

KOBEZA, I.I.; BELOKUROV, E.S.; CHERNYAVSKIY, V.G.; POGOREL'Y, V.P.;
KORKOSHKO, N.M.; VORONOV, Yu.F.; PRON'KIN, V.Ye.; BABENYSHEV, M.A.

Heating a 600-ton (mega-gram) single channel open-hearth furnace
with self-carbureting natural gas. Stal' 25 no.12:1139-1143
D '65. (MIRA 18:12)

PUKHNAREVICH, G.P., kand. tekhn. nauk; BOTVINSKIY, V.Ya.; PARKHOMENKO, P.A.;
VORONOV, Yu.F.

Studying the slag forming process during the melting period
in high-capacity open-hearth furnaces. Mat. 1 gornorud. prom.
no.1:30-32 Ja-F '64. (MIRA 17:10)

GARCHENKO, V. T.; BALAKIN, F. N.; YEFIMOV, L. M.; POGORELYY, V. P.; GREKOV,
Ye. A.; KORKOSFKO, N. M.; VORONOV, Yu. E.; POLTAVETS, Ye. I.; VOYTOV,
A. O.; SHTEYNBERG, L. S.

Production of steel in large-capacity open-hearth furnaces with
blowing of oxygen through the bath. Stal' 25 no. 2: 116-121 F '65.
(MIRA 18:3)

VORONOV, Yu.F., inzh.; BELOKUROV, E.S., inzh.; PRON'KIN, V.Ye., inzh.

Mastering the operation of 600-ton open-hearth furnaces. Met. i
gornorud. prom. no.3:11-17 My-Je '62. (MIRA 15:9)
(Open-hearth furnaces)

PUKHNAREVICH, G.F., kand. tekhn. nauk; PARKHOMENKO, P.A.; BOTVINSKIY, V.Ya.;
GAVRO, L.F.; VORONOV, Yu.F.

Behavior of hydrogen during the melting operation in 600-
ton open-hearth furnaces. Met. i gornorud. prom., no.1;
28-30 Ja-F '65. (MIRA 18:3)

KORSHIKOV, G.V., inzh.; VOZGHOV, Yu.G., inzh.; TSEYTLIN, M.A., inzh.;
KIYASHKO, Yu.M., inzh.; GOROKHOV, A.S., inzh.; SEKACHEV, M.A.,
inzh.; Prinsipali uchastiye: ARSHINOV, G.P.; GRIGOR'YEV, Ye.I.;
KUVARIN, Yu.N.; RUDAKOV, N.V.; BUYEV, V.Ye.; IGGL'NITSYN,
A.N.

Investigating the oxidizing zone of a blast furnace working
under oxygen-enriched blowing (35% oxygen) and using natural
gas. Stal' 25 no.8:781-790 S '65. (MIRA 18:9)

KANAVETS, P.I.; GESS, B.A.; SPORIUS, A.E.; CHERNYSHEV, A.M.;
MELENT'YEV, P.N.; CHERNYKH, V.I.; KHROMYAK, R.P.;
KHAYLOV, B.S.; BORISOV, Yu.I.; TSYLEV, L.M.; SOKOLOV, V.S.;
Prinimali uchastiye: MARKIN, A.A.; GORLOV, M.Ya.;
VORONOV, Yu.G.; BULAKHOV, K.A.; KREMYANSKIY, V.L.; ARSHINGOV,
G.P.; MAZUN, A.E.; PISARNITSKIY, I.M.; BOKUCHAVA, O.A.;
KIRILLOV, M.V.; TSELUYKO, P.I.; POLYAKOV, G.O.; REZKOV, A.S.;
ZHUCHKOV, M.I.; ROMASHKIN, A.S.; ZUBKOV, A.S.; KOZLOV, N.N.

Pilot plant for the nodulizing of finely ground charge mix-
tures by the method of chemical catalysis. Trudy IGI 22:
93-109 '63. (MIRA 16:11)

VORONOV, Yu.G.; GORLOV, M.Ya.; KUVARIN, Yu.N.; TSEYLIN, M.A.

Performance of blast furnaces with carbon blocks in the hearth
and hearth bottom. Metallurg 9 no.3:7-9 Mr '64. (MIRA 17:3)

GESS, B.A.; CHERNYSHEV, A.M.; KANAVETS, P.I.; MELENT'YEV, P.N.;
KHROMYAK, R.P.; VORONOV, Yu.G.; TSYLEV, L.M.; CHERNYKH, V.I.;
BORISOV, Yu.I.; SPORIUS, A.E.; Primali uchastiya: TOLEROV,
D.D.; MINKIN, V.M.; MARKIN, A.A.; GORLOV, M.Ya.; KHAYLOV, B.S.

Experimental blast furnace smelting with replacement in
the charge of 20-per cent of the fluxed sinter by granules
prepared by chemical catalysis. Trudy IGI 22:110-113 '63.
(MIRA 16:11)

VORONOV, Yu.I., inzh.

The OVNP-2 "Zaria" sprinkler. Trekt. i sel'khoz Mash. no.9:26
S '64. (MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokho-
zyaystvennogo mashinostroyeniya.

L 7997-65 EWT(d)/EEC(k)-2
ACC NR: AP5026500 SOURCE CODE: UR/0036/65/100/019/0589/0029

AUTHORS: Bogdanov, G. B.; Voronov, Yu. K.

ORG: none

TITLE: Device for measuring superhigh frequency power. Class 21, No. 175093

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 29

TOPIC TAGS: decimeter wave, power meter, superhigh frequency

ABSTRACT: This Author Certificate presents a device for measuring superhigh frequency power in the decimeter wave range. The device consists of a ferrite detector whose temperature changes with heating by the absorbed superhigh frequency power and a device recording this temperature change. To increase the frequency discrimination of the device, the ferrite detector is in the form of a disk operating in the ferromagnetic resonance region.

SUB CODE: EC/ SUBM DATE: 11Aug64

nw
Card 1/1 UDC: 621.317.38

034

L 18748-63 EWP(q)/EWT(m)/EDS AEFTC/ASD JD/JG
ACCESSION NR: AT3002226 S/2941/63/001/000/0230/0239

AUTHORS: Levshin, V. L.; Voronov, Yu. V.; Gutan, V. B.; Fridman, S. A.;
Shohayenko, V. V. 60

TITLE: Radiation composition of luminescence centers in ZnS-Sm phosphors

SOURCE: Optika i spektroskopiya; sbornik statey, v. 1: *Luminestentsiya.*
Moscow, Izd-vo AN SSSR, 1963, 230-239

TOPIC TAGS: radiation, phosphor, activator, ion, spectra

ABSTRACT: The spectra of Sm^{3+} in ZnS-Sm-phosphor without melt and with 4% $MgCl_2$ melt were analyzed to study the interaction between activator ions and the lattice and obtain information about radiation composition. The Sm concentration was varied between 10^{-7} and 10^{-2} gm/gm, and in addition a variable concentration of silver was added (10^{-6} to 10^{-3} gm/gm). Three types of luminescence centers were obtained, lying in the red, orange, and yellow-green parts of the spectra. These were enhanced by changing the phosphor composition. A temperature test from 20-120C indicated that several radiation bands were formed as a result of electronic and vibrational frequency combinations. Orig. art. has: 7 figures and 4 tables.

Card 1/2

18.3200

73946

SOV/133-59-10-7/39

AUTHORS: Mitin, I. G., Voronov, Yu. I.

TITLE: Application of Periscopic Method for the Measuring of Open-Hearth Furnace Roof Temperatures

PERIODICAL: Stal', 1959, Nr 10, pp 893-897 (USSR)

ABSTRACT: At Nizhniy Tagil Metallurgical (Nizhne-Tagil'skiy metallurgicheskiy kombinat) and Magnitogorsk Combines (Magnitogorskiy kombinat), roof surface temperatures are reliably controlled by pyrometers which were installed in September 1950 in the former, and January 1959 in the latter. Luminance temperatures within the 1,400-1,800° C range are measured with a maximum error of + 18° C (see Fig. 1). The space between the pyrometer top and the roof does not affect readings which are not influenced by changes in the sensitivity of the photoelectric cell caused by the time or by the fluctuation of temperatures in the pyrometer top. The assistance

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Application of Periscopic Method For
the Measuring of Open-Hearth Furnace
Roof Temperatures

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SOV/133-59-10-7/39

of Voronov, Yu. I. (Engineer), and Romanov, K. I. (Foreman), in building the device is acknowledged. The roof pyrometer was designed by the Central Laboratory of Automation (TsLA), in cooperation with the plant, on the basis of a Zaporozh'ye design developed by the Central Design Bureau (TsPKB) on orders of the Central Laboratory of Automation. Conclusions: (1) The pyrometer allows the detection of maximum temperature zones and decreases the effects of the flame on the pyrometer. (2) Two pyrometers should be installed along knuckles. (3) The suggested design eliminates soiling of the device, and maintenance is less time-consuming than in radiation pyrometers. (4) The roof pyrometers are recommended for experimental use in other open-hearth furnaces. In 1959 the Central Laboratory of Automation plans to launch an experimental series of industrial roof

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Application of Periscopic Method For
the Measuring of Open-Hearth Furnace
Roof Temperatures

75946
SOV/133-59-10-7/50

pyrometers (FEP-5) for several furnaces at Nizhniy
Tagil and Magnitogorsk Combines as well as for
Chelyabinsk Metallurgical Plant and Plant imeni
Dzerzhinskiy (Chelyabinskiy metallurgicheskiy zavod,
Metallurgicheskiy zavod imeni Dzerzhinskogo). There
are 6 figures; and 8 references, 5 Soviet, 1 French,
1 German, 1 British. The British reference is:
Whitehead, E., "Instrumental Practice," 1956, Vol 10.

ASSOCIATION:

Central Laboratory of Automation (Tsentral'naya laboratoriya avtomatizatsii)

Card 3/4

75946

SOV/133-59-10-7/39

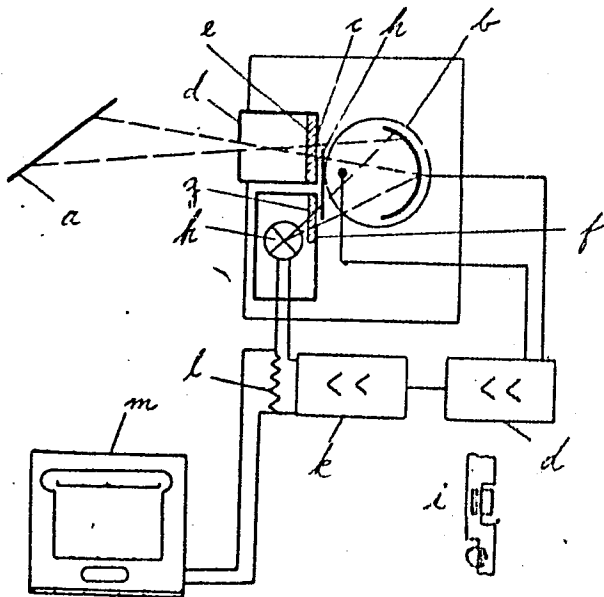


Fig. 1. Schematic diagram of Roof Pyrometer:
(a) Roof; (b) StsB-3-type photoelectric cell;
(c) and (d) diaphragms (opening in (c) has 0.8-mm diam); (e) red light filter; (f) diaphragm;
(g) light filter; (h) tube;
(i) vibrating slide valve;
(j) amplifier; (k) photo-sensitive detector; (l) resistor; (m) potentiometer.

Card 4/4

VORONOV, Yu.I., inzh.

The PTN-40 mounted leveled plow. Trakt. i sel'khoz mash. no.8:
29-30 Ag '64. (MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokho-
zyaystvennogo mashinostroyeniya.

L 4009-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACCESSION NR: AP5024416

UR/0286/65/000/015/0097/0097

AUTHORS: Voronov, Yu. I.; Voronin, V. K.

36
B

TITLE: Ultrasonic pyrometer. Class 42, No. 173459

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 97

TOPIC TAGS: pyrometer, ultrasonic equipment, air temperature

ABSTRACT: This Author Certificate presents an ultrasonic pyrometer for continuous measurement of the temperature of air currents by measuring the transit time of ultrasonic pulses passing through the current between radiation generator and receiver placed in a water-cooled case. To eliminate errors caused by temperature oscillations of the air layers adjacent to the water-cooled surfaces, two identical receivers are placed in the measured current (see Fig. 1 in the Enclosure). The pulse transit time between the receivers characterizes the current temperature. Orig. art. has: 1 diagram.

ASSOCIATION: Tsentral'naya laboratoriya avtomatiki gosudarstvennogo komiteta po chernoy i tsvetnoy metallurgii pri gosplane SSSR (Central Automation Laboratory of the State Committee for Ferrous and Nonferrous Metallurgy of Gosplan, SSSR)

Card 1/3

UDC: 536.52:534-8

L 4009-66

ACCESSION NR: AP5024416

SUBMITTED: 22Aug64

ENCL: 01

SUB CODE: II, TD

NO REF SOV: 000

OTHER: 000

Card 2/3

L 4009-66
ACCESSION NR: AP5024416

ENCLOSURE: 01

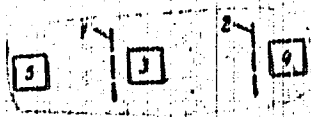


Fig. 1. 1 and 2- water-cooled surfaces;
3 and 4- radiation receivers; 5- radiation
generator

Chick
Card 3/3

VORONOV, Yu.I. (Vyshniy Volochok)

Events in schoolwork. Fiz. v shkole 14 no.4:92 JI-Ag '54. (MIRA 7:7)
(Physics--Study and teaching)

KOCHENENKO, D.V.; VORONOV, Yu.I.

Rotary separator for root crop harvesting machines.
32 no.12:31-32 D '62.

(Root crops---Harvesting)

Trakt. 1 sul'khoznash.
(MIRA 16:3)

BOGDANOV, G.B.; VORONOV, Yu.K.

Measurement of microwave power using ferrites. Radiotekh.
i elektron. 8 no.11:1952-1955 N '63. (MIRA 17:1)

BOGDANOV, G.B.; VORONOV, Yu.R.

One method for designing waveguides with ferrites and a
high reaction. Radiotekh. i elektron. 10 no.5:943-945 My

'65.

(MIRA 18:5)

VORONOV, Yu.V.

Relationship between the luminescence band intensities of
the phosphors ZnS-Mn and ZnS-Ag as a function of the
density of photo- and cathode-ray excitation. Opt. i spektr.
9 no.1:108-111 J1 '60. (MIRA 13:7)
(Zinc sulfide--Spectra)

20845

S/048/61/025/003/034/047
B104/B202

9.4160 (also 1137,1395)

AUTHORS:

Levshin, V. L., Voronov, Yu. V., Rutan, V. B., Fridman, S.A.,
and Shchayenko, V. V.

TITLE:

Study of the effect of double activation with silver and samarium on the localization levels and the emission of zinc sulfide phosphors

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya,
v. 25, no. 3, 1961, 392-399

TEXT: This paper was presented at the 9th conference on luminescence (crystal phosphors), Kiyev, June 20 to 25, 1960. It is the first of a series planned by the authors in which they study the interaction between Ag and Sm activators in ZnS-Ag,Sm phosphor. When producing the specimens 4% magnesium chloride was partially added as flux. The quantitative data given in the present paper were obtained from specimens to which fluxes had been added. The authors studied phosphors which had been activated only with silver or only with samarium and phosphors containing 10^{-4} g/g Ag in which the samarium concentration was varied in the range 10^{-7} to

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S/048/61/025/003/034/047
B104/B202

Study of the effect of double...

10^{-3} g/g. Furthermore, they studied phosphors which contained 10^{-4} g/g samarium and 10^{-7} to 10^{-3} g/g silver. Ag gives a band with $\lambda_{\max} = 430 \text{ m}\mu$. Sm gives three bands which have line character and which lie in the green, orange, and red spectral range. The most intense group lies at $650 \text{ m}\mu$. The type of luminescence centers could not be explained by comparing the line intensities as functions of the composition. It is possible that only one type of luminescence centers exists which in the respective states of excitation give different bands. Using the formula

$$E = \frac{kT_1 T_2}{T_2 - T_1} \left(\ln \frac{\beta_2}{\beta_1} + 2 \ln \frac{T_1}{T_2} \right) \quad (1)$$

suggested by I. A. Parfianovich, where β_1 and β_2 the different heating velocities on thermal deexcitation, T_1 and T_2 the corresponding absolute temperatures of the peaks of thermal deexcitation studied, and E the energy depth of the peak, the authors obtain the following values for the depth of the localization levels of samarium:

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Study of the effect of double...

t, °C	-144	-90	-60	-10	+30	+70	+90
g, eV	0,26	0,37	0,43	0,53	0,61	0,69	0,73

The energy depth of silver levels is 0.33 ev. It may be concluded therefrom that new levels are formed due to the interaction of the activators and that this interaction reduces the light sum of the former levels. The increase of the number of activator ions which leads to a decrease of the light sum accumulated leads to the fact that traps which are produced by two neighboring activator ions are less efficient than those traps which are produced by an individual activator ion. Figs. 2 and 3 graphically represent the change of spectral composition of phosphor emission as depending on the ratio and the amount of the activators introduced. The diagrams of Fig. 4 show the temperature effect on the activator interaction. From the results obtained the authors conclude a mutual extinction in both activators which becomes particularly manifest if the two activator concentrations strongly differ. The complex temperature dependence of extinction indicates the existence of different types of luminescence centers. In the following discussion V. Ya. Yaskolko speaks about experiments with CaSO_4 phosphors activated with Mn, Sm, Pb, Zn, Bi, and

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S/048/61/025/003/034/047
B104/B202

Study of the effect of double...

Ce. He states that in some phosphors activated with two activators, bands of both activators can be observed. Z. A. Trapeznikova is mentioned in the present paper. There are 4 figures and 7 Soviet-bloc references.

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

J

Card 4/7

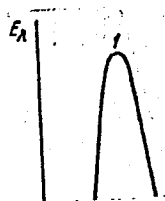
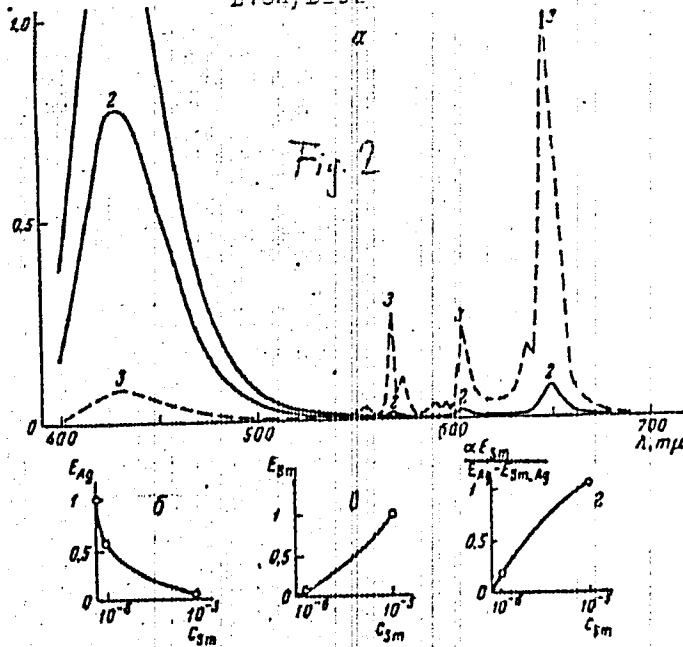
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S/049/61/025/003/03A/047
B104/B202

Study of the effect of double...

Legend to Fig. 2:
Luminescence spectrum

- 1) ZnS- 10^{-4} mole%Ag
- 2) ZnS- 10^{-4} mole%Ag,
 10^{-6} mole%Sm
- 3) ZnS- 10^{-4} mole%Ag,
 10^{-5} mole%Sm excitation
with $\lambda = 365 \mu$



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2081.5

S/048/61/025/003/034/047
B104/B202

Study of the effect of double...

Legend to Fig. 3: change of the Ag and Sm luminescence intensities in ZnS (with 4 mole% MgCl₂) as a function of their concentration excitation with $\lambda = 365 \text{ m}\mu$

a) ZnS-Ag as a function of the Sm concentration b) ZnS-Sm as a function of the Sm concentration.

c) ZnS-10⁻⁴ mole%Sm as a function of the Ag concentration

d) ZnS-10⁻⁴ mole%Ag as a function of the Sm concentration

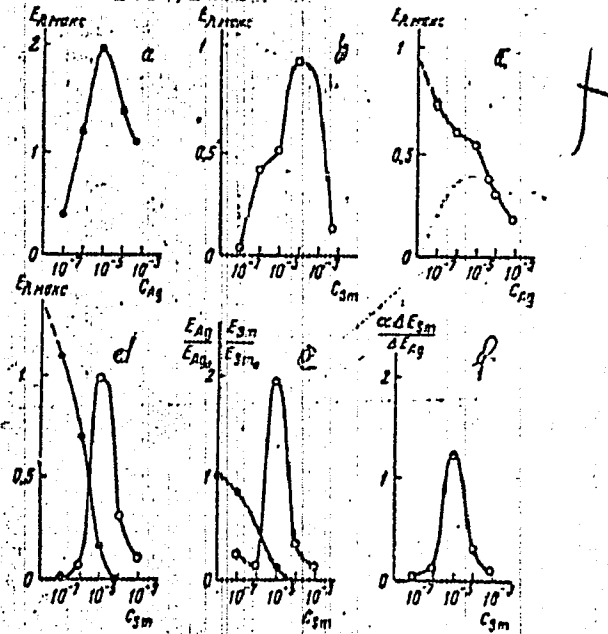
e) $E_{Ag}/E_{Ag0} = f(\text{conc. of Sm})$

$E_{Sm}/E_{Sm0} = f(\text{conc. of Sm})$

f) $E_{Sm}/E_{Ag} = f(\text{conc. of Sm})$

black points: Ag, light points: Sm

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S/O43/61/025/003/031/047
B104/B202

Study of the effect of double...

Legend to Fig. 4:
temperature dependence
of the luminescence
intensity at the moment of
excitation with $\lambda = 365 \text{ m}\mu$

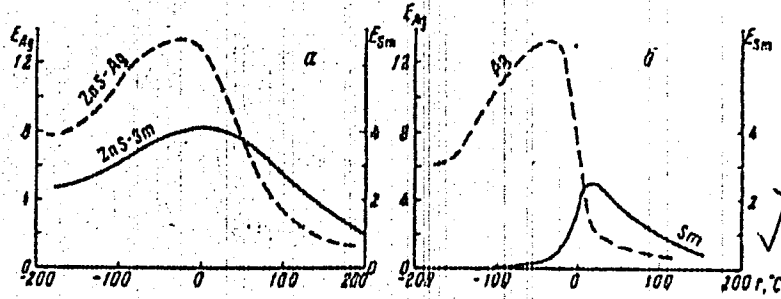


Fig. 4

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ACCESSION NR: AT4001250

S/2504/63/023/000/0064/0135

AUTHORS: Levshin, V. L.; Arapova, E. Ya.; Blazhevich, A. I.; Voronov, Yu. V.; Voronova, I. G.; Gutan, V. B.; Lavrov, A. V.; Popov, Yu. M.; Fridman, S. A.; Chikhacheva, V. A.; Shchavenko, V. V.

TITLE: Study of cathode luminescence of zinc sulfide and other cathode phosphors

SOURCE: AN SSSR. Fizicheskiy institut. Trudy*, v. 23, 1963, 64-135

TOPIC TAGS: luminescence, cathode luminescence, phosphor, zinc sulfide phosphor, phosphorescence, photoluminescence, zinc sulfide, excitation energy, phosphor excitation

ABSTRACT: This is a review article devoted to a theoretical and experimental analysis of excitation energy losses in cathode luminescence, the approximate maximum cathode luminescence yield, exchange

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ACCESSION NR: AT4001250

of energy between an electron beam and a layer of luminor through which it passes, and also the evolution of individual glow processes as functions of the excitation density and the temperature. Particular attention is paid to an investigation of the persistence properties of ZnS phosphors and their connection with the location and filling of the electron and hole localization levels. A detailed analysis is made of the energy losses resulting from thermalization of the electrons and holes, and it is shown that in cathode luminescence these unavoidable losses are very large and decrease the glow efficiency by approximately 2.5 times. Allowing for other losses, the over-all glow efficiency in cathode luminescence cannot exceed 0.27--0.30. The study of the passage of an electron beam through sublimated layers of zinc-sulfide luminors has established the voltage dependence of the electron penetration depth and the energy losses at different depths of electron penetrations. The dependence of the spectral composition, brightness, and energy glow yield of various zinc-sulfide and phosphate luminors on the current density,

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ACCESSION NR: AT4001250

voltage, and temperature were investigated. A glow efficiency of 0.256 was calculated for one type ZnS-Ag luminor. The attenuation of glow of different types of cathode luminors to 0.1, 0.01, and 0.001 of the initial brightness was investigated and the presence of two superimposed de-excitation processes of different durations is established. The causes of the reduction in the duration of afterglow with increasing excitation density are considered. The arrangement and development of localization level of the investigated luminors was studied by the thermal de-excitation method and a connection was established between the attenuation and liberation of the levels at definite depths. "The authors are grateful to senior designer A. G. Ovchinnikov, radio technicians V. P. Ly*sov and Yu. A. Platukhin, senior laboratory assistants Z. M. Bruk, S. B. Kondrashkin, N. V. Mitrofanova, L. N. Petrakov, and A. D. Sy*chkov and laboratory assistant V. P. Prokhorova who helped with the present work." Orig. art. has: 66 figures, 28 formulas, and 4 tables.

Card 3/4

ACCESSION NR: AT4001250

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 00

DATE ACQ: 30Nov63

ENCL: 00

SUB CODE: PH

NO REF SOV: 049

OTHER: 030

Card 4/4

VORONOV, Yu.V.; OVCHINNIKOV, A.G.

Attachment to an electron-optical device for studying the
luminescence of cathodoluminophors. Prib. i tekhn. eksp. 8
no.3:190-191 My-Je '63. (MIRA 16:9)

1. Fizicheskiy institut AN SSSR.
(Electron optics) (Luminescence)

ACC NR: AP7004982

SOURCE CODE: UR/0048/66/030/009/1490/1493

AUTHOR: Arapova, E.Ya.; Voronov, Yu.V.; Levshin, V.L.; Chikhacheva, V.A.; Shchayenko, V.V.

ORG: none

TITLE: Investigation of the ultraviolet luminescence of nonactivated zinc sulfide
/Report, Fourteenth All-Union Conference on Luminescence (Crystal Phosphors) held
at Riga, 16-23 Sept. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 9, 1966, 1490-1493

TOPIC TAGS: luminescence, cathodoluminescence, zinc sulfide, luminescence spectrum,
uv spectrum, crystal lattice vacancy, interstitial ion, luminescence center

ABSTRACT: The authors have investigated the ultraviolet cathodoluminescence of luminescence-pure ZnS that had been treated for 2 hours at 400° C and for 1.5 hours at 1200° in a stream of H₂S and then heated for 35 minutes at 1100° in evacuated sealed ampoules containing sometimes sulfur, sometimes zinc, and sometimes nothing in addition to the zinc sulfide. The purpose of this treatment was to produce materials in which the ratio of the number of zinc vacancies to the number of sulfur vacancies differed from specimen to specimen. The ultraviolet cathodoluminescence spectra were recorded at 89° K. There were three close peaks at about 335, 338, and 342 mμ, with an average separation of 325 cm⁻¹, which is in agreement with the frequency (349 cm⁻¹) of longitudinal vibrations of the sphalerite lattice. The luminescence was less

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ACC NR: AP7004982

intense when the specimen had been heated in the presence of either zinc or sulfur than when it had not. The results are regarded as supporting Williams' hypothesis that the structure of the luminescence band is due to the presence of dipole pairs of Zn and S vacancies. The intensity of the ultraviolet luminescence was very temperature dependent, decreasing by a factor of 1000 when the temperature was raised from 89 to 396° K. The luminescence decayed very rapidly following a complex hyperbolic law and decreasing in intensity by a factor of 1000 in 10 microsec. It is concluded that the centers responsible for this luminescence are donor-acceptor pairs. In addition to the luminescence discussed above, the specimens containing an excess of sulfur showed a second much weaker luminescence band at 395 mμ; this luminescence is ascribed to recombination of electrons and holes trapped at centers formed by zinc vacancies or interstitial sulfur ions. Results obtained with zinc sulfide heated in H₂S, NH₃, and H₂S + HCl atmospheres are presented very briefly. The specimen that contained chlorine had only a single strong luminescence band at 440 mμ. Orig. art. has: 4 figures and 1 table.

SUB CODE: 20 SUBM DATE: none ORIG. REF: 005 OTH REF: 007

Card 2/2

YAKOVLEV, S.V., doktor tekhn. nauk; LASKOV, Yu.M., kand. tekhn. nauk;
VORONOV, Yu.V., inzh.

Purification of waste water from wool-spinning factories. Vod.
i san. tekhn. no.6:33-35 Ia '65. (MIRA 18:8)

YAKOVLEV, S.V., doktor tekhn. nauk; LASKOV, Yu.M., kand. tekhn. nauk;
VORONOV, Yu.V., inzh.

New design of the equipment for biochemical purification of waste
waters. Vod. i san. tekhn. no.9:4-5 S '65. (MIRA 18:9)

AUTHOR: Voronov, Yu.V.; Levshin, V.L.

... activators in the cathodoluminescence of zinc sulfide phosphors ...
30 Jan-5 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 3, 1965, 804-806

TOPIC TAGS: cathodoluminescence, zinc compound, sulfur compound, rare earth, silver, activator interaction

ABSTRACT: The cathodoluminescence spectra of doubly activated Zn phosphors were recorded at 153 and 293°K in order to investigate the effects of activator interaction. It was found that the primary activator with Cd and the secondary activator was ... investigated because they ...
Detailed cathodoluminescence spectra were presented in the paper.

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ACCESSION NR: APO004630

The addition of the second activator was found to cause a redistribution of inter-
molecular interactions and partially to quench the
formation of complexed aggregates. The effect of the second activator on the
formation of complexed aggregates was studied as a function of the concentration
of the second activator. The results are shown in Figure 1 and Table 1.

ASSOCIATION: None

HR REF SOV: 012

(NOV 80)

PHOTO COPY: 001 89

(OTHER: 000)

Card 2/2

12250-65 EXT(1) DATE (C) P. 11 P1-L EJP(c) ME

ACCESSION NR: AFS010040

NR/0360/65/042/001/0126/0131

TITLE: The luminescence yield of an electron-beam excited ruby

SOURCE: Zhurnal prikladnykh spektroskopii, v. 2, no. 2, 1965, 111-112

TOPIC TAGS: ruby, ruby luminescence, luminescence yield, ruby spectrum, emission spectrum, electron excited ruby, ruby laser

ABSTRACT: Emission spectra of a ruby (0.1% Cr) excited by an electron beam... The luminescence yield of the ruby was determined by comparing its... 2n2SiO4 was deposited on the ruby was used as the source of excitation.

at the depth of 3000 meters of water
the observation was made

ASSOCIATION: none

SUBMITTED: 26 Nov 64

EXCL: 00

SUN CODE: EC, CP

REF: 100-111

100-111

ATD PERIOD: 1966

Card 2/2 *DA*

YAKOVLEV, S.V., doktor tekhn.nauk; LASKOV, Yu.M., kand.tekhn.nauk; VORONOV,
Yu.V., inzh.

Purification of waste waters using trickling filters with a plastic
filler. Vod. i san. tekhn. no.1:22-24 Ja '65.

(MIRA 18:3)

FEDOROV, Ivan Ignat'yevich [Fedorov, I.H.], prof.; VORONOV, Yu.Yu., prof.;
GAVRILOV, V.M. [Havrylov, V.M.], red.; MATVICHUK, O.A., tekhn.
red.

[Revivification of the body; scientific methods of dealing with pre-
mature death] Ozhyvlennia organizmu; naukovy metody borot'by z pered-
chasnoiu smertiu. Kyiv, 1961. 39 p. (Tovarystvo dlia poshyrennia po-
litychnykh i naukovykh znan' Ukrain's'koi RSR. Ser.6, no.16)
(MIRA 14:11)

(DEATH, APPARENT) (REGENERATION (BIOLOGY)) (LONGEVITY)

USSR / Cultivated Plants. Potatoes. Vegetables. Melons. M-3

Abs Jour: Ref Zhur-Biol., No 6, 1958, 25048

Author : Voronova, A.

Inst : ~~Not given~~

Title : Hardening the Seeds and Sprouts of Heat Loving
Crops

Orig Pub: Kolkhoznoye proiz-vo, 1957, No 2, 24

Abstract: No abstract.

Card 1/1

VORONOVA, A. (Dalmatovskiy rayon, Kurganskoy oblasti)

Increasing the hardness of corn seeds. Nauka i pred. op. v
sel'khoz. 8 no.4:37-39 Ap '58. (MIRA 11:5)

1. Zaveduyushchaya Dalmatovskim gossortouchastkom pri kolkhose imeni
Chkalova.

(Corn (Maize)) (Plants--Hardness)

VORONOVA, A.A.; VAYNSHTEYN, B.K.

Electron diffraction study of the crystalline structures of
 $PbCO_3 \cdot PbO \cdot 2H_2O$. Kristallografiia 9 no.2:197-203 Mr.-Ap'64.
(MIRA 17:5)

1. Institut kristallografi AN SSSR.

AUTHORS: Voronova, A.A. and Vaynshteyn, B.K. SOV/70-3-4-7/26

TITLE: The Electronographic Investigation of the Crystal Structure of $\text{CuCl}_2 \cdot 3\text{Cu}(\text{OH})_2$ (Elektronograficheskoye issledovaniye $\text{CuCl}_2 \cdot 3\text{Cu}(\text{OH})_2$)

PERIODICAL: Kristallografiya, 1958, Vol 3, nr 4, pp 444-451 (USSR)

ABSTRACT: $\text{CuCl}_2 \cdot 3\text{Cu}(\text{OH})_2$ was found to be monoclinic with space group $C_{2h}^2 = P2_1/m$ and cell dimensions $a = 5.73$, $b = 6.12$, $c = 5.63$ Å and $\beta = 93^\circ 45'$ with $Z = 1$. It is isomorphous with the more stable compound $\text{CuBr}_2 \cdot 3\text{Cu}(\text{OH})_2$.

The minerals atakamite and para-atakamite have the same formula but the former is orthorhombic and the latter hexagonal. For electronographic investigation, the specimen was deposited on a celluloid film and covered with a second film. Patterns of several other phases were also obtained. From texture pictures, the cell dimensions were obtained and the intensities were measured. From these, by means of Patterson projections, potential projections on Oyz and xOz were calculated. The known

Card 1/3

SOV/70-3-4-7/26

The Electronographic Investigation of the Crystal Structure of
 $\text{CuCl}_2 \cdot 3\text{Cu}(\text{OH})_2$

structure of the Br compound was used as a guide and the parameters of the Cl compound were found to be very similar: Cu_I 2(a) positions with $(x,y,z) = (0,0,0)$; Cu_{II} 2(e) with $(0, 0.25, 0.50)$; Cl 2(e) with $(0.392, 0.25, 0.210)$; OH_I 2(e) with $(0.85, 0.25, 0.883)$; OH_{II} 4(f) with $(0.857, 0, 0.324)$. The compound has a layer structure with the Cu atoms distributed pseudo-hexagonally in the Oyz plane, the Cl and OH ions lying on both sides of this plane forming a close-packed layer. The cations are at the centres of deformed octahedra, Cu_I surrounded by 2 OH_I , 2 OH_{II} and 2 Cl, and Cu_{II} surrounded by 4 OH_{II} , 1 OH_I and 1 Cl.

Card 2/3

SOV/70-3-4-7/26
The Electronographic Investigation of the Crystal Structure of
 $\text{CuCl}_2 \cdot 3\text{Cu}(\text{OH})_2$

There are 8 figures, 4 tables and 15 references, 5 of which
are Soviet, 3 English and 7 Swedish.

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography, Ac.Sc.USSR)

SUBMITTED: April 16, 1958

Card 3/3

CA VORONOVA, A.F.

The effectiveness of azotogen on the soils of the Urals region. A. I. Almas'yeva and A. P. Voronova. *Agrobiologiya* 1950, No. 1, 100-7. Azotogen preps. added to the seed of grain or other crops vary in their effectiveness depending on the quantity of org. matter, P content, kind of crop, and soil type. For Western Siberia the prepn. is effective on the dark-gray and gray podsolch soils. In these soils the paucity of N and high P content are conducive to fixation of N by *Azotobacter*. The effect is much less on chernozem soils, but large additions of P stimulate the effectiveness of azotogen. The soils of the solonchak type respond to azotogen when org. matter and phosphates are added. Oats respond more favorably to azotogen than wheat. There is a difference in the effectiveness of strains of *Azotobacter*. I. S. Job.

VORONOVA, A. F.

VORONOVA, A. F. --"Effectiveness of Nitro-Bacterin and Nitragin for the Soils of the Omsk Oblast." *(Dissertations for Degrees in Science and Engineering Defended at USSR Higher Educational Institutions) Omsk Agricultural Inst imeni S. M. Kirov, Omsk, 1955

SO: Knizhnaya Letopis', No. 25, 18 Jun 55

* For Degree of Candidate in Agricultural Sciences

ACCESSION NR ARSOL 11-

0007001/0011-0071

ADS. 11471028

AUTHOR: Voronova, A. F.

TITLE: Substitution of caprone materials for metallic parts

CITED SOURCE: Mekhan. obrabotka drevesiny, sb. 21, 1964, 6

TOPIC TAGS: plastic, machining part, caprone, metal part replacement, mach box
gluing, plastic roller, plastic bushing

... materials were used to replace steel
...
... of metallic parts, ...
N. Milenina.

SUB CODE: MT

BTCL: 40

Card 1/1

1ST AND 2ND COVERS

PROCESSING AND PROPERTY INDEX

7

$2Cu + 2NaCN + H_2O = 2Na_2[Cu(CN)_2] + H_2$
 (cf. Makowka, C. A. 2, 1488)

Rapid determination of copper in sulfidic copper ores and concentrates. L. M. Ickson and A. L. Voronova, *Zashchita Lab. S.* 411-15(1936); cf. C. A. 30, 4123.
 The method of pptg. Cu with CuH_2 and titrating the Cu_2C_2 with NaCN or KCN is based on the reaction: $Cu_2C_2 + 2NaCN + H_2O = 2Na_2[Cu(CN)_2] + H_2$ (cf. Makowka, C. A. 2, 1488). Treat 1 g. ore (0.5 g. concentrate) with a few drops of water, 5 g. KCN and 15 cc. of concd. HNO_3 . When the turbid reaction has subsided, expel N oxides and the Cl odor by digesting the mixt. on a sand bath. Introduce into the cold mixt. (5 cc. of hot water and 10 cc. of 30% tartaric acid) (5 cc. 3-5 g. of solid $Na_2P_2O_7$), 10 cc. excess of concd. NH_4OH and about 0.1 g. $(NH_4)HCl$, and treat the mixt. with CuH_2 for 1 min. Wash the delivery tube with a few drops of titrated 1% NaCN and water, and titrate the soln. with the NaCN soln. to a clear lemon-yellow for a citric or tartaric acid, or colorless for $Na_2P_2O_7$ soln. Calc. the percentage of Cu by the formula: $Cu = 100sT$ (or $Cu = 200sT$), where s is the no. of cc. of NaCN, and T is the titer of NaCN in mg. of Cu. The detn. consumes 30 min. and is accurate to $\pm 0.12\%$.
 Chas. Blank

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
 1930S 214333A

MATERIALS MODE
 COMMON ELEMENTS
 CHEMICAL MODE

VORONOVA, A.I., red.; VLASOVA, N.A., tekhn. red..

[Works published by the Chair of Higher Mathematics] Sbornik
nauchnykh rabot kafedry vysshei matematiki. Moskva, Gos-
atomizdat. No.2. 1962. 123 p. (MIRA 16:1)

1. Moscow. Inzhenerno-fizicheskiy institut.
(Mathematics)

RIZKIN, Abel' Aronovich; VORONOVA, A.I., red.; SLUTSKIN, A.A.,
tekh. red.

[Transistor amplifiers] Poluprovodnikovye usiliteli. Izd. 2.,
perer. i dop. Moskva, Sviaz'izdat, 1962. 135 p.
(MIRA 15:12)

(Transistor amplifiers)

ARSEN'YEV, Yuriy Dmitriyevich; VORONOVA, A.I., red.; POPOVA, S.M.,
tekh. red.

[Analysis of the thermodynamic cycle of atomic electric power
stations by the method of a basic point] Analiz termodinamicheskogo tsikla atomnykh elektrostantsii metodom bazovoi tochki.
Moskva, Gosatomizdat, 1962. 132 p. (MIRA 15:7)
(Atomic power plants) (Thermodynamics)

MIKHEYEV, Grigoriy Fedorovich; POSTNIKOV, Vladimir Ivanovich;
VORONOVA, A.I., red.; VLASOVA, N.A., tekhn. red.

[Effectiveness of using radioisotopes in the national economy]
Effektivnost' primeneniia radioaktivnykh izotopov v narodnom
khoziaistve. Moskva, Gosatomizdat, 1962. 102 p. (MIRA 15:7)

1. Institut ekonomiki Akademii nauk SSSR i Kafedra organizatsii
proizvodstva Moskovskogo Vysshego tekhnicheskogo uchilishcha
im. Baumana (for Mikheyev, Postnikov).
(Radioisotopes---Industrial applications)

SAVITSKIY, P.S., otv. red.; KULISH, Ye.Ye., red.; FRADKIN, G.M., red.;
VORONOVA, A.I., red.; POPOVA, S.M., tekhn. red.

[Isotopes, radiation sources and radioactive materials;
catalog] Izotopy istochniki izlucheni i radioaktivnye materialy;
katalog. Izd.2., dop. Moskva, Gosatomizdat, 1962. 218 p.
(MIRA 16:2)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po ispol'zova-
niyu atomnoy energii.

(Isotopes) (Radiation)

HUSANOV, Vladimir Dmitriyevich; VORONOVA, A.I., red.; POPOVA, S.M.,
tekhn. red.

[Modern methods of plasma study] Sovremennye metody issledovaniia plazmy. Moskva, Gosatomizdat, 1962. 182 p. (MIRA 16:1)
(Plasma (Ionized gases))

KARETNIKOV, D.V.; SLIVKOV, I.N.; TEPLYAKOV, V.A.; FEDOTOV, A.P.;
SHEMBEL', B.K.; VORONOVA, A.I., red.; POPOVA, S.M., tekhn.
red.

[Linear ion accelerators] Lineinye uskoriteli ionov. [Hy] D.V.
Karetnikov i dr. Moskva, Gosatomizdat, 1962. 207 p.
(MIRA 15:10)

(Particle accelerators)

KUTAYTSEV, Viktor Ivanovich; VORONOVA, A.I., red.; VLASOVA, N.A.,
tekh. red.

[Thorium, uranium, and plutonium alloys; collection of materials
on constitutional diagrams and crystal structures] Spilny toria,
urana i plutonia; sbornik materialov po diagramam sostoiania i
kristallicheskim strukturam. Moskva, Gosatomizdat, 1962. 223 p.
(MIRA 15:7)

(Thorium alloys--Metallography)
(Uranium alloys--Metallography)
(Plutonium alloys--Metallography)

PERFILOV, N.A., doktor fiz.-mat. nauk, red.; EYSMONT, V.F., kand. fiz.-
mat. nauk, red.; VORONOVA, A.I., red.; MAZEL', Ye.M., tekhn.
red.

[Physics of nuclear fission] Fizika deleniia atomnykh iader;
sbornik statei. Moskva, Gosatomizdat, 1962. 241 p.
(MIRA 15:7)

(Nuclear fission)

BARANOV, Vladimir Il'ich; GORBUSHINA, Lyudmila Valentinovna; VORONOVA,
A.I., red.; POPOVA, S.M., tekhn. red.

[Safety measures in uranium mines] Voprosy bezopasnosti v urano-
vykh rudnikakh. Moskva, Gosatomizdat, 1962. 185 p.

(MIRA 15:7)

(Uranium mines and mining--Safety measures)

ZEFIROV, A.P., prof., doktor tekhn. nauk; NEVSKIY, B.V.; IVANOV,
G.F.; VORONOVA, A.I., red.; MAZEL', Ye.I., tekhn. red.

[Plants for the processing of uranium ores in capitalist
countries] Zavody po pererabotke uranovykh rud v kapitalisti-
cheskikh stranakh. Pod obshchei red. A.P.Zefirova. Moskva,
Gosatomizdat, 1962. 370 p. (MIRA 15:7)
(Uranium industry)

RIZKIN, Abel' Aronovich; VORONOVA, A.I., red.; SLUTSKIN, A.A., tekhn. red.

[Transistor amplifiers] Poluprovodnikovye usiliteli. Moskva, Gos.
izd-vo lit-ry po voprosam sviazi i radio, 1961. 118 p.
(MIRA 14:11)

(Transistor amplifiers)

ANOSOVICH, B.F., otv. red.; VORONOVA, A.I., red.; RITBERGER, N.Y.,
tekh. red.

[High-frequency telephony systems using long-distance
telephone lines; information manual] Sistemy vysoko-
chastnogo telefonirovaniia po mezhdugorodnym kabel'nym
liniham; informatsionnyi sbornik. Moskva, Gos.izd-vo
lit-ry po voprosam sviazi i radio, 1958. 113 p.

(MIRA 14:5)

(Telephone).

LASKORIN, B.N.; SMIRNOVA, N.M.; GANTMAN, M.N.; VORONOVA, A.I., red.;
VLASOVA, N.A., tekhn. red.

[Ion-exchange membranes and their use] Ionnoobmennye membrany ikh
primeneniye. Moskva, Gos.izd-vo lit-ry v oblasti atomnoi nauki i
tekhniki, 1961. 162 p. (MIRA 14:12)
(Ion exchange)

SANKIN, Nikolay Mikhaylovich; TRUNOV, Vadim Ivanovich. Prinimali uchastiyev:
TIMOPEYEVA, G.Ya.; KHANOV, B.A.; SAVITSKIY, B.I., BORISOV, G.B.,
otv.red.; VORONOVA, A.I., red.; MARKOCH, K.G., tekhn.red.

[Principles of technical planning of transmitting networks for
television and shortwave F.M.broadcasting; information manual]
Printsipy tekhnicheskogo planirovaniya peredatshchikh setei
televizionnogo i UKV ChM veshchaniya; informatsionnyi sbornik.
Moskva, Gos.izd-vo lit-ry po voprosam svyazi i radio, 1960.
93 p. (MIRA 13:5)

1. Nauchno-issledovatel'skiy institut svyazi Ministerstva svyazi
SSSR (for Sankin, Trunov).

(Radio, Shortwave--Transmitters and transmission)
(Television broadcasting)

NADENENKO, Sergey Ivanovich; PISTOL'KORS, A.A., retsenzant; MARKOV, G.T.,
prof., retsenzant; KOCHERZHEVSKIY, G.N., kand.tekhn.nauk, otv.
red.; VORONOVA, A.I., red.; SHEPER, G.I., tekhn.red.

[Antennas] Antenny. Moskva, Gos.izd-vo lit-ry po voprosam
svyazi i radio, 1959. 550 p. (MIRA 12:11)

1. Chlen-korrespondent AN SSSR (for Pistol'kors).
(Antennas (Electronics))

BUGOSLAVSKAYA, Natal'ya Yakovlevna [deceased]; BUGOSLAVSKAYA, Ye.Ya.,
otv.red.; VORONOVA, A.I., red.; SLUTSKIN, A.A., tekhn.red.

[Solar activity and its influence on the ionosphere] Sol-
nechnaia aktivnost' i ee vliianie na ionosferu. Moskva, Gos.
izd-vo lit-ry po voprosam svyazi i radio, 1959. 31 p.
(MIRA 13:2)

(Sun)

(Ionosphere)

VORONOVA, A. I.

IODKO, Yevgeniy Konstantinovich; FORTUSHENKO, A.D., otvetstvennyy red.;
VORONOVA, A.I., red.; MAZEL', Ye.I., tekhn.red.

[Organization and planning of radio communication and radiobroad-
casting] Organizatsiia i planirovanie radiosvazi i radioveshchania.
Moskva, Gos.izd-vo lit-ry po voprosam svazi i radio, 1958. 543 p.
(Radiobroadcasting) (Radio) (MIRA 11:6)

KRIVOSHEYEV, Mark Ionifovich; LEYTES, Lev Semenovich; RHYARD, Vladimir
Borisovich; KRIVOSHEYEV, M.I., otv.red.; VORONOVA, A.I., red.;
KARABILOVA, S.F., tekhn.red.

[Television broadcasting techniques; a collection of information]
Tekhnika televizionnogo veshchaniia; informatsionnyi sbornik.
Moskva, Gos.izd-vo lit-ry po voprosam svyazi i radio, 1958, 162 p.
(MIRA 12:5)

(Television--Transmitters and transmission)

VORONOVA, A. I.

AYZENBERG, Grigoriy Zakharovich; MODEL', A.M., otvetstvennyy red.;

VORONOVA, A.I., red.; VIKTORYAUB, A.B., tekhn.red.

[Ultrashort wave antennas] Antenny ul'trakorotkikh voln. Moskva,
Gos.izd-vo lit-ry po voprosam svyazi i radio, 1957. 698 p.

(MIRA 10:12)

(Radio, Shortwave--Antennas)

VORONOVA, A-I

PHASE I BOOK EXPLOITATION

SOV/4299

USSR. Ministerstvo svyazi. Tekhnicheskoye upravleniye

Printsiipy tekhnicheskogo planirovaniya peredayushchikh setey televizionnogo i UKV ChM veshchaniya; informatsionnyy sbornik (Principles of Technical Planning of Television Transmission Networks and VHF Frequency Modulated Broadcasting Networks; Collection of Information Data). Moscow, Svyaz'izdat, 1960. 132 p. (Series: Tekhnika svyazi) Errata slip inserted. 10,000 copies printed.

Resp. Ed.: G.B. Borisov; Ed.: A.I. Voronova; Tech. Ed.: K.G. Markoch.

PURPOSE: This booklet is intended for technical personnel working in the fields of television and broadcasting.

COVERAGE: The booklet is written by N.M. Sankin and V.I. Trunov, workers of the Gosudarstvennyy nauchno-issledovatel'skiy institut Ministerstva svyazi SSSR (State Scientific-Research Institute of Communication of the Ministry of Communications, USSR) and published under the auspices of the aforementioned institute and of the Tekhnicheskoye upravleniye Ministerstva svyazi SSSR (Technical Administration of the Ministry of Communications, USSR). The booklet presents basic principles for planning transmission networks of television

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Principles of Technical Planning (Cont.)

SOV/4299

and VHF f-m broadcasting. It describes physical processes occurring in meter wave propagation, the regional distribution of field intensity around radiating systems and protective relationships ensuring the quality of television and VHF f-m broadcast reception under various operating conditions. The booklet reviews methods of determining the effective area of service of a transmitter in the presence of interference from other transmitters and the probable quality of television and VHF f-m broadcast reception. It introduces the concept of protective field intensity and establishes the period of interference during which the relation of effective transmitter field to that of the interfering transmitter is equal to or less than the established protective relation. It fixes the minimum number of channels required for bringing television to the population of a given territory in relation to the height of antenna masts and the power of transmitters. Methods of distributing operating frequencies between television and VHF f-m broadcasting transmitters are reviewed. Finally the appendix contains diagrams showing the change of field intensity depending on distance for the 48.5 - 230 Mc frequency range and for various periods of time. The authors thank G.Ya. Timofeyeva, B.A. Khanov, B.I. Savitskiy, A.I. Kalinin, Z.V. Topuria and editor G.B. Borisov. There are 50 references, 21 Soviet, 21 English, 6 German, 1 French and 1 Italian.

Card 7/6

VORONOVA, A. I.

PHASE I BOOK EXPLOITATION

454

Ayzenberg, Grigoriy Zakharovich

Anteny ul'trakovotkikh voln (Ultrashort-wave Antennas) Moscow, Svyaz'izdat, 1957.
698 p. 17,000 copies printed.

Resp. Ed.: Model', A. M.; Ed.: Voronova, A. I.; Tech. Ed.: Veyntraub, A. B.

PURPOSE: This book, the first part of a monograph to appear in two parts, is addressed to radio engineers specializing in antenna design.

COVERAGE: The present book is the first part of a monograph on ultrashort-wave antennas and feed lines. The general theory of electric power transmission lines and antenna design is extensively treated. Special attention is given to antennas used in radio communications and, in particular, to those used in radio relay systems operating in the microwave range. It is proposed to devote the second part of the monograph to problems in tuning, feeding, matching, switching, multiple tuned antennas, etc. For coherency of presentation, some data on waveguide excitation are presented in the first part. The material for the first part of the monograph has, on the whole, already appeared in the

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Ultrashort-wave Antennas

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scientific and technical periodical literature in the field. Some of the material has been drawn from unpublished sources. The author wrote all the chapters of the book with the exception of Chapter XIX which was written by A.M. Pokras, (paragraphs 8 and 9 excepted) and Chapter XXII which was written in collaboration with A.L. Epshteyn. The author expresses his thanks to A.A. Pistol'kors for reviewing the manuscript, to the Antenna Section of the Society Imeni A.S. Popov, and to A.R. Vol'pert for his criticism of the manuscript and other valuable suggestions. Also mentioned in the preface are: A.M. Model', Editor in Chief, Ye.M. Babayan, L.N. Olifin and V.G. Yampol'skiy who helped in editing the manuscript, and A.Z. Fradin and G.N. Kocherzhevskiy, the official reviewers. The Soviet scientist, B.Z. Katsenelenbaum, is credited with being the first to have called attention, in 1948, to the existence in equation 5.5.IV for asymmetrical waves (p. 77) [equation of the conditions for a non-trivial solution] of two branches, A and B (see footnote, p. 78). The Soviet scientists, D.A. Rozhanskiy, I.G. Klyatskin, A.A. Pistol'kors and V.V. Tatarinov, are credited with having contributed to the development of the method of induced emfs in the design of antennas consisting of linear dipoles. (p. 177) A method of designing antennas consisting of cophased-excited dipoles is discussed. The method was developed by Dol'f and is based on the P.L. Chebyshev polynomials. (pp. 189-202) V.D. Kuznetsov is mentioned in connection with formulas for determining power concentrated in the main lobe of the antenna radiation pattern

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in the case of an evenly and unevenly excited round surface. (p. 234)
M. Sveshnikova is cited for her contribution to the development of a method of analyzing the characteristics of receiving antennas (see footnote, p. 247). Reference is made to a formula (1.2.XII) which is an analytic expression of the reciprocity theorem. This relation can be used in analyzing the characteristics of receiving antennas if, as M. Shveshnikova proved in her work, the channel beginning at the transmission antenna input and ending at the receiving antenna output can be considered as a linear parasitic quadripole (p. 246-247). Leontovich is mentioned in connection with his contribution to the development of a method of calculating the input resistance of a symmetrical dipole (p. 266). S.A. Shchelkunov is mentioned as having derived, on the basis of more rigid analysis, formulas for calculating the input resistance and the wave impedance of a biconical dipole (Diagram 5.2. XIII, p. 270). A.M. Model' is credited with having derived the formulas for calculating the directional radiation patterns of a parabolic cylinder in a plane perpendicular to the axis of the exciter (p. 490) for various positions of the exciter relative to the focus. V.V. Lyalikov is credited with having derived formulas for calculating the field in sector of a corner-reflector antenna (p. 529). V.A. Kozhevnikov is mentioned in connection with his solution for a system of equations of a plane grid total electric

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field using the approximation method for the solution of an infinite system of equations (p. 560). There are photographs of some specific pieces of Soviet produced equipment: an accelerating zoned metallic lens (370), a horn-lens antenna used in radio relay systems (p. 410), an accelerating lens consisting of plane grids (p. 418), a parabolic-horn antenna (p. 484). There is no bibliography as such. However, throughout the book, reference is made to various sources as follows: Four sources in English (pp. 289, 478, 537 and 585), two translations from English (pp. 124, 296), one source in German (p. 546), one source in French (p. 612), and 12 Soviet sources, all in Russian (pp. 78, 152, 178, 247, 328, 512, 546, 560, 562 and 641).

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2. Conversion of the Maxwell and wave equations to a form suitable for studying guided waves	18
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