2

L 26668-65
ACCESSION NR: AP5003314

with a titanium getter. Tests were made with dc from storage batteries or with stabilized ac, at T = 2400K. The authors have shown earlier (Izv. AN SSSR seriya fiz. 1962, no. 11, 1349) that the emission from such a filament depends on the work functions of the individual spots produced on it by heat treatment and activation, and these in turn differ for ac and for dc. The results of the present investigation have shown that the spottiness and roughness of samples heated with alternating current is much lower than that of samples heated with direct current. The effect of the maximum temperature and of the barium sputtering time are discussed. The values obtained for the work functions and the heats of adsorption of barium are 4.90 and 3.2 eV in the cas of dc and 4.45 and 4.25 eV in the case of ac. This agrees with earlier data by one of the authors (Shuppe, Elektronnaya emissiya metallicheskikh kristallov [Electron Emission of Metallic Crystals], Izd. SAGU, Tashkent, 1959). Orig. art. has: 8 figures and 2 formulas.

L 26668-65
ACCESSION NR: AP5003314

ASSOCIATION: Tashkentskiy gosuniversitet im. V. I. Lenina (Tashkent State University)

SUBMITTED: 07Jul64 ENCL: 01 SUB CODE: MM, GC

NR REF SOV: 005 OTHER: 001

Card 3/4

KAKHAROV, O.; SHUPPE, G.N.

Determining the heat of adsorption of thorium on tungsten filaments as related to the method of filament processing. Dokl. AN Uz. SSR 21 no. 11:24-26 '64. (MIRA 18:12)

1. Tashkentskiy gosudarstvennyy universitet imeni Lenina. Submitted August 4, 1964.

L 3349-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JG UR/0181/65/007/007/1970/1973

ACCESSION NR: AP5017284

63
60
B

AUTHORS: Azizov, U. V.; Shuppe, G. N.

TITLE: Emission and adsorption characteristics of the faces of a tungsten single crystal

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 1970-1973

TOPIC TAGS: tungsten, electron emission, barium, adsorption, work function

ABSTRACT: The Richarson-line method was used to investigate all the faces of single-crystal tungsten of interest, namely (110), (112), (100), and (111). The electron work function from pure tungsten and from tungsten coated with barium, the average heats of adsorption of barium near the saturation point of the emission current, and the constants $A_0(1 - r)$ (A_0 -- emission constant, r -- reflection coefficient averaged over the electron energy) were measured for both pure surfaces and for barium-coated surfaces. The measurements were made in the instrument shown in Fig. 1 of the Enclosure, in which all the electrodes

were flat to facilitate the data reduction. All the results are summarized in the table of the Enclosure. Differences between these results and those obtained by others are briefly discussed. Orig. art. has: 5 figures, 1 formula, and 1 table.

ASSOCIATION: Gosudarstvennyy universitet im. V. I. Lenina, Tashkent (Tashkent State University) 44,55

SUBMITTED: 27Nov64 ENCL: 01 SUB CODE: SS, EM

NR REF SOV: 006 OTHER: 002

L 3349-66

ACCESSION NR: AP5017284

ENCLOSURE: 01

O

Table 1. Emission and adsorption characteristics of the faces of tungsten

Face	φ, ev	A_0, a/deg^{2}cm^2	$\varphi_{Ba-\{W_{hkl}\}}$, ev	$Q_{Ba-\{W_{hkl}\}}$, ev	$\alpha = \left(\frac{d\varphi}{dT}\right)_{hkl}$, ev/deg
110	5.40 ± 0.05	200	2.3 ± 0.1 (all faces)	2.33 ± 0.05	$-6 \cdot 10^{-5}$
112	4.80 ± 0.05	70		4.72 ± 0.05	$-6 \cdot 10^{-5}$
100	4.55 ± 0.05	127		5.28 ± 0.05	$-1 \cdot 10^{-5}$
111	4.42 ± 0.03	130		4.49 ± 0.05	$+5 \cdot 10^{-5}$

Card 3/3 DP

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550220009-7"

L 9254-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(m)-2/EWA(c) IJP(c) JD/JG/AT

ACC NR: AP5022719 SOURCE CODE: UR/0181/65/007/009/2759/2762

83

B

AUTHOR: Azizov, U. V.; Vakhidov, U. V.; Sultanov, V. M.; Sheynberg, B. N.; Shuppe, G. N.

44,55 44,55 44,55 44,55 44,55

ORG: Tashkent State University im. V. I. Lenin (Tashkentskiy gosudarstvennyy universitet)

55,44

TITLE: Emission properties of a molybdenum single crystal

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2759-2762

21,44,55

TOPIC TAGS: single crystal, molybdenum, work function, electron emission

15 44,55,27

ABSTRACT: Richardson lines were plotted for measuring the work function of electrons on the three main faces of a molybdenum single crystal: (110), (100) and (111). In addition to this, the work function of surface (111) was measured during vaporized deposition of barium on this face. The methods used in preparation of the specimens and making the measurements are described. The equipment is described in other papers. Curves are given for ln I/T^2 as a function of T^{-1} for the three faces studied. The data obtained from these curves are used for calculating the work functions and Richardson constants (see table)

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2

0

TABLE

Face	ϕ, ev	$A_0(1-r)$, a/deg$^2\cdot$cm^2
(110)	5.10 ± 0.05	270 ± 20
(100)	4.40 ± 0.05	230 ± 20
(111)	4.15 ± 0.05	140 ± 20

The method and formulas used for calculating the Richardson constants are described. It was found that the Ba-Mo$^{(III)}$ cathode current is directly proportional to the barium concentration. The work function in this case was found to be 2.30 ± 0.1 ev, while the effective Richardson constant was 60 a/deg$^2\cdot$cm^2. Data from desorption curves show that the mean heat of adsorption for barium on surface (111) of molybdenum is 3.90-4.00 ev. The results indicate that the contrast in the work function is nearly as great in a molybdenum crystal as in tungsten: $\Delta\phi = \phi_{max}\ \phi_{min} \simeq 1$ ev. Orig. art. has: 5 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 09Apr65/ ORIG REF: 003/ OTH REF: 000

SULTANOV, V.M.; SHUPPE, G.N.

Work function and heat of adsorption values of barium at individual faces of a tungsten single crystal. Izv. AN Uz.SSR. Ser. fiz.-mat. nauk 9 no.5:49-53 '65. (MIRA 18:11)

1. Tashkentskiy gosudarstvennyy universitet imeni Lenina. Submitted December 25, 1964.

L 25704-66 EWT(1)/EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/T/EWP(t)/ETC(m)-6 IJP(c)
ACC NR: AP5026347 JD/JG/AT SOURCE CODE: UR/0166/65/000/005/0049/0053

AUTHOR: Sultanov, V. M.; Shuppe, G. N.

83

ORG: Tashkent State University im. V. I. Lenin (Tashkentskiy gosuniversitet)

B

TITLE: Work functions and heats of adsorption of barium on different faces of single-crystal tungsten

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 5, 1965, 49-53

TOPIC TAGS: tungsten, barium, single crystal, work function, thermionic emission, adsorption

ABSTRACT: The work function was measured by the method of thermionic emission from large single crystals, using apparatus similar to that described by the author earlier (Radiotekhnika i elektronika, v. 9, 317, 1964, No. 2). The work functions obtained were 4.40 ± 0.03, 4.30 ± 0.03, 4.53 ± 0.05, 4.76 ± 0.05, and 5.33 ± 0.03 ev for the faces (111), (116), (100), (112), and (110) respectively. The heats of adsorption of barium were measured with the same apparatus, and the test procedure is described. The average values for the heats of adsorption were 2.2 ± 0.1, 4.7 ± 0.1, 5.0 ± 0.1, 4.7 ± 0.1, and 3.6 ± 0.1 ev for the faces (110), (112), (100), (111), and (116). When all the tungsten faces were covered with barium, the work function, determined by using the Richardson curve, was the same for all faces, 2.3 ± 0.1 ev. Orig. art. has: 6 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 25Dec64/ ORIG REF: 004/ OTH REF: 003

Card 1/1

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550220009-7"

L 31008-66 EWT(m)/EWP(t) IJP(c) JD/JG
ACCESSION NR: AP6008550 SOURCE CODE: UR/0166/66/000/001/0065/0068

63
B

AUTHOR: Kakharov, O.; Shuppe, G. N.

ORG: Tashkent State University im. V. I. Lenin (Tashkentskiy gosuniversitet); Bukhara Pedagogic Institute (Bukharskiy pedinstitut)

TITLE: Determination of the heat of adsorption of cesium on filamentary tungsten depending on the method of filament treatment

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1966, 65-68

TOPIC TAGS: cesium, tungsten, adsorption

ABSTRACT: The problem investigated was the behavior of cesium on tungsten. For this purpose, a study was made in a sealed device placed in a thermostat, in which various vapor pressures of cesium could be created, corresponding to a temperature range from -180 to +100C. All the basic inputs of the device were fitted into glass tubes, which were heated by small heaters on the outside to prevent the precipitation of layers of cesium near the inputs on the inner surface of the glass and the appearance of conductivity between the inputs. The vacuum in the device with a frozen source of cesium was of the order of 10^{-9} mm Hg. The

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L 25479-66 EPF(n)-2/EWT(1)/EWT(m)/T/EWP(t) IJP(c) WW/JD/JG

ACC NR: AP6009688 SOURCE CODE: UR/0181/66/008/003/0936/0938

AUTHOR: Dikova, L. K.; Sytaya, Ye. P.; Shuppe, G. N.

ORG: Tashkent State University im. V. I. Lenina (Tashkentskiy gosudarstvennyy universitet)

TITLE: Thermoelectronic properties of the (110) and (111) faces of single-crystal tungsten coated with a thorium film

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 936-938

TOPIC TAGS: thermoelectric property, electron emission, tungsten, single crystal, work function, metal film, thorium, pressure effect

ABSTRACT: To check on the theoretical conclusions of E. P. Gyftopoulos and I. D. Levine (J. Appl. Phys. v. 33, 67, 1962) that work-function minima can appear on thorium films only if deposited on the (110) face of tungsten, the authors investigated in the temperature range 1300--1600K the variation of the emission current with time following sputtering of thorium on the (110) and (111) faces of monocrystalline strips of tungsten. The crystals were prepared by a procedure described earlier (Nauch. tr. Tashkent. gos. univ., vyp. 221, 123, 1963) and tested in a specially designed instrument (Fig. 1). The test results have shown that no minima of work functions occurred for the (110) face at pressures 10^{-7}--10^{-9} mm Hg, or for the (111) face at 10^{-8}--10^{-9} mm Hg. The only work-function minima occurred for the (111) face when the residual-gas pressure was approximately 10^{-7} mm Hg, and also during the initial stages of the test, in agreement with the earlier results. The work function

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L 25479-66

ACC NR: AP6009688

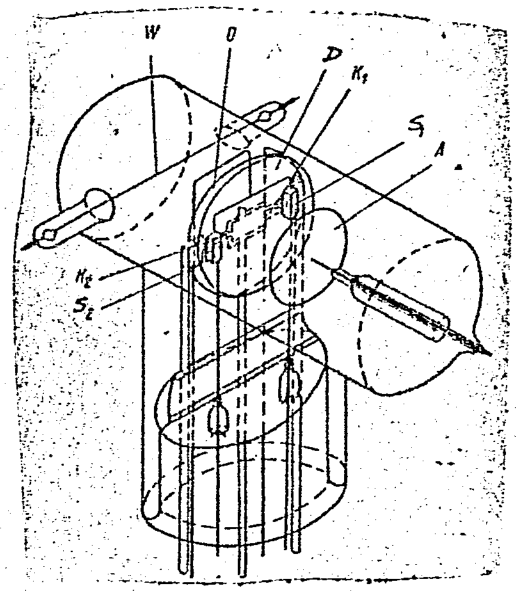

Fig. 1. Schematic diagram of instrument. K -- single crystals, D -- diaphragm, O -- guard disc, S -- source, A -- anode.

of the crystal coated with thorium was found to be equal to the work function of pure thorium (3.4 ev) for both faces. Causes of erroneous results obtained by others are briefly discussed. Orig. art. has: 5 figures.

SUB CODE: 20 SUBM DATE: 17Jul65/ ORIG REF: 003 OTH REF: 003

Card 2/2

L 29980-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/WW/JG

ACC NR: AP6012475 SOURCE CODE: UR/0181/66/008/004/1140/1146

AUTHOR: Protopopov, O. D.; Mikheyeva, Ye. V.; Sheynberg, B. N.; Shuppe, G. N. 70

ORG: Tashkent State University (Tashkentskiy gosudarstvennyy universitet) B

TITLE: Emission parameters of tantalum and molybdenum single crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1140-1146

TOPIC TAGS: tantalum, molybdenum, crystal, electron emission, work function, crystal lattice structure

ABSTRACT: This is a continuation of earlier work (FTT v. 7, 3759, 1965 and others) devoted to the work function of electrons from different faces of single crystals of tungsten and molybdenum. The present investigation reports similar measurements with large crystals of tantalum, accompanied by new measurements on molybdenum and comparing the results and refining earlier data. Most measurements were made in a cylindrical system of electrodes (Fig. 1), although some were made with a flat system of electrodes used in the earlier experiments. The measurements were made by the Richardson method. The values obtained for the work functions of molybdenum are $\varphi_{110} = 5.00 \pm 0.05$, $\varphi_{112} = 4.55 \pm 0.05$, $\varphi_{100} = 4.40 \pm 0.02$, and $\varphi_{111} = 4.10 \pm 0.02$ ev. The values for tantalum were $\varphi_{110} = 4.80 \pm 0.02$, $\varphi_{100} = 4.15 \pm 0.02$, and $\varphi_{111} = 4.00 \pm 0.02$ ev. The results for tungsten, molybdenum, and tantalum are tabulated and compared, and some of the differences are discussed. It is concluded that for metals with a body-centered cubic lattice the average work function is closest to that in the [100] direction. The difference between the maximum and the minimum work function is

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ACC NR: AP6030026 SOURCE CODE: UR/0020/66/169/005/1209/1211

AUTHOR: Shuppe, N. G.

ORG: none

TITLE: Kinetics of RNA synthesis in living cells

SOURCE: AN SSSR. Doklady, v. 169, no. 5, 1966, 1209-1211

TOPIC TAGS: biosynthesis, RNA, RNS synthesis, in vivo synthesis

ABSTRACT:

Total, newly synthesized, cellular RNA consists of a mixture of guanine-cytosine- and alanine-uracil-type RNA molecules. The figures compare theoretical and experimental data on the change in the relative amounts of the types of RNA with time. These relationships can be expressed mathematically as shown thus the agreement of the theoretical and actual results. [WA-50; CBE No.11]

SUB CODE: 06/ SUBM DATE: 15Dec65/ ORIG REF: 007/ OTH REF: 001/

UDC: 547.963.3

Card 1/1

GAZARYAN, K.G.; SHUPPE, N.G.; PROKOSHKIN, B.D.

Synthesis of AU-type RNA in animal cells. Dokl. AN SSSR 164 no.6:1413-1416 O '65. (MIRA 18:10)

1. Submitted February 23, 1965.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550220009-7"

SYTAYA, Ye.P.; SHUPPE, N.I.

Ionization of iodine atoms on the surface of heated tantalum. Izv. vys. ucheb. zav.; fiz no.6:52-56 '61. (MIRA 15:1)

1. Sredneaziatskiy gosudarstvennyy universitet imeni Lenina.
(Iodine) (Tantalum) (Ionization)

SYTAYA, Ye.P.; SHUPPE, N.G.

Measurement of the electronic emission with time from tungsten wires calcinated by direct and alternating current. Izv.AN SSSR Ser.fiz. 26 no.11:1349-1353 N '62. (MIRA 15:12)
(Thermionic emission)

SYTAYA, Ye.P.; SHUPPE, N.G.

Surface ionization of iodine and sodium on an incandescent polycrystalline tantalum filament. Nauch. trudy TashGu no.221. Fiz. nauki no.21:103-112 '63. (MIRA 17:4)

GAFARYAN, K.G., SHUPPE, N.G.; KUL'MINSKAYA, A.S.

RNA synthesis in the presence of small doses of actinomycin. Dokl. AN SSSR 160 no.6:1411-1413 F '65. (MIRA 18:2)

1. Submitted May 9, 1964.

BABYUK, A.G.; MIKHAYLOV, G.D.; SHUPSHPANOV, P.I., red.; SERGEYEVA, A.S., tekhn. red.

[Using ultrasonic techniques for the formation of emulsions; practical work in physics]Poluchenie emul'sii pri pomoshchi ul'trazvuka; praktikum po fizike. Pod red. Shushpanova, P.I. Moskva, No.28. 1962. 17 p. (MIRA 16:3)

1. Moscow. Institut narodnogo khozyaystva.
(Ultrasonic waves—Industrial applications) (Emulsions)

NIKOLAYCHUK, K.L., inzh.; SHUPTA, S.S.; BEL'MESOV, O.A., slesar'; ZHEREBTSOV, F.M., master; GOLOVANCHIKOV, A.M., mashinist elektrovoza.

Workers of Barabinsk train shed. Elek. i tepl. tiaga no.11:32-34 N '57. (MLRA 10:11)

1. Barabinsk, elektrovoznoye depo, Omskaya doroga. 2. Korrespondent gazety "Omskiy zheleznodorozhnik" (for Shupta).
(Railroads--Maintenance and repair)

SHU:YATSKIY, A.B.

Measuring the velocity and shape of water and rain drops. Trudy TSAO no.22:73-88 '57. (MIRA 11:4)
(Drops--Measurements)

SHUPYATSKIY, A.B.

Investigating precipitations by radar using the standard-target method. Trudy TSAO no.22:89-95 '57. (MIRA 11:4)
(Precipitation (Meteorology)) (Radar meteorology)

SHUPYATSKIY, A.B.

Radar technique of measuring the average size and concentration of drops during heavy rainfalls. Trudy TSAO no.20:58-66 '58. (MIRA 12:1)

(Radar meteorology) (Drops)

SHUPYATSKIY, A.B.

Photoimpact method of measuring the spectrum of raindrops.
Trudy TSAO no.20:88-94 '58. (MIRA 12:1)
(Drops--Photographic measurements)

SHUPYATSKIY, A. B., Candidate Phys-Math Sci (diss) -- "Long-distance measurement of the intensity of precipitation by the radar method". Leningrad, 1959. 9 pp (Main Geophys Observatory im A. I. Voyeykov), 120 copies (KL, No 22, 1959, 109)

SHUPYATSKIY, A.B.

3(7)

PHASE I BOOK EXPLOITATION SOV/3030

Leningrad. Tsentral'naya aerologicheskaya observatoriya

Nekotoryye voprosy fiziki oblakov (Some Problems in Cloud Physics) Moscow, Gidrometeoizdat (otd.) 1959. 94 p. (Series: Its: Trudy, vyp. 30) 650 copies printed.

Sponsoring Agency: Glavnoye upravleniya gidrometeorologicheskoy sluzhby.

Ed. (title page): A.M. Borovikova; Ed. (inside book): M.I. Sorokina; Tech. Ed.: T. Zemtsova.

PURPOSE: This collection of articles is intended for meteorologists and geophysicists.

COVERAGE: This is a collection of seven articles on problems in cloud physics. All articles were written between 1955-1958 but their publication was withheld for technical reasons. Individual articles discuss the origin of the subfrontal section in warm front cloud systems, radar scattering by non-spherical particles, unipolar charges in aerosols and atmospheric electricity, and the conditions of

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ice crystal growth in the free atmosphere. A base line theodolite method for surveying clouds is described, and a compound for obtaining replicas of cloud elements discussed. References accompany individual articles.

TABLE OF CONTENTS:

SHUPYATSKIY, A.B.

Determing the shape and velocity of falling droplets. Meteor. i gidrol. no.4:42-43 Ap '59. (MIRA 12:5)
(Dreps) (Precipitation (Meteerelegy))

3 (7) SOV/50-59-4-8/21

AUTHOR: Shupyatskiy, A. B.

TITLE: Determining the Shape and Speed of Falling Drops (Opredeleniye formy i skorosti padayushchikh kapel')

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 5, pp 42-43 (USSR)

ABSTRACT: A plant mounted in the Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory) is described here, and the results of the experiments for measuring the shape and speed of falling drops are given. The plant is based on the induction principle (Ref 1). The further development of this principle made it possible to determine not only the falling speed of the drops but also their shape and dimensions simultaneously with the speed. The receiving part of the plant consisted of 2 open rings of silver-plated 3-mm wire which were placed on plexiglass insulators in an earthed metal screen. The diameter of the rings varied between 15 and 3 cm according to the sensibility required. The drop carrying the electric charge flew through the first ring and induced on the conductor a pulse which was conducted through the screened cable to the input of the four-stage pulse amplifier. After the amplification, the signal was divided up

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Determining the Shape and Speed of Falling Drops SOV/50-59-4- /21

into 2 canals. One was used for measuring the speed, the other for photographing. The charged drop flying through did not only give signals for measuring its flying speed but controlled automatically the ignition of the illuminating lamp, the short-termed light pulse of which made it possible to photograph the drop at the moment where its flying speed was determined. - The plant also permitted natural summer raindrops to be registered. The measurements were made in summer 1956, in the District of the town of Dolgoprudnyy, Moscow oblast. The photos of the falling drops show that big drops - between r = 1.5 and 2.0 mm - do not show a spherical shape in falling as a rule. The amount of deformation is determined by the falling speed, the mass of the drop and the resistance coefficient of the medium. There are 2 figures and 1 reference.

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SHUPYATSKIY, A.B.

Scattering of radio waves by nonspherical particles. Trudy TSAO no.30:39-52 '59. (MIRA 12:9)
(Radar meteorology) (Cloud physics)

PHASE I BOOK EXPLOITATION SOV/5083

Shupyatskiy, Arkadiy Borisovich

Radiolokatsionnoye izmereniye intensivnosti i nekotorykh drugikh kharakteristik osadkov (Radar Measurement of the Intensity of Precipitations and of Some of Their Other Characteristics) Moscow, Gidrometeoizdat, 1960. 118 p. 1,200 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete ministrov SSSR. Tsentral'naya aerologicheskaya observatoriya.

Ed. (Title page): V. V. Kostarev; Ed.: M. I. Sorokina; Tech. Ed.: T. Ye. Zemtsova.

PURPOSE: This book is intended for meteorologists, aerologists, hydrologists and specialists in the application of radar in meteorology.

COVERAGE: The book discusses the theoretical and experimental bases for measuring macro- and microphysical characteristics of precipitation by means of radar. Theoretical

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SOV/5083

Radar Measurement (Cont.)

developments, methods and instruments, and various precipitation characteristics measured by means of radar are described. No personalities are mentioned. There are 78 references: 43 Soviet, 30 English, and 5 German.

TABLE OF CONTENTS:

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SHUPYATSKIY, A.B.

Possibility of estimating the water content of clouds by the minimal detectable echo-signal. Trudy TSAO no.35:66-78 '60.
(MIRA 13:11)

(Radar meteorology) (Cloud physics)

S/194/62/000/007/122/160
D413/D308

AUTHORS: Gerzhenzon, Yu.M., and Shupyatskiy, A.B.

TITLE: The scattering of elliptically-polarized radio waves by non-spherical particles in the atmosphere

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7-7-36 m (Tr. Tsentr. aerol. observ., no. 36, 1961, 102 - 108)

TEXT: The paper considers the theoretical questions of using elliptically-polarized waves for the radar investigation of non-spherical particles in clouds and precipitation. Water and ice particles are represented approximately as ellipsoids of revolution. From a general expression for the echo signal from a collection of non-spherical particles with elliptical polarization, the particular cases follow the magnitude of radar scattering for circular and linear polarizations, as a function of the form, orientation and phase state of the particles. The advantages of using elliptically polarized radiation are demonstrated. It follows from the calculations that by varying the parameters of the polarization one radar can be

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550220009-7"

SHUPYATSKIY, A.B.; MORGUNOV, S.F.

Application of elliptically polarized radio waves for studying clouds and precipitation. Dokl. AN SSSR 140 no.3:591-594 S '61.
(MIRA 14:9)

1. TSentral'naya aerologicheskaya observatoriya. Predstavleno akademikom Ye.K. Fedorovym.
(Radar meteorology)

ACCESSION NR: AT4011397 S/2789/63/000/047/0063/0084

AUTHOR: Minervin, V. Ye.; Shupyatskiy, A. B.

TITLE: Radar method of determining the phase state of clouds and precipitation

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy*, no. 47, 1963. Fizika oblakov, 63-84

TOPIC TAGS: clouds, precipitation, meteorology, meteorological radar, phase state, polarization, cloud particle, cloud physics, cumulonimbus cloud, nimbus cloud, cloud modification, aircraft icing, aircraft sounding, radiosonde, ice crystal, snow

ABSTRACT: The Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory) has developed a method for determining the phase state of clouds and precipitation which is based on the use of the dependence of the polarization properties of scattering particles on their form. The observational apparatus is described; the polarization apparatus is shown schematically in the Enclosure. Methods and observation errors are discussed. A number of examples of the distribution of the phase state of cloud and precipitation particles in space and time are given. The experimental results are compared with data obtained by air-

ACCESSION NR: AT4011397

craft and radiosonde soundings. This radar method makes it possible to evaluate the shape of the particles forming the echo signal, thereby indicating phase state. The crystallization level in cumulonimbus and nimbus clouds can be determined from the ground. Similarly, phase transition can be observed at the time of artificial modification of the supercooled part of the cloud and zones of possible aircraft icing can be determined. Areas between water-drop and mixed clouds which are filled with falling snow can be detected, which is impossible with other radars. The layer of thawing and change of particle shape during thawing can be determined. However, at this time only clouds and precipitation situated directly over the station antenna can be investigated, but means for increasing the potential of the apparatus are proposed. Orig. art. has: 7 figures, 7 formulas and 5 tables.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 00 DATE ACQ: 24Feb64 ENCL: 02

SUB CODE: AS NO REF SOV: 005 OTHER: 001

Card 2/4

ACCESSION NR: AR4015468 S/0169/63/000/012/B005/B005

SOURCE: RZh. Geofizika, Abs. 12B37

AUTHOR: Morgunov, S. P.; Trifonov, G. P.; Shupyatskiy, A. B.

TITLE: Radar apparatus for polarization investigations of clouds and precipitations

CITED SOURCE: Tr. Tsentr. aerol. observ., vy*p. 48, 1963, 106-111

TOPIC TAGS: weather radar, echo-signals, polarizing converter, 3-cm radar meteorological objects

TRANSLATION: The apparatus is built on the base of a high-potential 3-cm radar set. It has two zenith-pointing identical 3-cm antennas. One antenna is used for transmitting and receiving the signal, the other for reception only. Echo-signals from both antennas are fed into the input of the common receiver through a change-over switch and an attenuator and then to the recording device. Conversion of polarization is done in the first transceiving channel. The polarizing converter is made in the form of a quarter-wave array consisting of metallic plates mounted on foam plastic. The array is located near the radiating horn and travels in the direction of rotation. The action of such a converter is analogous to the action of a quarter-wave optical plate. The apparatus makes it possible to analyze echo-

Card 1/2

ACCESSION NR: AR4015468

signals from different meteorological objects at different altitudes in a wide dynamic range. N. Zolotavina.

DATE ACQ: 09Jan64 SUB CODE: AS, PH ENCL: 00

Card 2/2

MINERVIN, V.Ye.; SHUPYATSKIY, A.B.

Use of radar in determining the phase state of clouds and precipitation. Trudy TSAO no.47:63-84 '63.

(MIRA 16:12)

BOROVIKOV, A.M.; KOSTAREV, V.V.; [illegible], A.P.

Some results of radar observations of the evolution of cumulus congestus clouds and results of modification. Trudy TsAO no.57:24-40 '64. (MIRA 19:1)

MORGUNOV, S.P.; SHUPYATSKIY, A.B.

Evaluation of the effectiveness of modification by the polarization characteristics of a target signal. Trudy TSAO no.57:49-54 '64. (MIRA 19:1)

L 16656-66 EWT(1)/FCC RB/GW
ACC NR: AR5012910 UR/0169/65/000/003/B034/B034
551.576

30
B

SOURCE: Ref. zh. Geofizika, Abs. 3B215

AUTHOR: Borovikov, A.M.; Kostarev, V.V.; Shupyatskiy, A.B.

TITLE: Equipment and methods used in radar observations of the evolution of heavy cumulous and cumulo-pluvial clouds 12,44,55

CITED SOURCE: Tr. Vses. soveshchaniya po aktivn. vozdeystviyam na grad. protsessy. Tbilisi, 1964, 210-216

TOPIC TAGS: atmospheric cloud, cloud physics, meteorologic radar, radar observation

TRANSLATION: A description is given of the equipment and methods used in radar observations for exploring the evolution of heavy cumulous and cumulo-nimbus clouds which have developed naturally and those affected by reactions, for determining the radar signals of hail clouds, and for determining criteria in evaluating reaction effects. Specifications are given for radar stations which are intended to carry out such observations. Some technical data on the radar station which was used are given. The method of vertical profiles is considered to be the most efficient for conducting radar observations. A circular observation was used for evaluating the situation in the observed region, the selection of the subject to be observed, and the determina-

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L 16656-66
ACC NR: AR5012910

tion of the azimuth of the most intensive reflection zone. Quantitative measurements were made by means of the iso-echo method, with the help of a specially designed calibrated attenuator. The initial profile of the observed hail center was done by a fully cut-off attenuator, and the zone of the radar picture seen on the circular observation screen was, in this case, of a larger scale. Subsequently, the profiles were repeated with a gradually increasing attenuation until the fading picture vanished entirely from the screen. The picture on the screen was photographed with a movie camera. The overlapping of the photographic series made it possible to obtain a topography of the intensity of the reflected signal in the vertical profile, and based on these data, it was possible to build the vertical profile of the radar's reflecting ability Z. The value of the latter is the most reliable of the radar characteristics of a hail center, because it is not affected by the parameter of the station, nor by distance. An estimate was made of the possible errors due to the attenuation of the radiowaves propagating in the observed precipitation. A. Borovikov.

SUB CODE: 04 SUBM DATE: none

TS
Card 2/2

L 1440/-66 FSS-2/EWT(1)/FCC GW/WR

ACC NR: AR5012916

UR/0169/65/000/003/B093/B094
551.509.6

32
B

SOURCE: Ref. zh. Geofizika, Abs. 3B564

AUTHOR: Borovikov, A.M.; Kostarev, V.V.; Shupyatskiy, A.B.

TITLE: Results of radar observations of the evolution of heavy cumulous and cumulonimbus clouds under the effect of artificial influence

CITED SOURCE: Tr. Vses. soveshchaniya po aktivn. vozdeystviyam na grad. Protsessy. Tbilisi, 1964, 217-232

TOPIC TAGS: atmospheric cloud, cloud physics, meteorologic radar

TRANSLATION: On the basis of analyses of radar observations conducted in 1961-1962 by the Samsarskaya expedition on the evolution of cumulo-nimbus clouds, some preliminary radar signs were established regarding the hail-carrying capacity of clouds. In order to discover these signs, certain radar characteristics applicable to clouds were used, namely: the range of the maximal radar reflection and its position in the cloud; the stratum of an increased reflection zone and its position in the cloud; the altitudes of these zones and their characteristic temperatures. One should expect a precipitation of hail when: 1) the range of radar reflection is $\geq 10^{-9} sm^3$; 2) the zone of increased reflection is in a minimal 3-3.5 km strata and is either sym-

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Card 2/2

SHUPYATSKIY, M.G., podpolkovnik meditsinskoy sluzhby

Unusual case of botulism. Voen. med. zhur. no.4:25-26 Ap '59.
(MIRA 12:8)
(BOTULISM, case reports,
unusual case (Rus))

Shupyk, P L

Dosyahnennya okhorony zdorov'ya v Ukrayins'kiy RSR (Accomplishments in Public Health in the Ukraine) Kyyiv, Derzhmedvydav, URSR, 1958.

723 p. ports., tables.

At head of title: Ukraine. Ministerstvo Zdravookhraneniya.

Bibliografiya: p. 671-723

SHUR, A.

Continuous flow heat treatment of steel plates. Stal' 15 no.2:186-187 F '55. (MIRA 8:5)

1. Giprostal'.
(Plates, Iron and steel--Heat treatment)

SHUR, A., inzhener; MARIYENGOF, G., inzhener.

Precast reinforced concrete stairs made of large elements.
Stroi. mat., izdel. i konstr. 2 no.7:18-19 Jl '56. (MLRA 9:10)

(Stair building) (Precast concrete)

SHUR, A., inzh.

Mechanized application of bituminous waterproofing. Stroitel' no.11:5 N '57. (MIRA 10:12)

(Waterproofing)
(Spraying and dusting equipment)

05934
SOV/107-59-7-37/42

9(

AUTHOR: Shur, A., Bornovolokov, E.

TITLE: Intercom Circuits (A Review of Foreign Designs)

PERIODICAL: Radio, 1959, Nr 7, pp 55-58 (USSR)

ABSTRACT: The authors describe in detail an intercom device without indicating its origin. They mention in this connection that Soviet made intercom devices DKZ-40 and DKZ-70 have electronic commutators switching the units automatically to transmission as soon as the first word is spoken. The intercom device described in this article is built of four tubes. There are three DF 191 for which the Soviet 1K1P tube is recommended. The DL 192 has the 2P1P as an equivalent. An amplifier station used with intercom devices consists of tubes: DC-11, one DF-11 and two DL-11. The Russian equivalents of these tubes are 1K1P, 1K1P, 1K1P, and 2P1P, respectively. Wiring and transformer core data were also converted to Russian designations. There are 5 circuit diagrams.

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9(2) SOV/107-59-4-31/45

AUTHOR: Shur, A.

TITLE: A Noise Generator (Generator shuma)

PERIODICAL: Radio, 1959, Nr 4, pp 41 - 43 (USSR)

ABSTRACT: The author explains in general the origin of thermal noise and describes a noise generator used for tuning ultrashort-wave receivers and for establishing their noise factor. Expecially when building receivers working in the range of 144 mc and higher, does the determination of the noise factor become important. The generator suggested by the author may be easily built and consists of 4 DGTs-24 diodes in the rectifier unit and one 2D2S diode in the noise generator section, as shown in Figure 2. This device may be used for testing receivers working on frequencies of up to 300 mc. The author explains in detail the technique of applying this noise generator. There are 3 circuits, 1 sketch, 1 graph, 1 block diagram, and 2 Soviet references.

Card 1/1

SHUR, A.; NOKKERT, E.

Intercommunication system using transistor amplifiers. Radio no.2:50-51 F '60. (MIRA 13:5)
(Transistor amplifiers)
(Intercommunication systems)

SHUR, A., inzh.

Tuning and testing of shortwave antennas. Radio no.2:48-51 F '61. (MIRA 14:9)

(Radio, Shortwave--Antennas)

22271
S/109/61/006/005/018/027
D201/D303

9.9000

AUTHORS: Shur, A.A., Maksimov, ...

TITLE: A method of measuring radio-waves phase fluctuations in the study of long distance tropospheric propagation

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 5, 1961, 828 - 829

TEXT: The known methods of measuring the phase fluctuations of radiowaves propagated in the troposphere, although presenting much interest from the theoretical and practical points of view, are very complicated and cumbersome. In the present short communication, the authors describe a simple method of measurement as based on the Hyquist principle (Ref. 3: H. Hyquist, S. Brand, Bell System Techn. J., 1930, 9, 522). The block diagram of the measuring installation is given in Fig. 1. The transmitting installations consist of the transmitter 1, modulator 2 and filter-receiver 3. The receiving end consists of the receiver 4, phase-meter 5 with

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A method of measuring ... S/109/61/006/005/018/027
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an oscilloscope 6 and the receiver-filter 7. The principle of operation is as follows: At the transmitting end of the path under investigation the filter receiver 3 receives the signal from an independent transmitter 8. It amplifies only the carrier frequency of this signal and attenuates all the components of the spectrum. The filter 3 is at the input of a frequency modulator 2 of transmitter 1. At the receiving end the carrier is compared in phase with the carrier of the same station 8 at the output of the receiver. The phase difference between the two waves depends, therefore, only on the conditions of propagation along the path. According to the Hyquist principle, the signal spectrum of the transmitter must be much smaller than the pass-band of the whole installation. There the phase difference φ of the signal going through the installation is

$$\varphi = \Omega T(\omega)$$

where Ω - the angular frequency of the modulating wave, and $T(\omega)$ - the group time delay at the carrier frequency ω. It can be shown

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A method of measuring ...

also that the time delay between two waves scattered or reflected from the inhomogeneities spaced by heights Δh is equal to

$$T(\omega) = \frac{R\Delta h}{R_e c}$$

where R - the length of the propagation path, R_e - the effective radius of Earth; c - velocity of light in free space ($c = 3 \cdot 10^5$ km/sec). The above method has been applied at an experimental path of tropospheric propagation with normal TR installations with added filters and phasemeter. The length of the path was 300 km, measurements were made at a carrier frequency of 1,000 mc/s. The transmitter carrier was modulated ± 2.5 mc/s at 50 c/s. The filter-receiver had 3 stages of RF amplification using 6Ж1П (6Zh1P) valves and a crystal filter with a pass-band of 80 c/s. There are 1 figure and 3 non-Soviet-bloc references. The references to the English-language publications read as follows: J.W. Herbstreit, M.C. Thompson, Measurements of the phase of Radiowaves received

Card 3/5 4

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S/109/61/006/005/018/027
D201/D303

A method of measuring ...

over transmission path with electrical lengths varying as a result of atmospheric turbulence, Proc. I.R.E., 1955, 43, 10, 1391; A.P. Deam, B.M. Fannin, Phase-difference variations in 9,350-megacycle radio signals arriving at spaced antennas, Proc. I.R.E., 1955, 43, 10, 1402 [Abstractor's note: Error in spelling of word 'spaced]; H. Hyquist, S. Brand, Bell System - Techn. J., 1930, 9, 522.

SUBMITTED: February 16, 1960

Card 4/5
4

BORNOVOLOKOV, Eduard Pavlovich; VEYKMANIS, Avgust Yakubovich; ROMANOV, Boris Aleksandrovich; SHUR, Anatoliy Abelevich; SOBOLEVSKIY, A.G., red.; LARIONOV, G.Ye., tekhn. red.

[Loudspeaker systems] Peregovornye ustroistva. Moskva, Gosenergoizdat, 1962. 38 p. (Massovaia radiobiblioteka, no.431)
(MIRA 15:7)

(Intercommunication systems)

42275
S/809/62/000/000/002/003
E192/E382

AUTHOR: Shur, A.A.

TITLE: A high-sensitivity instrument for measuring the strength of UHF fields

SOURCE: Novyye razrabotki v oblasti kontrol'no-izmeritel'noy apparatury; informatsionnyy sbornik. Ed. by A.S. Vladimirov. Moscow, Svyazizdat, 1962, 16 - 21

TEXT: The development of a high-sensitivity field-strength meter was necessary in order to measure the field strengths on radio-relaying links operating at decimetre wavelengths, since the fields on such communications routes can be 50 - 90 db lower than the free-space fields. The most rational way of increasing the sensitivity of a measuring receiver is the narrowing of its operating bandwidth, which is defined by (A.A. Kulikovskiy - Lineynyye kaskady radiopriyemnikov (Linear stages in radio-amplifiers), Gosenergoizdat, 1958):

$$\Delta f = 2f_з + 2\sqrt{(\gamma_Г f_Г)^2 + (\gamma_П f_П)^2} \quad (1)$$

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S/809/62/000/000/002/003
E192/E382

A high-sensitivity ....

where Δf is the bandwidth of the receiver, $\gamma_Г$ and $\gamma_П$ are the
expected instability factors of the local oscillator and transmitter
frequencies, respectively, $f_Г$ and $f_П$ are the highest local
oscillator and transmitter frequencies, respectively, and f_3 is
the highest signal-fluctuation frequency4 Assuming that
$f_Г = f_П = 2\ 000$ Mc/s and $\gamma_Г = \gamma_П = 10$, $f_3 = 10$ c.p.s. and the
noise figure of the receiver $N = 25$, eq. (1) gives $\Delta f = 0.6$ Mc/s,
if the noise at the output of the receiver is
0.6×10^{-13} W. The sensitivity can be improved by increasing the
stability of the local oscillator and the transmitter but this
approach is uneconomic. A different way of tackling the problem
is as follows. The receiver of the equipment has a narrow band-
width and it is periodically tuned to the transmitter frequency by
varying the local oscillator frequency by an amount Δf_2
(see Fig. 1a). When the frequency difference between the local
oscillator and a signal is equal to the intermediate frequency of

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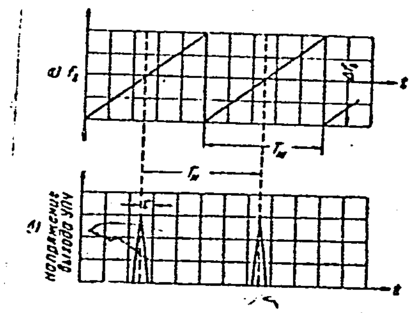
the receiver, a pulse is produced at the output (Fig. 1б) whose amplitude is proportional to the level of the received signal. The continuous signal received is therefore converted into discrete pulses whose peak value is measured by a peak-reading voltmeter. The relationship between Δf, pulse duration τ, Δf_2 and the period of the modulation signal of the local oscillator is:

$$\frac{\tau}{T_M} = \frac{\Delta f}{\Delta f_r} \qquad (2)$$

By combining this formula with Eq. (1), it is found that the bandwidth can be reduced to about 3.5 kc/s and the output noise becomes 3.47×10^{-16} W. Equipment based on this principle was constructed. This covered the frequency range from 2 000 to 1 765 Mc/s, the automatic detuning of the local oscillator being $\pm$ 1.5 Mc/s. The modulation frequency of the local oscillator was 50 c.p.s. The first intermediate frequency of the receiver was 27 Mc/s, while the second intermediate frequency was

0.465 Mc/s. The operating bandwidth of the second intermediate frequency amplifier was 12.3 kc/s. The maximum sensitivity of the system was better than 8.5×10^{-15} W (or 0.8 μV across the input impedance of 75 Ω). The time constant of the capacitive circuit of the peak voltage-detector was 16 μs for charging and 0.14 sec for discharging. The instrument was capable of following fading phenomena occurring at frequencies not higher than 25 c.p.s. There are 4 figures.

Fig. 1:



IF amplifier output voltage

ACCESSION NR: AP4042500 S/0106/64/000/007/0001/0012

AUTHOR: Kalinin, A. I.; Troitskiy, V. N.; Shur, A. A.

TITLE: Statistical characteristic of a signal during long-range propagation of ultrashort waves

SOURCE: Elektrosvyaz', no. 7, 1964, 1-12

TOPIC TAGS: tropospheric wave attenuation, slow signal fading, signal statistical characteristic, wide band transmission, spacial correlation radius, frequency correlation radius, fading statistical distribution

ABSTRACT: The results are presented of an investigation of long-range tropospheric propagation. Measurements were made at 30—40-cm wavelengths along routes 159, 303, 448, 630, and 730 km in length and at 8—9-cm wavelengths along routes 85, 205, and 303 km in length. Receiver-transmitter equipment and antennas used made it possible to measure the attenuation factor V = -118 db for the 30—40-cm wavelength along the 730 km route and V = -106 db for the 8 to 9-cm wavelength along the 303 km route. The error of measuring signal-level values did not exceed ±1.5 db. According to the experiments,

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550220009-7

KALININ, A.I.; TROITSKIY, V.N.; SHUR, A.A.

Statistical characteristics of a signal in long-distance microwave propagation. Elektrosviaz' 18 no.7:1-12 Jl '64.

(MIRA 17:10)

ACC NR: AM5027749 Monograph UR/ 76

Armand, N. A.; Vvedenskiy, B. A.; Gusyatinskiy, I. A.; Igoshev, I.P.; Kazakov, L. YA.; Kalinin, A. I.; Nazarova, L. G.; Nemirovskiy, A. S.; Prosin, A.V.; Ryskin, E. YA.; Sokolov, A. V.; Tarasov, V.A.; Tashkov, P. S.; Tikhomirov, YU. A.; Troitskiy, V. N. Fedorova, L. V.; Chernyy, F. B.; Shabel'nikov, A. V.; Shirey, R. A.; Shifrin, YA. S.; Shur, A. A.;;YAkovlev, O. I.; Kolosov, M. A.; Levshin, I. P.; Lomakin, A. N.

Upper tropospheric propagation of ultrashort radio waves (Dal'neye troposfernoye rasprostraneniye ul'trakorotkikh radiovoln) Moscow, Izd-vo "Sovetskoye radio", 1965. 414 p. illus., biblio. 4000 copies printed.

TOPIC TAGS: radio wave propagation, tropospheric radio wave, radio communication, space communication, tropospheric scatter communication, signal processing, signal distortion, field theory

PURPOSE AND COVERAGE: This monograph is intended for specialists working in the field of radiowave propagation, designers of long-distance radio communication systems, and teachers and students of the advanced courses in schools of higher technical education. The monograph contains, for the most part, heretofore unpublished results of Soviet experimental and theoretical investigations in the field of long-distance tropospheric ultrashortwave propagation.

Card 1/10 UDC: 621.371.24

ACC NR: AM5027749

Problems of investigating the troposphere by means of refractometers, the mean level of signals, meteorological conditions and topography, fluctuation of arrival angles and distortions of antenna directivity patterns, losses in antenna gain, and quick and slow fadings of signal levels are discussed. The statistical characteristics of the signals at diversity reception in time, space, frequency and angle as well as the distortion of signals in the communication systems are also investigated. The long-distance propagation theory is analyzed, and the engineering method of calculating field intensity at long-distance tropospheric propagation is given. At present, there is no theory of Long-Distance Tropospheric Propagation which can be applied effectively enough in practice. Thus, in the investigation of that propagation, considerable attention has to be paid to experiments. The special characteristics of geographical conditions of the territory involved should be taken into consideration during the analysis of experimental data and in their practical application because the conditions of propagation in arctic and tropical climates differ from those existing over seas and continents. A considerable part of the monograph deals with the investigations of long-distance tropospheric propagation carried out over dry land routes, 800 km long, in the central part of the USSR under the general supervision of B. A. Vvedenskiy and A. G. Arenberg (up to 1957). V. I. Siforov investigated problems con-

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ACC NR: AM5027749

nected with distortions and fluctuations of signals. References follow each chapter.

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ACC NR: AM5027749

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ACC NR: AM5027749

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ACC NR: AM5027749

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ACC NR: AM5027749

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SHUR, A. A.

Crystallography; Magnetite

Zonal variation in the density of a magnetite crystal.
Dokl, AN SSSR No. 6:977-979 F '52
Gorno-Geologicheskiy Institut Ural 'skogo
Filiala Akademii Nauk SSSR
rcd. 21 Nov. 1951

SO: Monthly List of Russian Accessions, Library of Congress, July 1952 1953, Uncl.

SHUR, A.B., inzhener

Problem of evaluating the distribution of gas flow by the gas temperature in the gas uptake. Stal' 15 no.7:592-597 Jl '55.
(MLRA 8:9)

1. Yenakiyevskiy metallurgicheskiy zavod.
(Blast)

SOV/133-58-11-2/25

AUTHORS: Levin, L.Ya., Kuz'min, I.A., Kaylov, V.D. and Shur, A.B.

TITLE: An Experience in the Operation of a Blast Furnace with a High Top Pressure of 1.5 atm (Opyt raboty domennykh pechey s davleniyem na koloshnike 1.5 atm)

PERIODICAL: Stal', 1958, Nr 11, 964 - 968 (USSR)

ABSTRACT: The operation of Nrs 1 and 2 furnaces in the Cherepovets Works under high top pressure varying up to 1.5 atm is described. Furnaces operated on a 100% sinter burden of a basicity CaO/SiO_2 = 1.13 - 1.15 producing foundry and basic iron. Main operational indices are assembled in Table 1 and mean monthly results for both furnaces in Table 2. It is concluded that with increasing top pressure by each 0.1 atm (within a range of 1.0 - 1.5 atm), the output of furnaces increases on average by 1.9%. This increase in the output is due not only to increasing driving rate but also due to a decrease in the coke rate. The main factor which permitted decreasing the coke rate was

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SOV/133-58-11-2/25

An Experience in the Operation of a Blast Furnace with a High Top Pressure of 1.5 atm

an increase in the blast temperature to 950 - 1 000 °C. The latter was possible due to an increase in the top pressure. There are 1 figure, 2 tables and 2 Soviet references.

ASSOCIATION: Cherepovetskiy metallurgicheskiy zavod (Cherepovets Metallurgical Works)

Card 2/2

SHUR, Aleksandr Borisovich; NEKRASOV, I.A., inzh., red.; ROZENTSVEYG, Ya.D., red. izd-va; EVENSON, I.M., tekhn. red.

[Smelting pig iron with a minimum consumption of coke] Vyplavka chuguna s minimal'nym raskhodom koksa. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 51 p. (MIRA 14:7)

(Cast iron--Metallurgy)

SHUR, A. B.

18.2000

77443
SOV/133-60-1-4/30

AUTHORS: Yakubtsiner, N. M., Trekalo, S. K. (Candidates of Technical Sciences), and Shur, A. B. (Engineer)

TITLE: Physical Properties of Fluxed Sinter of the Cherepovets Plant

PERIODICAL: Stal', 1960, Nr 1, pp 14-18 (USSR)

ABSTRACT: This is a study of sintering problems at the Cherepovets Metallurgical Plant (Cherepovetskiy metallurgicheskiy zavod). G F. Grigor'yevykh, Ye. V. Nevmerzhitskiy, V. M. Sholeninov, D. L. Grinberg, and E. Ye. Gutman participated in the work. The plant is producing fluxed sinter from beneficiated Olenegorskiy (not identified) iron deposits and from Pikalevo deposit (Pikalevskoye mestorozhdeniye) of limestone. At some periods the pyrite cinders of plants near Moscow were added to the charge of sintering plant. The Olenegorskiy beneficiated ore (by 1958 data) contains 60.1 to 60.7% Fe; 13.2 to 14.1% SiO_2; and 1.1 to 1.3% CaO. The limestone (amounting to 360 kg/ton of sinter) contains

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Physical Properties of Fluxed Sinter of the Cherepovets Plant

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SOV/133-60-1-4/30

51.5 to 53% CaO; 1.5 to 4% of insoluble residue (1 to 2% SiO_2); and about 0.3% MgO. The determination of bulk weight of fluxed sinter and the determination of screen composition and the degree of crushing of sinter during transportation are described. The Cherepovets Plant, for the first time in the USSR, used a two-stage screening of sinter returns. In addition to the regular screening machines (in the unloading section of sintering machine), which screen the returns before loading of sinter into cooler, the additional vibrating screening machines for secondary screening of fines (after the cooler) are installed. The bulk weight of sinter varies. It is due to the increase of the apparent specific weight of sinter pellets with the decrease of their size, as shown by the experimental data previously obtained by N. M. Yakubtsiner and Yu. P. Smirnov (see Fig. 2). For the study of screened fluxed sinter, samples were taken from the conveyors. The results are given in Fig. 4. The tests show that the secondary screening of returns is expedient. However, the consecutive transportation and reloading of sinter results

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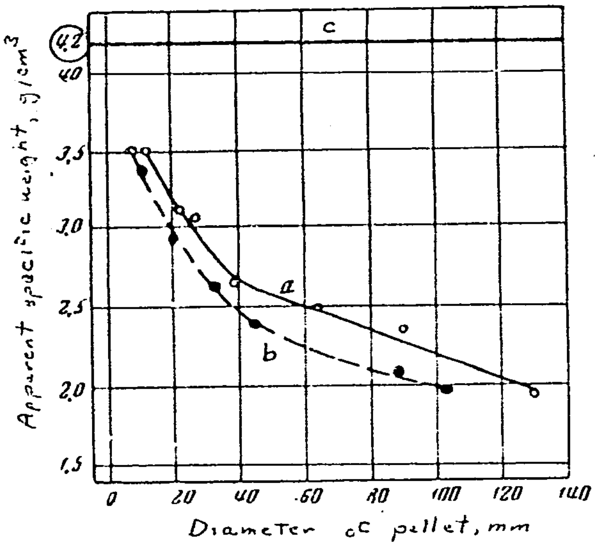

Fig. 2. The relationship between the apparent specific weight of sinter and the size of pellets: (a) sample Nr 1; (b) sample Nr 2; (c) true specific weight.

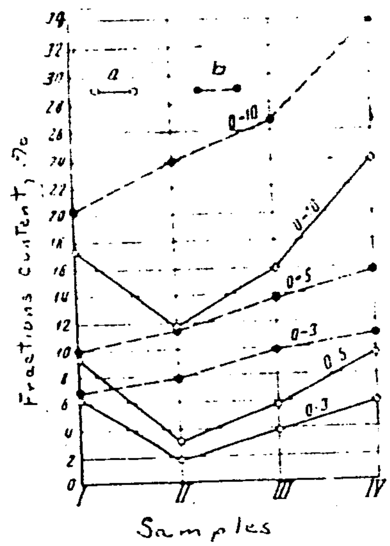

Fig. 4. Change in composition of various fractions (from 0-3 to 0-10 mm) in the sinter, when screening with 2 open sections (a) and totally closed (b) screening machines (samples I to IV).

Physical Properties of Fluxed Sinter of the Cherepovets Plant

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SOV/133-60-1-4/30

in the new formation of fines. The effect of prolonged storage in silos on the screen composition of sinter; the crushing of sinter fractions (from 3 to 5 and 100 to 150 mm) during the storage in piles under the silos for 5 to 24 hr; and the change of screen composition of fresh sinter and sinter stored at the ore yard were studied. The deterioration of screen composition of sinter during its storage at ore yards (with accompanying increase of bulk weight), as compared with sinter of current production, supplies a good argument in favor of building the sintering plants at the metallurgical plants and not at the ore mines. The authors state that in order to bring to a minimum the amount of fines in the sinter, which is charged to the furnace, the screening of fines before loading of sinter into skip is imperative. At present the amount of fines (of 0-5 mm fraction) at the Yenakiyevo Plant (Yenakiyevskiy zavod) reaches 21%, and at the Krivoy Rog Plant (Krivorozhskiy zavod), 20.8%.

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Physical Properties of Fluxed Sinter of the Cherepovets Plant

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SOV/133-60-1-4/30

There are 9 figures; 2 tables, and 3 Soviet references.

ASSOCIATION: Leningrad Polytechnic Institute (LPI), Central Scientific Research Institute of Ferrous Metallurgy (TsNIIChM), and Cherepovets Metallurgical Plant (Cherepovetskiy metallurgicheskiy zavod)

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TREKALO, S.K.; YAKURTSINER, N.M.; ANDRONOV, V.N.; GRIGOR'YEVYKH, G.F.; KAYLOV, V.D.; ~~SHUR, A.B.;~~ v rabote prinimali uchastiye: NEVMERZHITSKIY, Ye.V.; SHOLENINOV, V.M.; VITOVSKIY, V.M.; GRINBERG, D.L.; GUTMAN, E.Ye.; YEGOROV, N.D.

Open-hearth furnace operations with classified sinter. Stal' 20 no. 12:1063-1070 D '60. (MIRA 13:12)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii i Cherepovetskiy metallyrgicheskiy zavod.
(Blast furnaces) (Sintering)

SHUR, A.B.

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1. Cherepovetskiy metallurgicheskiy zavod.
(Blast furnaces)

SHUR, A.B.; BYALYY, L.A.

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1. Cherepovetskiy metallurgicheskiy zavod i Leningradskiy politekhnicheskiy institut.

BOGOPOL'SKIY, S.N.; GOLOUSHIN, N.S.; GRIGOR'YEVYKH, G.F.; LEVIN, L.Ya.; SMIRNOV, Yu.P.; TKACHEV, V.V.; CHISTYAKOV, V.I.; SHOLENINOV, V.M.; SHUR, A.B.; LOVETSKIY, L.V.

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BYALYY, L.A.; SHUR, A.B.; Prinimali uchastiye: KOTOV, A.P.; RUSAKOV, P.G.; YEGOROV, N.D.; KOSTROV, V.A.; RYNNOV, N.F.

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1. Leningradskiy politekhnicheskiy institut i Cherepovetskiy metallurgicheskiy zavod.

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RUSAKOV, P.G.; SHUR, A.B.; BYALYY, L.A.

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