A.; Sokol'skaya, I. L.; Belyakov, Yu. I.

TITLE: Using an omegatron for investigating the composition of gases liberated by some vacuum coatings subjected to an electron bombardment

SOURCE: Radiotekhnika i elektronika, v. 9, no. 2, 1964, 357-359

TOPIC TAGS: mass spectrometer, omegatron mass spectrometer, electron bombardment, vacuum device residual gas, Pt liberated residual gas, tin oxide liberated residual gas, Ag liberated residual gas, aquadag liberated residual gas, willemite liberated residual gas

ABSTRACT: The results of an investigation of residual gases liberated by an electron bombardment of conductive coatings on glass, such as platinum, tin oxide, aquadag, silver paste, and willemite on tin-oxide film, are briefly

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

ACCESSION NR: AP4017608

reported. Although a qualitative investigation of gases was the objective, some quantitative results were obtained at pressures exceeding 10^{-7} torr. A most-simply designed omegatron was built, after J. S. Wagener, et al. (J. Appl. Phys., 1957, 28, 9, 1027), with a 15 x 15 x 15-mm resonance chamber. The gases liberated from Pt were: CO, N_2 and CO_2; those liberated from other coatings were: CO, N_2, and to a lesser degree CO_2 and CH_4. The ion currents of principal atomic or molecular ions are tabulated. Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: none

SUBMITTED: 18Jan63 DATE ACQ: 18Mar64 ENCL: 00

SUB CODE: PH, GE NO REF SOV: 001 OTHER: 005

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

L 36145-66 EWT(m)/T/EWP(t)/ETI IJP(c) JW/JG/JD

ACC NR: AP6015796 SOURCE CODE: UR/0048/66/030/005/0901/0902

AUTHOR: Zubenko, Yu. V.; Sokol'skaya, I. L.

ORG: none

TITLE: Adsorption and surface diffusion of platinum on tungsten /Report, Twelfth All-Union Conference on the Physical Bases of Cathode Electronics held in Leningrad 22-26 October 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 5, 1966, 901-902 and inserts

TOPIC TAGS: tungsten, platinum, adsorption, metal surface, crystal surface, surface film, diffusion, activation energy, field emission

ABSTRACT: The adsorption and migration of platinum on a tungsten point have been observed with a field emission microscope. The apparatus and experimental technique have been described elsewhere by the authors (Izv. AN SSSR /page and volume reference not given/). Sufficient platinum was deposited from an electrically heated 99.9% pure wire to cover a portion of the (100) and (100) regions of the tungsten point with a monolayer. The temperature of the tungsten point during deposition was 300° K. Migration of the adatoms was observed at temperatures ranging from 650 to 1050° K, and from the temperature dependence of the migration rates the following activation ener-

Card 1/2

gies were determined:

$$Q_{[100]\rightarrow[011]} = 0.5 \text{ eV}; \quad Q_{[011]--[010]} = 0.8 \text{ eV}; \quad Q_{(111)} = 0.7 \text{ eV}.$$

Observations of migration in the presence of considerably more adsorbed platinum indicated that migration along a thin layer of adsorbed platinum takes place in the same way as along the pure tungsten surface; from this it is concluded that the interactions of an adatom with the substrate and with other adatoms are not greatly dissimilar. The heat of desorption was found to be 5.7 ± 0.3 eV, in good agreement with the 5.8 eV heat of sublimation. The field emission current decreased and the work function increased with increasing thickness of the adsorbed layer. The observation of K.Neuback (Z. Naturforschung a, 11, 587 (1956)) of the formation of bright borders with an increase of the field emission current in the presence of large quantities of adsorbed platinum was confirmed. The activation energy of the border forming processes was 1.9 ± 0.2 eV. It is concluded that at temperatures above 1000° K there occurs a penetration of platinum into the tungsten, which leads to changes in the surface relief and the appearance of bright borders in the field emission photographs. Orig. art. has: 5 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 001

ZUBENKO, Yu.V.

Field emission of Re coated with Th. Radiotekh. i elektron. 9 no.6:1096-1098 Je '64. (MIRA 17:7)

ACCESSION NR: AP4035705

S/0057/64/034/005/0911/0912

AUTHOR: Zubenko, Yu.V.; Sokol'skaya, I.L.; Fursey, G.N.

TITLE: Concerning some peculiarities of field emission at high current densities

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.5, 1964, 911-912, and illustration facing p.912.

TOPIC TAGS: electron field emission, thermal field emission, point cathode

ABSTRACT: The bright rings surround field emission photographs of tungsten single crystal points obtained by high current pulsed operation and ascribed by their discoverors to thermal field emission from the portion of the emitter just below the tip (I.K.Trolan, E.E.Martin and I.Barbour,Phys.Rev.91,1043,1953) have been recently observed with Ta, Re, and W_2C emitters by two of the present authors (I.L.Sokol'skaya and G.N.Fursey,Radiotekhnika i elektronika,7,1474,1484,1962), who advanced several different hypotheses to account for them. Now, however, the rings have been obtained on photographs made under steady operation at normal currents with tungsten emitters that have been coated with barium or thorium to reduce the work function, and it is no longer reasonable to doubt their thermal field emission origin. Identi-

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ACCESSION NR: AP4035705

cal rings were obtained with a pulsed emitter operated at high current density and with the same emitter coated, heated, and operated continuously at moderate current. The emission from the conical portion of the emitter below the spherical tip produces a ring because the approximately cylindrical field in this region magnifies in only one dimension, in contrast to the spherical field about the tip, which magnifies in two dimensions. The rings show both radial and azimuthal structure; this is ascribed to the alternation of regions of high and low work function, which naturally occurs on the conical portion of the emitter as well as on the tip. The rings are sometimes observed to overlie the outer portion of the field emission image of the spherical tip. This is ascribed to a crossing of the electron beams occasioned by the complex structure of the field in the transition region between the approximately spherical field about the tip and the approximately cylindrical field about the lower portion of the emitter. Five field emission photographs are reproduced, four of which show rings. Orig.art.has: 1 figure.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet im.A.A.Zhdanova (Leningrad State University)

SUBMITTED: 11Jul63

SUB CODE: EC,NP

DATE ACQ: 20May64

NR REF SOV: 001

ENCL: 00

OTHER: 001

Card 2/2

ACCESSION NR: AP4011748 S/0181/64/006/001/0123/0127

AUTHOR: Zubenko, Yu. V.

TITLE: Adsorption and evaporation of barium on a single crystal of rhenium

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 123-127

TOPIC TAGS: adsorption, evaporation, barium, rhenium, rhenium single crystal, Müller autoelectron projector, emission, thermal autoemission, oxygen

ABSTRACT: For observing adsorption, a Müller autoelectron projector was used at a residual-gas pressure of about 10^{-9} mm Hg. At room temperature Ba was adsorbed on $(\bar{2}112)$ faces. It was absorbed on $(10\bar{1}1)$ and $(10\bar{1}0)$ faces chiefly along the edges; on the faces themselves Ba atoms formed accumulations that appeared as light rectangles with dark interiors on the emission photographs. The $(2\bar{1}\bar{1}0)$ faces remained dark. When the peak temperature was raised to 850K, the Ba atoms migrated markedly. They left the $(10\bar{1}0)$, $(01\bar{1}0)$, and $(10\bar{1}1)$ faces, and completely covered the $(2\bar{1}\bar{1}2)$ and $(11\bar{2}2)$ faces. As a result of thermal autoemission, on heating the

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ACCESSION NR: AP4011748

rhenium tip in an electric field, new faces appeared, and Ba was adsorbed, but, because of the relatively weak electrical field acting on these faces, there was no emission at room temperature. Increase in amount of Ba sputtered on the crystal of Re changed the emission picture. Adsorption was chiefly on the $(1\bar{1}00)$ crystal form. The $(2\bar{1}\bar{1}0)$ faces became covered by Ba last. Emission pictures show that evaporation occurred primarily from the vicinities of the $(10\bar{1}1)$ and $(10\bar{1}0)$ faces and from the $(2\bar{1}\bar{1}0)$ face. Evaporation occurred in stages, the heat of evaporation being 4.1 ± 0.3 ev at the first stage, 5.4 ± 0.3 ev at the second. It is concluded that the stability of rhenium relative to oxygen has no noticeable effect on the emission and adsorption properties of the barium-metal system. "In conclusion, the author expresses his sincere thanks to I. L. Sokol'skaya for her valuable suggestions and for discussing the results; he also thanks G. N. Furseya for aid in preparing the rhenium points." Orig. art. has: 6 figures.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 16Jul63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 004 OTHER: 001

6.8000 (and 1147, 1155)

S/181/61/003/002/028/050
B102/B212

AUTHOR: Zubenko, Yu. V.

TITLE: Adsorption, migration, and evaporation of barium on carbidized tungsten

PERIODICAL: Fiziki tverdogo tela, v. 3, no. 2, 1961, 528-534

TEXT: The author reports on experimental investigations of barium coats on W_2C single crystals. The knowledge of the adsorption, migration, and evaporation mechanism for autoelectronic projectors and electron tubes is important. Ba adsorption by W_2C and the work function of barium-coated W_2C crystals have been studied with an instrument previously described. Several emission pictures (cannot be reproduced) have been taken. At 800°K rapid barium migration has been seen which spread evenly over the surface. The plate voltage which is necessary to obtain a certain autoelectronic current will at first decrease rapidly and then increase a little with increasing thickness of the barium coat. There is no distinct minimum. The work

function has been found to be 2.25 ev (±2%). The barium evaporation of tungsten carbide took place in three stages; in each stage the drop of the autoelectronic current curves has been investigated as a function of the heating time at a given temperature and voltage, the voltage has been only applied when measuring the current. Fig. 5 shows the curves of the first stage (at 1.6 kv and various temperatures), Fig. 6 that of the second (advanced evaporation) and Fig. 7 that of the third. The work function for each stage has been determined from the slope of the straight lines log K = log A-5040Q/T, where K is the evaporation rate, A a constant, Q the heat of evaporation. Fig. 8 shows these straight lines for three stages. The following values have been obtained: Q_1 = 3.9 ev, Q_2 = 2.5 ev, Q_3 = 5.6 ± 0.15 ev. The number of evaporation spots can be determined from the structure of the adsorbing and also from that of the adsorbed surfaces. The evaporation rate is essentially a function of location. If A is the number of evaporation spots per cm^2 then the following expressions are obtained for each stage: $A_1 = 10^{14}$, $A_2 = 10^8$, and $A_3 = 2 \cdot 10^{13}$; A_1 and A_3 coincide within the

Adsorption, migration, and...

S/181/61/003/002/028/050
B102/B212

limits of measurement accuracy. The author thanks I. L. Sokol'skaya for suggesting the topic and for advice. There are 8 figures and 10 references: 5 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: May 31, 1960

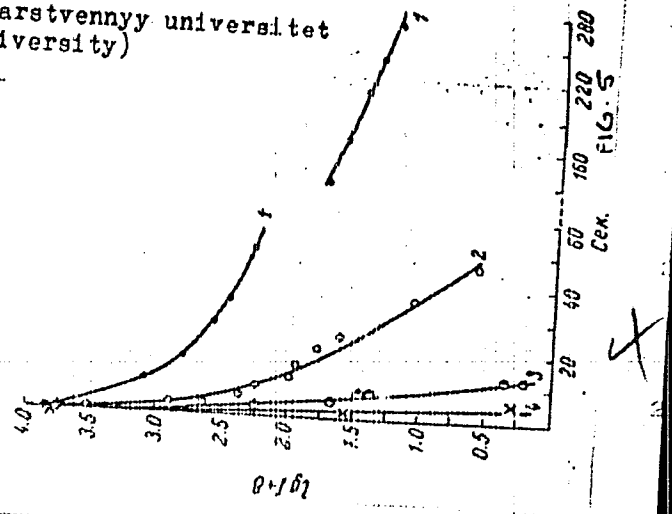

FIG. 5

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Adsorption, migration, and...

S/181/61/003/002/028/050
B102/B212

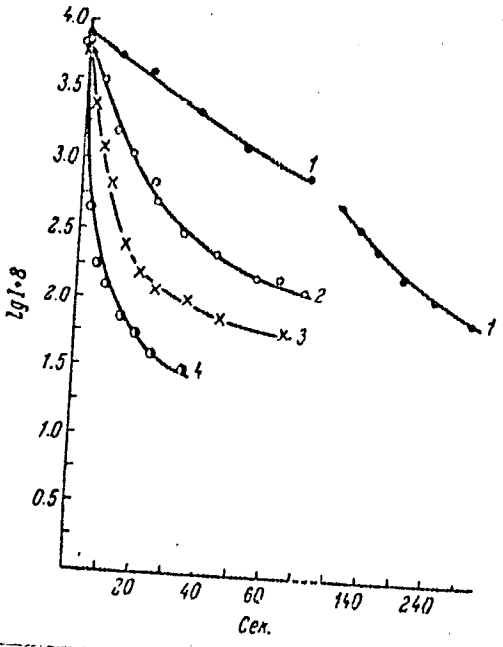

Fig. 6

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S/181/61/003/002/028/050
B102/B212

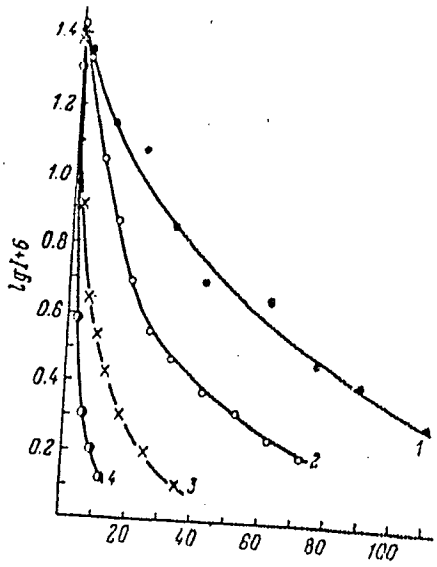

Рис. 7. Кривые спадания автоэлектронного тока на третьей стадии испарения бария.

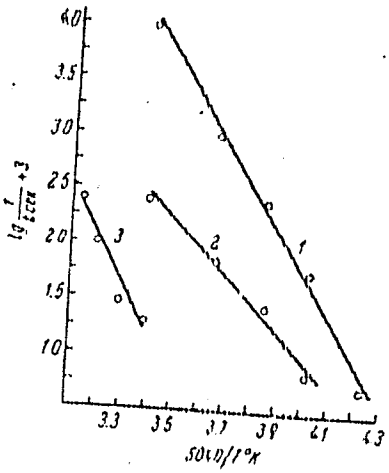

Рис. 8. Скорость испарения бария с W_2C как функция обратной температуры.

Fig.

Card 5/5

ZUBENKO, Yu.V.; SOKOL'SKAYA, I.L.

Field and thermionic emission of thorium and barium layers on tungsten. Fiz.tver.tela 3 no.5:1561-1565 My '61. (MIRA 14:6)

1. Leningradskiy gosudarstvennyy universitet imeni A.A.Zhdanova.
(Thorium) (Barium) (Electrons--Emission)

RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

S/057/62/032/003/019/019
B119/B104

AUTHORS: Zubenko, Yu. V., and Sokol'skaya, I. L.

TITLE: Work function of tungsten carbide

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 3, 1962, 378 - 380

TEXT: The authors determined the work function φ for W and W_2C by the Richardson method. The emission from a 0.112 mm thick, 70 cm long tungsten wire was measured at an anode voltage of 200 volts in the vacuum at $1 - 2.10^{-9}$ mm Hg. The temperature of the central part of the wire was determined from the current passing through it. The tungsten wire was then treated with naphthalene vapor at 1600°K until a 20 μ thick carbide layer had formed. Subsequently, the emission was again measured. The temperature was determined by means of an optical pyrometer and from the power input. With pure W the work function $\varphi_W = 4.54 \pm 0.07$ electron-volts, the constant $A = 53 \frac{a}{cm^2 \cdot deg^2}$. With W_2C $\varphi_{W_2C} = 4.56 \pm 0.09$, $A = 190 \frac{a}{cm^2 \cdot deg^2}$.

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Work function of ...

S/057/62/032/003/019/019
B119/B104

The authors thank A. N. Gorlov, director of the high-temperature laboratory of VNIIM and his senior scientific collaborator E. A. Lapina for making available the temperature measuring instruments. There are 2 figures and 17 references: 4 Soviet and 13 non-Soviet. The four most recent references to English-language publications read as follows: C. W. Horsting. J. Appl. Phys., 18, 1, 95, 1947, Brattain s. Becker. Phys. Rev., 43, 428, 1933; R. O. Jenkins a. W. G. Trodden. British. J. Appl. Phys., 10, 1, 1959 D. L. Coldwter, R. C. Haddad. Appl. Phys., 22, 1, 70, 1951.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova, Fizicheskiy fakul'tet (Leningrad State University imeni A. A. Zhdanov, Department of Physics)

SUBMITTED: September 27, 1961

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

S/109/62/007/009/001/018
D409/D301

AUTHORS: Zubenko, Yu.V., and Sokol'skaya, I.L.

TITLE: Field emission of Au-Ba layers

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 9, 1962, 1467 - 1473

TEXT: The compound $BaAu_5$ was investigated by the methods of field emission microscopy (in Müller's electron projector). The $BaAu_5$ layers of stoichiometric composition were obtained by vacuum evaporation of the original materials, the layers being deposited on a tungsten emitter point. The emission pattern of the layers varies with layer thickness. The work function of the obtained layers was 3.3 ev. The tungsten emitter-point was heated, by application of a direct field (minus at the cathode) to $\sim 900^{\circ}K$. This led to a basic change in the emission pattern, accompanied by a considerable drop in the field-emission current. Heating in a reversed field (minus at the anode), led to a considerable increase in the current. A figure shows the emission patterns of the layers, cooled down from

900°K to room temperature. Another figure shows the emission patterns after heating in the reversed field. The current-voltage characteristics and the work function were determined for each of the described states of the layers (various thickness and treatment of the layers). On heating in the direct field, the work function of the layers approaches that of the tungsten base; this tendency is more pronounced in the thin layers, and less in the thick layers. Heating in an electric field leads to polarization of the layers, involving dipole rotation; it can be assumed that the $BaAu_5$ compound has considerable polarizability and possibly a constant dipole moment. The presence of dipoles in the layer is also indicated by the way in which the temperature affects the transition from one state to another. The observed changes in the work function and the different behavior of layers of various thickness, can best be explained by assuming that the Ba-Au layer is a semi-conductor, its conductivity depending on the structure, which greatly varies with the re-orientation of dipoles in the external electric field. Together with the conductivity, the Debye-Hückel radius x_o changes. In

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

SOCHAVA, V.B.; LUKICHEVA, A.N.; ZUBKOV, A.I.; KORCHAGIN, A.A.; RODIN, L.Ye.; SEMENOVA-TYAN-SHANSKAYA, A.M.

Main stages in the development of general mapping of the vegetation of continents. Bot. zhur. 50 no.9:1268-1275 S '65. (MIRA 18:10)

1. Botanicheskiy institut imeni Komarova AN SSSR, Leningrad i Institut geografii Sibirskogo otdeleniya AN SSSR, Irkutsk.

ZUBENKOV, A. P. (Co-author)

See: BULGAKOV, N. I.

Bulgakov, N. I. and Zubenko, A. P. "The deck section of closed fermenting vats," Pishch. prom-st' SSSR, Issue 12, 1949, p. 36-40

SO: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 14, 1949).

(3)

Meteorological Abst.
Vol. 4 No. 2
Feb. 1953
Bibliography on
Turbulent Exchange

4B-142

Zubenok, L. I. Nekotorye dannye o turbulentnom potoke tepla mezhdu zemlei i atmosferoi. [Some data on the turbulent flow of heat between earth and atmosphere.] *U.S.S.R. Glavnoe Upravlenie Gidrometeorologicheskoi Sluzhby. Trudy Nauchno-issledovatel'skikh Uchrezhdenii. Ser. 1. Meteorologiia*, No. 34, Fizika Prizemnogo Sloia Atmosfery, p. 77–82, 1946. 3 figs., 1 refs., 4 eqs.

551.551

DLC—The conclusions of this work are made on the basis of theoretical investigations carried out by BUDYKO and published in *Akademiia Nauk SSSR. Ser. Geogr. i Geofiz. Izvestiia*, No. 4, 1946, the observations made by SAPOZHNIKOVA at Saratov during the summer of 1943 and author's observations at Leningrad during 1945. It has been found that the value of turbulent heat exchange with inversion conditions is insignificant in comparison to the value of heat flow with superadiabatic gradients. *Subject Headings*: 1. Turbulent transfer of heat 2. Atmospheric turbulence 3. U.S.S.R. —*N. T. Z.*

ZUBENOK, L.

"The Problem of Chnages in Soil Temperature," Trudy GGO, No 6, 1947.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

30772. ZUBENOK, L. I.

Opyt rascheta radiatsionnogo balansa kosvennym metodom. Trudy Grav. geofiz. observatorii, vyp. 18, 1949, c. 51-55. -- Bibliogr: 6 nazv.

30771. ZUBENOK, L. I.

Izmereniye al'bedo nekotorykh rastitel'nykh pokorovov s samoleta. Trudy Glav. geofiz. observatorii, vyp. 18, 1949, s. 56-60. -- Bibliogr: 7 nazv.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

ZUBENOK, L. I., BERLYAND, T. G. and BUDYKO, M. I.

"Procedure for Climatological Computations of the Components of Heat Balance". Trudy Gl. Geofiz. Observ., No 48, pp 5-16, 1954.

The equation of heat balance can be represented in the form $R + LE + P + A = 0$, where R is the radiational balance of the underlying surface, LE is the expenditure of heat in evaporation, P is the turbulent heat exchange between the underlying surface and the atmosphere, and A is the heat exchange between the underlying surface and lower lying layers. For dry land the quantity A is equal to the change in heat content of soil over a definite period and in the mean year is close to zero. For oceans the quantity A in the mean year is equal to the input or output of heat in consequence of horizontal heat exchange connected with sea currents. In conclusion the authors present examples of computations of the components of heat balance for Moscow and a point on the ocean. (RZhGeol, No 11, 1955)

SO: Sum No 884, 9 Apr 1956

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

BUDYKO, M.I.; ZUBENOK, L.I.; STROKINA, O.A.

Determining the integral factor of turbulent diffusion. Meteor. i gidrol. no.12:34-35 D '56. (MIRA 10:1)
(Atmosphere)

ZUBENOK, L.I.; D'YACHENKO, L.N.

Evaporation in regions of reclaimed virgin and idle lands. Trudy GGO no.66:54-60 '56. (MLRA 10:3)
(Evaporation)

ZUBENOK, L.I.; D'YACHENKO, L.N.

Evaporation from land surfaces in European U.S.S.R. Trudy GGO no.66:61-67 '56. (MLRA 10:3)
(Evaporation)

ZUBENOK, L.I.; YEFIMOVA, N.A.; MUKHENBERG, V.V.

Materials on the division of the U.S.S.R. into climatic regions.
Trudy GGO no.76:98-112 '58. (MIRA 11:11)
(Russia--Climate)

BUDYKO, M.I.; ZUBENOK, L.I.

Determining the evaporation from the surface of the soil.
Izv. AN SSSR. Ser. geog. no.6:3-17 N-D '61. (MIRA 14:12)

1. Glavnaya geofizicheskaya observatoriya im. A.I. Voyeykova.
(Evaporation)

BUDYKO, M.I.; YEFIMOVA, N.A.; ZUBENOK, L.I.; STRCKINA, L.A.

The heat balance of the earth's surface. Izv. AN SSSR. Ser. geog no.1:6-16 Ja-F '62. (MIRA 15:2)

1. Glavnaya geofizicheskaya observatoriya im. A.I.Voyeykova.
(Earth temperature)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

S/179/61/000/006/011/011
E032/E514

AUTHORS: Zhukova, L.A., Kolokolova, N.A. and Sukhnev, V.A. (Moscow)

TITLE: Measurement of small pressure differences in rarefied gases

PERIODICAL: Akademiya nauk SSSR, Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, no.6, 1961, 174-177

TEXT: This paper is concerned with the selection of manometers and manometric fluids for the measurement of small pressure differences in rarefied gases. The particular type of manometers which is considered by the present authors is the U-tube manometers of the two-liquid type with either one or two separation surfaces and a reservoir in each limb. A brief survey is given of the published Soviet literature on this subject, together with an account of some versions of the U-tube manometer used by the authors. In the latter work they have made a detailed study of manometers filled with combinations of ethers of the meta-phenyl-diacetic acid and polyorganosiloxane liquids. In this

Card 1/2

AUTHORS: Buyanov, N.V., Zubkovskiy, S.L., Kovalenko, T.V., Korotkov, V.F., Lindstrem, V.R. 32-24-6-15/44

TITLE: Spectral Analysis of Steels on the Modernized Apparatus FES -1 (Spektral'nyy analiz staley na modernizirovannom pribore FES -1)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 6, pp 703-708 (USSR)

ABSTRACT: Photometrical reproducibility was determined, and in this connection it was found that the average arithmetical error on the sensitivity scale of 1:1 amounted to ± 0.5% and with 5:1 to ± 0.15%. Measurements of the intensity of the line of iron 5227 Å obtained from an Armco iron sample showed that on the scale 1:1 a reproducibility of ± 1.1% is obtained with a 4.5 ampere current, and that at 5:1 it amounts to ± 0.62%. It was observed that a distance between electrons of 1.5 mm warrants accurate reading and good reproducibility; a base electrode of copper was used on this occasion. For the purpose of working out the method of analysis the etalons of the UIM, of the TsNIIChM, and of the plants "Elektrostal'", "Serp i molot" and "Dneprospetsstal'" were used. The spectral line, measuring accuracy, and reproducibility in connection with the analysis are mentioned. Carbon-containing low- and medium-alloyed steels were analyzed, and data concerning the

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determination of silicon, molybdenum, titanium, vanadium, chromium, manganese, tungsten, and nickel are given, as also data for the high-speed steels P 9 and P 18 and the stainless steel EYaIT. The influence exercised by chemical composition upon the intensity of the not separated light was investigated in binary alloys Fe-Cr, Fe-W, Fe-Ni, and Fe-Si. The results obtained are given in form of graphs; it was found that in the case of Fe-W and Fe-Cr samples the intensity of light increases with an increase of tungsten and chromium concentration respectively, whereas the contrary is the case with Fe-Ni and Fe-Si systems. On the strength of these findings it is assumed that for the purpose of stabilizing light intensity the corresponding metal can be used, as e.g. nickel as electrode support in analyses of the Fe-W and Fe-Cr systems. There are 7 figures and 1 table.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy)

1. Steel--Spectra 2. Steel--Testing equipment 3. Steel--Test results 4. Spectrum analyzers--Performance

ZUBENOK, L.I.

Determining evaporation from the land surface. Meteor. i gidrol. no.10:42-44 O '65. (MIRA 18:9)

1. Glavnaya geofizicheskaya observatoriya, Leningrad.

ACC NR: AP7008890 SOURCE CODE: UR/0362/66/002/012/1320/1322

AUTHOR: Mikhel', V. M.; Zubenok, L. I.

ORG: none

TITLE: Scientific session "A. I. Voyeykov and the present-day problems of climatology"

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 12, 1966, 1320-1322

TOPIC TAGS: atmospheric circulation, climatology, atmospheric thermodynamics, meteorologic conference

SUB CODE: 04

ABSTRACT: A session of the Scientific Council of the Main Geophysical Observatory was held during the period 2-6 March 1966 at Leningrad. The program revolved around three subjects: the heat balance, atmospheric circulation and applied climatology. Some of the representative reports were: B. A. Dzerdzeyevskiy discussed dynamic climatology, especially his own studies which have revealed epochal disruptions of the temperature and precipitation fields over extensive areas of the earth. Kh. P. Pogosyan pointed out that the influence of the underlying surface is not limited to the troposphere but extends to the lower stratosphere. M. I. Yudin told of the stability of fluctuations of the pressure field over the northern hemisphere revealed by the statistical method. O. A. Drozdov

Card 1/2 UDC: 551.58

0929 1693

ACC NR: AP7008890

pointed out the role of circulatory and hydrothermal factors in drought formation and its change from month to month. He analyzed the relationship between fluctuations of the levels of the Caspian and Aral Seas. Ye. S. Rubinshteyn and L. G. Polozova gave data on long-term changes of temperature and the characteristics of atmospheric circulation on a global scale. S. P. Khromov analyzed the present status of the problem of atmospheric circulation in the tropics. G. M. Tauber described the characteristics of atmospheric circulation in the southern hemisphere in dependence on the distribution of land and sea. O. B. Mertsalova told of work on automation of computations of the statistical characteristics of the free atmosphere made at the Institute of Aeroclimatology. M. Ye. Berlyand told of work at the Main Geophysical Observatory on the geographical distribution of atmospheric contamination in industrial regions in dependence on turbulent exchange, inversions at the surface and aloft, microclimatic characteristics of the relief, etc. F. F. Davitaya discussed the agroclimatic resources of the USSR. M. I. Budyko and others described a quantitative theory of photosynthesis and analyzed the influence of meteorological factors on the productivity of the vegetation cover. Ye. S. Selezneva and V. M. Drozdova gave the results of studies on atmospheric contamination and the chemical composition of precipitation in the USSR. [JPRS: 39,718]

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

DR[illegible], S.A.; [illegible]REN'K, I.I.; MEGHAZEV, I.M.

[illegible] (MIRA 18:8)
[illegible].

[illegible]
Leningrad.

ZUBENOK, L.I.

[illegible] Trudy GPK no.[illegible]-160 '65.

[illegible] (MIRA 18:8)

ZUBENOK, L.I.

Effect of temperature anomalies on the ice cover of the Arctic.
Meteor. i gidrol. no.6:25-30 Je '63. (MIRA 16:6)

1. Glavnaya geofizicheskaya observatoriya.
(Arctic regions--Ice) (Atmospheric temperature)

ZUBCHUK, N.V. (Moskva, 76, M. Ostroumovskaya ul., d.1B, kv. 235)

Significance of bronchography in the diagnosis of bronchial cancer [with summary in English]. Vop.onk. 3 no.5:574-577 '57. (MIRA 11:2)

1. Iz rentgenodiagnosticheskogo otdela (zav. - prof. I.A.Shekhter) Gosudarstvennogo nauchno-issledovatel'skogo instituta rentgenologii i radiologii im. V.M.Molotova (dir. - dots. I.G.Lagunova)

(BRONCHI, neoplasms
diag., role of bronchography)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

ZUBENKO, Yu.V.; KLIMIN, A.I.; SOKOL'SKAYA, I.L.

Volt-ampere characteristics of autoelectronic currents from semiconductors. Fiz.tver.tela 1 no.12:1845-1847 D '59. (MIRA 13:5)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
(Semiconductors) (Field emission)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

ZUBENKO, V.G.; TURKEVICH, N.M.

Synthesis of thiazolidinone offering biological interest. Part 7: Synthesis of N-substituted derivatives of rhodanine, starting from rhodanacetates. Zhur. ob. khim. 27 no.12:3275-3278 D '57. (MIRA 11:3)

1. L'vovskiy meditsinskiy institut.
(Rhodanine)

ZUBENKO, V.G. [Zubenko, V.H.]; TURKEVICH, N.M. [Turkevych, M.M.]

Synthesis of azolidine derivatives with a possible hypoglycemic effect. Report No. 4: 2-Sulfacyl-3-alkyl derivatives of pseudothiohydantoin. Farmatsev. zhur. 20 no.5:3-9 '65.
(MIRA 18:11)

1. Kafedra farmatsevticheskoy khimii L'vovskogo meditsinskogo instituta. Submitted March 29, 1965.

ZUBENKO, V.V.

USSR / Structural Crystallography. E-3

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9183

Author : Zubenko, V.V., Umanskiy, M.M.
Inst : Moscow State University
Title : X-ray Diffraction Determination of the Coefficients of Thermal Expansion of Polycrystalline Substances in the Range from -50 to +100° C.

Orig Pub : Kristallografiya, 1956, 1, No 4, 436, 441

Abstract : Description of an X-ray-focusing camera for precision determination of the parameters of the elementary cell of polycrystalline substances in the range from -50 to +100° C. The entire camera together with the specimen and the film are placed in a thermostatic bath. A method of determining the effective diameter ofthe film by placing light marks on the film at the temperature of investigation is indicated. Examples of the determination of the coefficient of thermal expansion of aluminum and bismuth are given.

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23125
S/181/61/003/005/030/042
B108/B209

9,3120 (1003, 1138, 1331)
26.2531

AUTHORS: Zubenko, Yu. V. and Sokol'skaya, I. L.

TITLE: Field and thermionic emission of thorium and barium layers upon tungsten

PERIODICAL: Fizika tverdogo tela, v. 3, no. 5, 1961, 1561-1565

TEXT: The authors studied the thermionic and field emission of tungsten as depending on the thickness of thorium and barium layers upon it. Earlier investigations showed that the work function of tungsten had a minimum when tungsten was covered by a monatomic layer of Th or Ba. However, measurements in a vacuum of $5 \cdot 10^{-9}$ mm Hg showed a monotonic rise in emission with growing thickness of the coating. The authors explain a possible emission maximum by the presence of oxygen which, in the case of an insufficient vacuum, is adsorbed on the surface of tungsten. In order to prove their supposition, they measured the thermionic emission of thorium and the field emission of thorium and barium upon tungsten as depending on the thickness of the layer at a vacuum not higher than

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Field and thermionic emission of ...

$5 \cdot 10^{-9}$ mm Hg. The thermoemission was studied with the help of a diode with a 7 or 20 mm long anode opposite the middle of a 100 mm long and 0.112 mm thick tungsten wire. The thorium source consisted of a tantalum strip with a molybdenum foil welded on it, into which thorium powder was pressed. In the measurements, this thorium source had the potential of the cathode. Fig. 2 shows the thermionic emission of tungsten as depending on the thickness of the thorium layer, taken at a temperature of 1800°K. In the case of field emission which was measured under the same conditions as thermionic emission, it is more convenient to observe the decrease in anode voltage, required to maintain a constant autoelectronic emission, with growing thickness of the thorium or barium layers. Fig. 3 shows the result for a thorium layer at a current of 6 μa. The curves for barium are qualitatively the same. The work function of barium and thorium was determined to be 2.1 and 3.0 ev, respectively. A monotonic rise in emission with the thickness of the layer is characteristic of metal layers adsorbed on a metal; the occurrence of a maximum is related to the chemosorption of oxygen upon tungsten (Ref. 11: R. Gomer. Adv. in Catalysis, VII, 93, 1955; I. A. Becker. Adv. in Catalysis, VII, 135, 1955). There are 4 figures and

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Field and thermionic emission of ...

13 references: 12 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet imeni A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

SUBMITTED: November 29, 1960

Fig. 2. Legend: Abscissa: t (time of thorium evaporation in minutes; ordinate: log I (I - current in μa).

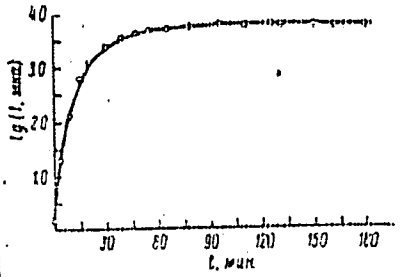

Fig. 2

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ZUBENKO, Yu.V.

Study of the shape of W_2C single crystal emitters by means of an electron microscope. Radiotekh. i elektron. 6 no.3:381-383 Mr '61. (MIRA 14:3)

(Cathodes) (Electron microscope)

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ZUBENYA, Kastus' (Lyubanskogo rayona)

Seventeen years later. Rab.i sial. 38 no.5:15 My '62.
(MIRA 16:1)

(World War, 1939-1945--Children)

BOROWCZYK, M.; JURKIEWICZ, L.; ZUBER, A.

New radioisotope experiences in determining the parameters of groundwater flow in Poland. Nukleonika 9 no.7/8:681-695 '64

1. Geologic Institute, Warsaw (for Borowczyk). 2. Institute of Nuclear Technology, School of Mining and Metallurgy, Krakow (for Jurkiewicz). 3. Institute of Nuclear Research, Krakow Branch (for Zuber).

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D209/D303

21.5300

AUTHORS: Czubek, Jan, Florkowski, Tadeusz, Górski, Ludwik, and Zuber, Andrzej

TITLE: Comparison of spectra obtained for various measurement parameters in a single-channel automatic gamma-ray spectrometer

PERIODICAL: Nukleonik, v. 6, no. 3, 1961, 169-180

TEXT: This paper presents the results of calculations aimed at shortening the time taken in measurements made with continuous recording single-channel spectrometers, and reports an experimental test of them. The authors consider a variation of channel width, l, channel velocity, v, and ratemeter time constant, τ, only, and examine first the effect of these on the apparent position of a photopeak maximum. By describing the true peak shape as a Gaussian, and integrating over channel width, the signal at the ratemeter output is found to be

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$$J_3(x) = \frac{e^{-\frac{x}{v\tau}}}{v\tau} \int_{-\infty}^{x} J_2(z) e^{\frac{z}{v\tau}} dz \qquad (4)$$

where $J_2(x) = \frac{1}{I} \int_{x-1/2}^{x+1/2} J_1(x)dx = \frac{\sigma\sqrt{2}}{I} \left[F\left(\frac{x+\frac{1}{2}}{\sigma\sqrt{2}}\right) - F\left(\frac{x-\frac{1}{2}}{\sigma\sqrt{2}}\right) \right]$ (2)

$$F(x) = \int_0^x e^{-t^2} dt \quad (3) \qquad h^2 = 2\sqrt{2 \ln 2}\,\sigma \quad (6),$$ h being the half-width of the peak and x the variable in the energy range (= 0 at the maximum). Eq. (4) has been numerically integrated for various values of the parameters. From this, further functions $h_3 = f_1(n)$

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and $d = f_2(h)$ are calculated, and are shown in units of $v\tau$ in Fig. 2, h_3 is the apparent half-width of the peak, and d the distance of the true maximum from the beginning of the apparent half-width. The relation between these two for $\frac{h_3}{v\tau} > 4$ is given by Eq. (8) $\frac{h_3 - 2d}{h_3} = \frac{2v\tau}{h_3}$. So that the value of τ corresponding to a permissible deformation of the spectrum may be calculated once a value of h_3 has been measured, Eq. (4) is further used to calculate the ratio of the peak height for various v and τ to that obtained for $v = 0$, and $\tau \longrightarrow 0$ as a function of h_3, and this is shown in Fig. 5. Finally, the effect of finite channel width on displacement of the peak maximum is considered, so that to determine the true peak maximum from a measurement, the correction d corresponding to the measured h_3 is first applied, followed

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Comparison of spectra ...

by a further correction equal to half the channel width. The calculations were checked experimentally by measuring with conventional apparatus the displacement of the peak maximum and the ratio of the peak maxima for a moving and a static channel. Over a range of variation of the product $v\tau$ of a factor 20, all the corrected measurements gave values of the energy of a photopeak maximum which lay within the limits of uncertainty due to the channel position. The correction for finite channel width was also checked, but it is pointed out that channel width should always be less than the width across the base of the photopeak. In conclusion, the authors note that while the calculations may find considerable application, their use is restricted to fairly simple spectra, in which the energy peaks are well separated and contrasted with the background. There are 6 figures, and 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: B. Breitenberger: Scintillation Spectrometer Statistics. Progress in Nuclear Physics, Ed. O.R.

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Comparison of spectra ...

Frisch. Vol. 4, London-New York, 1955, Pergamon Press; /Abstractor's note: Breitenberger and Frisch, both mis-spelt in the article/; and J.R. Haskins, Rev.Sci. Instrum. 28, 425, 1957.

ASSOCIATION: Institute of Nuclear Research, Cracow; Academy of Mining and Metallurgy, Cracow.

SUBMITTED: January, 1961

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CZUBEK, Jan; FLORKOWSKI, Tadeusz; GORSKI, Ludwik; ZUBER, Andrzej

Comparison of spectra obtained for various measurement parameters in a single-channel automatic gamma-ray spectrometer. Nukleonika 6 no. 3: 169-180 '61.

1. Institute of Nuclear Research, Krakow, and Academy of Mining and Metallurgy, Krakow.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065520013-7"

CZUBEK, Jan A.; ZUBER, Andrzej

Nomograms for the determination of the permissible maximum doses of speedy neutrons from Po-Be sources. Nukleonika 7 no.6:419-424 '62.

1. Instytut Badan Jadrowych, Polska Akademia Nauk, Zaklad VI, Krakow (for Czubek). 2. Katedra Fizyki II, Akademia Gorniczo-Hutnicza, Krakow (for Zuber).

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P/046/62/007/006/004/005
D204/D307

21,7200

AUTHORS: Czubek, Jan. A. and Zuber, Andrzej

TITLE: Nomograms for calculating permissible doses of fast neutrons derived from Po + Be sources

PERIODICAL: Nukleonika, v. 7, no. 6, 1962, 419 - 423

TEXT: The nomograms, showing permissible doses as a function of the distance and activity of the source, permissible working times at various distances from the source and the change of source activity with time, have been constructed to ensure safety in work with Po + Be sources, in view of the lack of dose control in Poland. The nomograms are based on the assumptions that the permissible rate of flow (Q) of fast neutrons in 10 n/cm^2.sec for a 40-hr. working week and that, in air, Q is inversely proportional to the square of the distance. Q was later arbitrarily reduced by 10 % to allow for neutron scatter in the surrounding materials. The working day (6-day week) was taken as the basic time unit, so that a daily permissible Q is 2.16 x 10^5 n/cm^2. The calculations were made for Soviet Po - Be sources with an activity of 1.8 x 10^6 n/sec. curie. The use of

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