

BORZUNOV, A.A.

Physical processes in the magnetic circuit of "kappo" meter designed
by N.A.Ivanov. Trudy Gor.geol.inst.UFAN SSSR no.6:217-222 '60.
(MIRA 14:10)

(Magnetic prospecting)

BORZUNOV, I. G.

"Investigation of the Operation of the Drum-Head Assembly on a Carding Machine." Sub 22 Nov 51, Moscow Textile Inst

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

BORZUKOV, I.G., kandidat tekhnicheskikh nauk.

**Correlation between the amount of fiber delivered to the wire
teeth surface of a carding machine and the amount of carded sliver
produced. Tekst.prom. 15 no.12:27-30 D '55. (MLRA 9:3)
(Carding machines)**

~~BORZUNOV, I.G.~~

Conference on problems in carding. Tekst.prom. 16 no.7:68-69
Jl '56. (MLRA 9:8)

(Carding)

BORZUHOV, I.G.

Investigating the performance of semirigid card clothing.
Izv. vys. ucheb. zav.; tekhn. tekst. prom. no.5:60-65 '58.
(MIRA 11:12)

1. Moskovskiy tekstil'nyy institut.
(Carding machines)

BORZUNOV, I.G., kand.tekhn.nauk

Ability to even in carding machines. Tekst. prom. 18 no.3:22-25
Mr '58. (MIRA 11:3)
(Carding machines)

BORZUNOV, I.G.; SMELOVA, N.A.; KORYTOV, R.F.

Redesigning the draw box of a high-draft slubber for two-zone high drafting. *Izv.vys.ucheb.sav.; tekhn.tekst.prom. no.6:88-91 '60.*
(MIRA 14:1)

1. Moskovskiy tekstil'nyy institut.
(Spinning machinery)

BORZUNOV, I.G.

Ways to reduce the load on the cylinder and flats of the carder
in the increase of its operative capacity. Izv. vys. ucheb. zav.;
tekh. tekst. prom. no.2:55-60 '65. (MIRA 18:5)

1. Moskovskiy tekstil'nyy institut.

BORZUNOV, I.G.

Conditions of the intensive working of fibrous materials by the
main cylinder of a carder. Izv. vys. ucheb. zav.; tekhn. tekst.
prom. no.4:46-50 '65. (MIRA 18:9)

1. Moskovskiy tekstil'nyy institut.

BOLOGA, Mircha Kirillovich; BORZUNOV, L.V., red.; SYMOV, B.G.,
red.; POLONSKIY, S.A., tekhn. red.

[Solar energy and its utilization] Solnechnaia energiya i ee
ispol'zovanie. Pod red. L.V. Borsunova. Kishinev, Izd-vo
"Shtiintsa" Akad. nauk Moldavskoi SSR, 1962. 68 p.
(MIRA 16:5)

(Solar energy)

BOLOGA, Mircha Kirillovich; BORZUNOV, L.V., red.; SYROV, B.G.,
red.; POLONSKIY, S.A., tekhn. red.

[Solar energy and its use] Solnechnaia energija i ee ispol'-
zovanie. Pod red. L.V. Borzunova. Kishinev, Izd-vo "Shtiintsa"
AN Moldavskoi SSR, 1962. 68 p. (MIRA 16:7)
(Solar energy)

BORZUNOV, Leonid Vasil'yevich; BOLOGA, Mirchya Kirillovich;
KOROTUN, Vasilii Nikitovich; SYROV, B.G., red.;
SHCHEGLOV, Yu.A., red.

[Energy characteristics of the solar regime of Moldavia]
Energeticheskie kharakteristiki solnechnogo rezhima
Moldavii. Kishinev, Izd-vo "Shtiintsa," 1962. 42 p.
(MIRA 18:5)

BORZUNOV N. A.
BORZUNOV, N. A. and ORLINSKIY, D. V.

"Distribution of the Intensity of the Neutron Radiation along the Axis of a Straight Tube for a Strong Pulse Discharge in Deuterium. (Work - 1954); pp. 150-164.

"The Physics of Plasmas; Problems of Controlled Thermonuclear Reactions." Vol. II. 1958, published by Inst. Atomic Energy, Acad. Sci. USSR.
resp. ed. M. A. Leontovich, editorial work V. I. Kogan.

Available in Library.

BORZUNOV, N.A.

AUTHORS: Borzunov, N. A., Orlinskiy, D. V., Osovets, S. M. 89-2-6/35

TITLE: Investigation of an Intense Pulsed Gas Discharge by Means of a High-Speed Photography (Issledovaniye moshchnogo impul'snogo razryada v gazakh s pomoshch'yu skorostnoy fotos"yemki)

PERIODICAL: Atomnaya Energiya, 1958, Nr 2, pp. 149-153 (USSR).

ABSTRACT: Discharges are produced in deuterium, argon, krypton and xenon with the help of a current exceeding 10^5 A at a gas pressure of 0.1 to 1.0 mm of mercury. A glass tube with a diameter of 18.5 cm served as discharge tube, the electrodes being at a distance of 97 cm. A condenser battery with a capacity of 35 F served as a current source, which was charged up to 40 kv. The course taken by the gas discharge is recorded photographically by means of a high-speed camera (10^6 exposures per second). The pictures obtained are shown for all 5 gases. On the basis of these pictures the course of the gas discharge in its initial state is compared in a qualitative way for the different gases. The results of this comparison show a good accord with the theoretical predictions,

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89-2-6/35

Investigation of an Intense Pulsed Gas Discharge by Means of a High-Speed Photography

which can be made with respect to the contraction in area of the plasma from the "inertia-theory" by Leontovich (reference 5). There are 9 figures, and 5 Slavic references.

SUBMITTED: September 11, 1957.

AVAILABLE: Library of Congress

Card 2/2

1. Gas discharges-Photographic analysis 2. Gas discharges-
Test results 3. High speed photography-Applications

AUTHORS:

BORZUNOV, N. A.
Borzunov, N. A., Kogan, V. I., Urdinskiy, D. I.

89-2-12/35

TITLE:

Estimation of Electron Temperature and the Degree of Ionization in the first stage of a powerful Pulsed Discharge (Otsenka elektronnoy temperatury i stepeni ionizatsii v nachal'noy stadii moshchnogo impul'snogo razryada).

PERIODICAL:

Atomnaya Energiya, 1958, Nr 2, pp. 180-183 (USSR).

ABSTRACT:

In a glass tube of a diameter of 18,5 cm and a distance between the electrodes of 97 cm the discharge takes place. As source of current a charged condenser battery of 35 μ F was used. In all experiments the current in the maximum of the first half period attained about 250 kA. As apparatus for the registration of the radiation of discharge a Cs-0-vacuum photo-tube was used which had an integral sensitivity of 40 μ A/Lumen. The distance between the cell and the discharge tube was 3300 mm, of the discharge tube only 20 cm being exposed. The signals from the photo-tube were directed to the deflector plate of a two beam oscillograph. With hydrogen pressure values of 0,3, 0,5, 1,0 and 2,0 mm Hg (initial pressure) the corresponding oscillograms were made. The experimental data - measured intensity of radiation in the visible part of the spectrum-express the following:

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a) With a given initial pressure T_e changes only little within a long

Estimation of Electron Temperature and the Degree of Ionization 89-2-12/35
in the First Stage of a Powerful Pulsed Discharge.

interval, that is to say, within the range in which a salient point is to be expected in the current curve.

b) With increasing initial pressure T_e reaches a value of about $4eV$ at 0,4 mm Hg and a value of about 2,5 eV at 2 mm Hg.

c) The degree of ionization averaged with respect to the gas-discharge cross-section amounts, as regards the salient point t_{oc} , to some percents.

There are 4 figures, 2 tables, and 3 Slavic references.

DEPOSITED: September 11, 1957.

AVAILABLE: Library of Congress.

Card 2/2

1. Electrons-Ionizing effects-Estimation
2. Hydrogen-Ionization
3. Gas discharges-Properties

BORZUNOV, N.A.

24.2/26 64902
Granovskiy, V.I., Luk'yanov, G.Yu., Spivak, G.V. and Sirotenko, I.G.
Report on the Second All-Union Conference on Gas Electronics

TITLE: Report on the Second All-Union Conference on Gas Electronics
PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1359 - 1358 (USSR)

I.M. Emkorniy and N.G. Koval'skiy - "New Data on X-ray Radiation During Pulse Discharges"
V.A. Eshabov and M.M. Sukhovskiy - "Investigation of the neutron radiation in powerful gas discharges in chambers with conducting walls."
V.A. Borzunov et al. - "Investigation of the Gas Discharge in a Hollow Cathode."
S.M. Gerasimov et al. - "A Turn of Plasma in Transverse Magnetic Field."
I.G. Kasayev - "Data on the Division of a Cathode Spot on Mercury in a Low-pressure Arc" (see p 1289 of the journal).
A.B. Bohann (England) - "A New Theory of the Cathode Spot" (see p 1395 of the journal).
L.M. Stukova - "Positive Column in a Hydrogen Discharge with Stationary and Pulse Loads."
I.G. Borzunov and A.A. Zeylov - "Current Distribution on the Surface of a Cathode in a Gas Discharge in Low-voltage Hollow Cathodes."
I.G. Borzunov - "Comparison of the Temperature of the Initial De-ionization in the Isotopes of Hydrogen (H and D)."

L.A. Melnikova communicated some results on the pre-breakdown current pulses at low pressures.
M.Ye. Vasil'yev and A.A. Zeylov - "Charge-density oscillation waves in cylindrical discharges."
I. Zeldfak of Czechoslovakia communicated some information on the theory of fast ions in pulse discharges.
B.B. Rodin et al. - "Convection Instability of a Plasma String."
E.I. Buzin et al. - "Investigation of a Self-maintained Ultra-high Frequency Pulse Discharge and the Process of its Development."
G.M. Zaitseva and G.J. Seleznev - "Some Results of the Investigation of the Formation of Low-pressure High-Frequency Discharges."
G. Margman (USA) - "Conductivity of Weakly Ionized Plasma."

A.A. Kuznetsov - "The Conditions of Transition From High-Frequency Corona Discharge at Atmospheric Pressure."
L.Kr. Goryunov et al. - "Investigation of the Characteristic of the Ultra-high Frequency Current and the Direct Current in Gas Discharges."
B.B. Lezov'yer analysed the conductivity of the discharging plasma in the window of a resonance discharge tube.
S.M. Lavril'skiy and L.P. Shashugina dealt with the applicability of the probe method to high-frequency discharges (see p 1376 of the journal).
The paper by V. Ye. Mitsuk et al. was devoted to the investigation of the ultra-high frequency plasma by means of the Stark effect. With the problem of electric fields in a high-frequency discharge at low pressure.
G.S. Solntsev et al. dealt with the problem of electric fields in a high-frequency discharge at low pressure.
I.A. Rudnik of Russia read a paper entitled "High-Frequency Discharges in Methane".
The work of the sixth section was devoted to the problems of the Stark effect and its radiation. The following papers were read: one by V.A. Fabrikant. The following papers were read: one by V.A. Fabrikant. The following papers were read: Yu.M. Kagan - "Method of Probe Methods of Plasma Investigation"; V.I. Drozdov - "Collaborative Measurements in Plasma"; V.A. Sizmonov and A.G. Niz'man - "Investigation of the Movement of Electrons in a Hollow Cathode"; Short notes of the section.

10(4), 21(7)

SOV/56-36-3-10/71

AUTHORS: Borzunov, N. A., Orlinskiy, D. V., Osovets, S. M.

TITLE: Investigation of a Strong Pulse Discharge in Conical Chambers
(Issledovaniye moshchnogo impul'snogo razryada v konicheskikh kamerakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 36, Nr 3, pp 717-726 (USSR)

ABSTRACT: The present paper contributes towards solving the hitherto unsolved problem of the theoretical description of the contraction of conical plasma envelopes at high current pulse discharges. In this paper the behavior of a gas plasma of conical shape (in a conical container) through which a rapidly increasing current flows, the magnetic field of which endeavors to contract the plasma in the direction of the container's axis, is, at first, theoretically investigated. The main part of the paper deals with results obtained by experimental investigations in a single and in a double cone vessel. Investigation results are given by diagrams and by a number of photographs. Thus, figure 5 shows series of photographs of a discharge in a conical chamber filled with deuterium taken at intervals of $0.5 \cdot 10^{-6}$ sec. The discharge

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Investigation of a Strong Pulse Discharge in Conical Chambers

source was a condenser pile with a capacity of 35 - 45 F, primary voltage at the condensers: $U_0 = 25 - 40$ kv at a deuterium primary pressure of 0.02 to 1.0 torr. The "double cone" chamber (Fig 10) had its greatest radius (100 mm) in the middle and consisted essentially of a symmetric glass vessel enclosed by a copper feeder (angle of inclination of the lateral walls: 7°). Figure 11 shows a photograph of a discharge in such a vessel filled with deuterium ($p_0 = 0.2$ torr) with the corresponding oscillogram, and figure 12 shows the same for an argon filling ($p_0 = 0.05$ torr). Data for deuterium filling: $C = 43$ F, $U_0 = 35$ kv ($J_m \approx 410$ ka); data for argon filling: $U_0 = 32$ kv ($J_m \approx 350$ ka). An investigation of the neutron emission of the plasma showed that this emission is in no connection with respect to the time with the singularities of the current- and voltage diagrams and is not accompanied by X-ray radiation. Figure 16 shows oscillograms of the discharge current J , of the voltage U between the electrodes and the neutron radiation in the case of a discharge in a double cone chamber (hydrogen filling, wall:

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2.5 cm porcelain, 0.1 cm Cu, 0.3 cm Pb, 0.5 cm Al); no hard X-ray radiation could be observed. The oscillograms indicate a possibility of attaining stabilization of the plasma column by means of the primary discharge form mentioned. There are 16 figures and 7 references, 5 of which are Soviet.

SUBMITTED: August 26, 1958

Card 3/3

BORZUNOV, N.A.; KUZ'MINA, N.Ya.; NEVYAZHSKIY, I.Kh.; OSOVETS, S.M.;
PETROV, Yu.F.; POLYAKOV, B.I.; POPOV, I.A.; KHODATAYEV, K.V.;
SHIMCHUK, V.P.

Studying a plasma on a traveling wave setup. Dokl. AN SSSR 152
no.3:581-584 S '63. (MIRA 16:12)

1. Predstavleno akademikom A.L.Mintsem.

BORZUNOV, S., polkovnik

Military Publishing House has brought out these books. **Voen.**
~~№ 98 2007-1-02~~ (MIRA 15:2)

1. Glavnyy redaktor khudozhestvennoy literatury Voenizdata.
(Bibliography--Military art and science)

BORZUNOV, S., polkovnik

They are guarding the peace. *Voen. znan.* 38 no.10:39 0 '62.
(MIRA 15:10)

1. Glavnyy redaktor khudozhestvennoy literatury Voenizdata.
(Bibliography—Military art and science)

BORZUNOV, Semen Mikhaylovich; USPENSKIY, N.M., red.; KOBZAR', V.N.,
tekhn.red.

[For young people about Soviet military discipline; popular
sketch] Molodshi o sovetskoi voinskoj distsipline; popu-
liarnyi ocherk. Moskva, Izd-vo DOSAAF, 1959. 87 p.

(MIRA 13:2)

(Military discipline)

GAGARIN, Yuriy Alekseyevich, Geroy Sovetskogo Soyuza; BORZUNOV, S.M., red.;
RUDIN, M.Z., red.; BUKOVSKAYA, N.A., tekhn. red.

[Road to outer space; notes of the Soviet astronaut-pilot] Doroga v
kosmos; zapiski letchika-kosmonavta SSSR. Moskva, Voen.izd-vo M-va
obor.SSSR, 1961. 237 p. (MIRA 14:12)
(Astronautics)

TITOV, German Stepanovich, Geroy Sovetskogo Soyuza; KAMANIN, N.P.,
general-leytenant aviatsii, red.; FORZUNOV, S.M.,
polkovnik, red.; RUDIN, M.Z., polkovnik, red.; MURASHOVA,
L.A., tekhn. red.

[Aviation and space] Aviatsiia i kosmos; rasskaz letchika-
kosmonavta SSSR. Moskva, Voenizdat, 1963. 244 p.

(MIRA 16:4)

(Titov, German Stepanovich, 1935-)

BORZUNOV, Semen Mikhaylovich; USPENSKIY, N.M., red.; KUZ'MIN, I.F.,
tekh. red.

[The very essence of military service] O samom glavnom v sluzhbe
soldatskoi. Moskva, Izd-vo DOSAAF, 1962. 138 p. (MIRA 16:1)
(Armed forces--Military life)

1.6000

25543

S/123/61/000/011/029/034
A004/A101

AUTHORS: Borzunov, V. A.; Semin, V. P.

TITLE: Aggregate assembly employed in high pressure experiments

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 11, 1961, 16, abstract 11E114 ("Tr. in-tov Kom-ta standartov, mer 1 izmerit. priborov pri Sov. Min. SSSR", 1960, no. 46 [106], 107-116)

TEXT: The authors describe the main units of an assembly operating at high pressures (10,000 - 30,000 kgf/cm²). In the multiplier with automatic counterpressure control, acting on the outer surface of the working chamber, the counterpressure is produced by compression in the closed space of the rubber jacket placed on the working part of the cylinder. On the outside the jacket is held by a sleeve with thick-walled rings fitted on the latter. The authors present the multiplier layout with automatic tightening of the piston seal which is effected by the pressure of the pressure fluid getting into the multiplier low-pressure zone. A special ring-shaped piston under the effect of the fluid pressure produces a tension on the padding of the seal which is proportional to the pressure in the multiplier. The authors present the grades of the materials

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Aggregate assembly employed in high pressure ...

S/123/61/000/011/029/034
A004/A101

utilized and the requirements as to their heat treatment and autofretting ("avto-fretirovaniye"). They analyze a manual plunger pump and a pump with electric drive by a link gear intended to produce the preliminary pressure in the working chamber of the multiplier and the working pressure in the zone of the large piston. The maximum pressure developed by the pump is 2,000 kgf/cm². To feed the pump, the pressure fluid is fed from a tank at a pressure of 1.5 - 2 atm which is produced by a compressor mounted on the upper pump part. The authors present the design of a valve with hydraulic seal and self-packing gland and also of a valve with hydraulic seal and stuffing-box seal with automatic tightening. They describe the device for the fixing of the thermocouple in the high-pressure chamber and the electric lead-in with four self-contained lead-outs. The electric lead-in is sealed by a cone out into four parts, which are insulated along the cutting planes with mica. It is recommended to carry out the autofretting ("avtofretirovaniye") of short channels with rubber as transmitting media, producing a pressure with the aid of a connecting rod and a hydraulic press.

K. Perchikhin ✕

[Abstracter's note: Complete translation]

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05472

SOV/120-59-3-43/46

AUTHORS: Borzunov, V. A., and Mirinskiy, D. S.

TITLE: Sealing the Shafts of Pressure Amplifiers
(Uplotneniye shtokov mul'tiplikatorov vysokogo davleniya)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3,
pp 152-153 (USSR)

ABSTRACT: Fig 1 shows the proposed sealing method and Fig 2 shows the seal itself. The high-pressure cylinder 1 is joined to the cylinder of the press 2 and to the low-pressure cylinder of the multiplier 3; these two latter cylinders are connected to the same pressure source. The force on the piston 4 is transmitted by the shaft 5; the force from the piston 6 is exerted on the base of the cone 7 and serves to compress the seal. The seal consists of the thrust ring 8, of the insert 9, of the pressure washer 10, of the second thrust ring 11 and of the spacer 12. Ring 8 fits the shaft very closely, and has a small radial hole, which allows the liquid to enter the gap outside the ring. The second thrust ring 11 also fits tightly on the shaft at one end. Parts 7 and 12 have a clearance of 0.05 mm from the shaft. Washer 10 is

Card 1/2

RAZUMIKHIN, V.N.; BORZUNOV, V.A.

High-pressure piston manometers. Trudy inst. Kom. stand.,
meri izm. prib. no. 46:55-61 '60. (MIRA 13:12)
(Manometer)

BORZUNOV, V.A.; SEMIN, V.P.

Equipment used in high-pressure research. Trudy inst. Kon.
stand., ser 1 izm. prib. no. 46:107-116 '60. (MIRA 13:12)
(High-pressure research--Equipment and supplies)

BORZUNOV, V.A.; RAZUMIKHIN, V.N.

Unit for measuring the density of liquids at pressures up to
10,000 kgf/cm². by the hydrostatic method. Trudy inst.Kom.stand.
mer i izm.prib. no.75:134-142 '64.

(MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

ATANOV, Yu.A.; BORZUNOV, V.A.; RAZUMIKHIN, V.N.

Measuring the compressibility of liquids by the method of the bellows-sealed piezometer at pressures up to 10,000 kgf/cm².
Trudy Inst.Kom.stand.mer i izm.prib. no.75:143-150 '64.

(MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

ALEKSEYEV, K.A.; BORZUNOV, V.A.; SEMIN, V.P.; SEKOYAN, S.S.

Units and parts of high-pressure equipment. Trudy inst.Kom.stand.
mer i izm.prib. no.75:151-159 '64. (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

AGAPOVA, T.I., red.; DORODNOV, Ye.V., red.; KASHCHENKO, Ye.I., red.; KRUSHANOV, A.I., red.; REYKHBERG, G.Ye., red.; VOROB'YEV, V.V., red.; BORZUNOV, V.F., red.

[Abstracts of papers and reports of the Third Far Eastern Conference on History, archaeology and Ethnography Section: Socialist building projects in Siberia and the Far East] Tezisy dokladov i soobshchenii. Sektsiia: Sotsialisticheskie novostroiki Sibiri i Dal'nego Vostoka. Komsomol'sk-na-Amure, Komsomol'skii-na-Amure Gospedinstitut, 1962. 76 p. (MIRA 17:9)

1. Dal'nevostochnaya konferentsiya po istorii, arkheologii i etnografii. 3d, Komsomol'sk-na-Amur, 1962.
2. Komsomol'skiy-na-Amure Gosudarstvennyy pedagogicheskiy institut (for Kashchenko).
3. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR (for Reykhberg).
4. Institut geografii Sibirskogo otdeleniya AN SSSR (for Vorob'yev).
5. Institut istorii AN SSSR (for Borzunov).

KALLISTOV, P.L.; ZENKOV, D.A.; PROKOF'YEV, A.P. Prinimali uchastiye:
BOGDANOV, F.M.; BORZUNOV, V.M.; BURYBLIN, A.V.; DROZDOV, M.D.;
YEROFEYEV, B.N.; KOMISSAROV, A.K.; KOGAN, I.D.; LYUBIMOV, I.A.;
MIRLIN, R.Ye.; ROKHLIN, M.I.; SERGEYEV, P.V.; SEMENOV, A.D.;
PROLOV, V.V.; NEMANOVA, G.F., red. izd-va; GORDIYENKO, Ye.B.,
tekhn. red.

[Instructions for applying the classification of reserves to
primary gold deposits] Instruktsiia po primeneniuiu klassifi-
katsii zapasov k korennyim mestorozhdeniam zolota. Moskva,
Gos. nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1955.
46 p. (MIRA 15:2)

1. Russia (1923- U.S.S.R.) Gosudarstvennaya komissiya po zapa-
sam poleznykh iskopayemykh.
(Gold ores--Classification)

BOZUNOV, V.M.

Correlation of resources of various categories necessary for
putting deposits into commercial operation. Razved.i okh.nedr
23 no.3:20-23 Nr '57. (MLRA 10:5)

1. GKZ.

(Mineral industries)

KOGAN, I.D., otv.red.; ANDREYKO, V.F., red.; BORZUNOV, V.M., red.;
MIRLIN, R.Ye., red.; MIRONOV, K.V., red.; SERGEYEVA, N.A.
red.isd-va; GUROVA, O.A., tekhn.red.

[Materials of the State Committee on Resources on prospecting
methods, evaluation and calculation of mineral deposits;
collected studies] Materialy GKZ po metodike razvedki, promysh-
lennoi otsenke i podshchetu zapasov mestorozhdenii poleznykh isko-
paemykh; sbornik. Moskva, Gos.nauchno-tekhn.isd-vo lit-ry po
geol. i okhrane nedr. No.1. 1959. 153 p. (MIRA 13:4)

1. Russia (1923- U.S.S.R.) Gosudarstvennaya komissiya po
zapasam poleznykh iskopayemykh.
(Mines and mineral resources)

BORZUNOV, V.M.

General evaluation of deposits of carbonate rocks and sand.
Razved.i okh.nedr 25 no.11:24-31 N '59.

(MIRA 13:5)

1. Gosudarstvennaya komissiya po zapasam mineral'nogo syr'ya.
(Rock, Carbonate) (Sand)

BORZUNOV, V.M.; PETROV, V.P., nauchnyy red.; STOLYAROV, A.G., red. izd-va; IVANOVA, A.G., tekhn. red.

[Industry's requirements as to the quality of mineral raw materials] Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr. No.12.[Feldspar materials] Polevoshpatovoe syr'e. Nauchn. red. V.P.Petrov. Izd.2., perer. 1960. 25 p. (MIRA 14:8)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ia.

(Feldspar)

SMIRNOV, V.I.; PROKOF'YEV, A.P.; BORZUNOV, V.M.; DYUKOV, A.I.; ZHDANOV,
M.A.; LYUBIMOV, I.A.; NEKIPPELOV, V.Ye.; PLOTNIKOV, N.A.;
ANTROPOV, P.Ya., glavnyy red.; FEDOTOVA, A.I., red.isd-va;
GUROVA, O.A., tekhn.red.

[Estimation of reserves of mineral deposits] Podschet zapasov
mestorozhdenii pлезnykh iskopaemykh. Pod red. V.I.Smirnova i
A.P.Prokof'eva. Glav.red. P.IA.Antropov. Moskva, Gos.nauchno-
tekhn.isd-vo lit-ry po geol. i okhrane neдр. 1960. 671 p.
(MIRA 14:1)

(Mines and mineral resources)

BORZUNOV, V.M.; CHERNOSVITOV, Yu.L., nauchnyy red.; VLASOVA, L.V.,
red. izd-va; IYERUSALIMSKAYA, Ye., tekhn. red.

[Industry's requirements as to the quality of mineral raw
materials] Trebovaniia promyshlennosti k kachestvu mineral'-
nogo syr'ia; spravochnik dlia geologov. Moskva, Gosgeol-
tekhizdat. No.6. [Chalk]Mel. 1962. 29 p.

(MIRA 15:7)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut
mineral'nogo syr'ya.

(Chalk)

BORZUNOV, V.M.

Estimation of rock products in prospecting for metals, coal, oil,
and gas. Mat.GKZ no.2:26-43 '61. (MIRA 16:3)
(Prospecting)

BORZUNOV, V.M.; KALIK, A.M.

[Instruction on the use of the classification of re-
sources for fluorspar deposits] Instruktsiia po pri-
meneniiu klassifikatsii zapasov k mestorozhdeniiam
plavikovogo shpata. Moskva, Nedra, 1965. 46 p.
(MIRA 18:7)

1. Russia (1923- U.S.S.R.) Gosudarstvennaya komissiya po
zapasam poleznykh iskopaemykh.

BORZUNOV, Viktor Mikhaylovich; PETROV, V.P., nauchn. red.

[Evaluation of nonferrous mineral resources from the
viewpoint of economic geology] Geologo-promyshlennaja
otsenka mestorozhdenia nerudnogo mineral'nogo syr'ia.
Moskva, Nedra, 1965. 271 p. (MIRA 18:12)

NOSOVITSKAYA, S.A.; BORZUMOV, Ye.Ye.

Investigation of the process of forming tablets from medicinal
powders. Med.prom. 14 no.4:18-22 Ap '60. (MIRA 13:6)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsev-
ticheskiy institut.

(TABLETS (MEDICINE))

NOSOVITSKAYA, S.A.; BORZUNOV, Ye.Ye.

Significance of external and internal friction during the compression of medicinal powders. Med. prom. 15 no.12:29-35 D '61. (MIRA 15:2)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut.

(POWDERS (PHARMACY))

SAFIULIN, R.M.; NOSOVITSKAYA, S.A. [Nosovyts'ka, S.A.]; BORZUNOV, Ye.Ye.
[Borzunov, I.E.IE.]

Kaolin as a disintegrator in the production of tablets. Farmatsov
zhur. 17 no.3:17-20 '62. (MIRA 17:10)

NOSOVITSKAYA, S.A. [Nosovyts'ka, S.A.]; **BORZUNOV, Ye.Ye.** [Borzunov, IE.IE.];
SAFIULIN, R.M.

Sodium carboxymethylcellulose as a binding agent in the preparation
of tablets. Farmatsev.zhur. 17 no.4:6-8 '62. (MIRA 16:3)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsev-
ticheskiy institut.
(CELLULOSE) (TABLETS (MEDICINE))

NOSOVITSKAYA, S.A. [Nosovyts'ka, S.A.]; BORZUNOV, Ye.Ye. [Borzunov, IE.IE.];
OGIYENKO, V.P. [Ohienko, V.P.]; BORISENKO, Yu.B. [Borysenko, IU.B.]

Use of polyvinylpyrrolidone and polyvinyl alcohol as binding
substances in the production of tablets. Farmatsev.zhur. 19
no.1:41-45 '64. (MIRA 18:5)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy
institut.

BORZUNOVA, A.S.

Problems of disability evaluation in neuroses. Vop. psikh i nevr.
no.3:179-190 '58. (MIRA 12:3)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta ekspertisy
trudospobnosti i trudoustroystva invalidov i iz Psikhonevrologich-
esko instituta im. V. M. Bekhtereva.
(NEUROSES) (DISABILITY EVALUATION)

BORZUNOVA, A.S., prof.; TEPINA, M.M., kand.med.nauk; SANAMYAN, E.A.,
~~kand.med.nauk~~

Problems of disability evaluation in neurotic manifestations
at a late period following closed craniocerebral trauma: Trudy
LITIN 2:218-224 '59. (MIRA 13:7)
(DISABILITY EVALUATION) (SKULL--WOUNDS AND INJURIES)
(NERVOUS SYSTEM--DISEASES)

BOZUNOVA, A.S., prof.; TEPINA, M.M., kand.med.nauk

Disability evaluation problems in psychopathy. Trudy LITIN
2:225-231 '59. (MIRA 13:7)
(MENTAL ILLNESS) (DISABILITY EVALUATION)

BORZUNOVA, A.S.; TEPINA, M.M.

Importance of over-all methods of investigation in disability evaluation in psychiatric cases. Trudy Gos. nauch.-issl. psikhonevr. inst. no.20:163-170 '59. (MIRA 14:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy psikhonevrologicheskiy institut imeni V.M. Bekhtereva Leningrad i Leningradskiy nauchno-issledovatel'skiy institut ekspertizy trudosposobnosti i organizatsii truda invalidov.

(DISABILITY EVALUATION)

(MENTAL ILLNESS)

BORZUNOVA, A.S.

Characteristics of medical and occupational expertise in psychopathology. Trudy LIETIN 7:189-197 '62, (MIRA 15:8)
(DISABILITY EVALUATION) (PSYCHOLOGY, PATHOLOGICAL)

BORZUNOVA, Aleksandra Stepanovna; BIRYUKOV, Dmitriy Andreyevich;
VASYUKOV, Nikolay Mikhaylovich; VASIL'YEVA, Z.A., red.;
KHARASH, G.A., tekhn. red.

[Theoretical fundamentals of medical expertise on the
capacity for work] O teoreticheskikh osnovakh vrachebno-
trudovoi ekspertizy. Leningrad, Medgiz, 1963. 185 p.
(MIRA 17:1)

MARKOVA, Ye.N., otv. red.; AVERBUKH, Ye.S., red.; BLINOV, N.I., red.; BONDAREV, N.I., red.; BORZUNOVA, A.S., red.; ZENEVICH, G.V., red.; MNUKHIN, S.S., red.; MYASISHCHEV, V.N., red.; PERVOMAYSKIY, B.Ya., red.; POVORINSKIY, Yu.A., red.; POLIKARPOV, S.N., red.; SIBIRKIN, N.V., red.; FEDOTOV, D.D., red.; CHISTOVICH, A.S., red.; ZACHEPITSKIY, R.A., red.

[Problems of psychiatry; anniversary collection of articles dedicated to the 60th birthday of Professor Izmail Fedorovich Sluchevskii] Problemy psikhiiatrii; iubileinyi sbornik, posviashchennyi 60-letliu so dnia rozhdenia profesora Izmaila Fedorovicha Sluchevskogo. Leningrad, Meditsina, 1964. 434 p. (MIRA 17:12)

APRELKOV, S. Ye.; BORZUNOVA, G. P.

Recent volcanic formations in the vicinity of the Avacha Bay.

Vop. geog. Kamch. m.1:34-40 '63.

(MIRA 17:10)

BORZYAK, A.

BORZYAK, A.

Establishing norms for work on several machines in machinery
manufacturing. Sots. trud no.2:86-93 P '58. (MIRA 11:1)
(Machinery industry--Production standards)

BORZYAK, A.F.; KHISIN, R.I., inzh., retsenzent; GRANOVSKIY, Ye.N.,
inzh., red.; SMIRNOVA, G.V., tekhn. red.

[Establishment of norms and wages for operators of machine
tool units] Normirovanie i oplata mnogostanochnykh robot.
Moskva, Mashgiz, 1961. 62 p. (MIRA 15:7)
(Metal cutting--Production standards)
(Wages)

BORZYAK, P.G.

3

Negative photoconductivity in polycrystalline cuprous oxide. P. G. Borzyak. *Physik. Z. Sowjetunion* 12, 482-4(1967)(in English). The decrease of photoconduct of Cu₂O cells under the action of white and green light has been investigated at the temp. of liquid air when the Cu electrode was neg. Harold Gershinowitz

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESS AND PRIORITY INDEX

9

Emission of composite cathodes subject to simultaneous bombardment with electrons and irradiation. P. Dazyak. J. Tech. Phys. (U. S. S. R.) 9, 1881 92(1968). - It could not reproduce the "Shmakov effect," i. e., a lowering of the secondary emission by illumination of Cs₂O cathodes. Neg. results were also obtained with Sb-Cs cathodes. Cs₂O cathodes do not show the Denber effect, i. e., an increase of the electron emission over the additive value at a simultaneous illumination and bombardment. This indicates the inadequacy of the usual interpretation of the Denber effect. This effect may take place when the elec. cond. of the surface layer is considerably raised by illumination; and an opposite effect might be observed when the cond. of the surface layer is insufficient to let pass the sum of the electrons produced by electrons and light.

J. J. Bikerman

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

E-27-507-10000

BROW. 80-17

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BROW. 80-17

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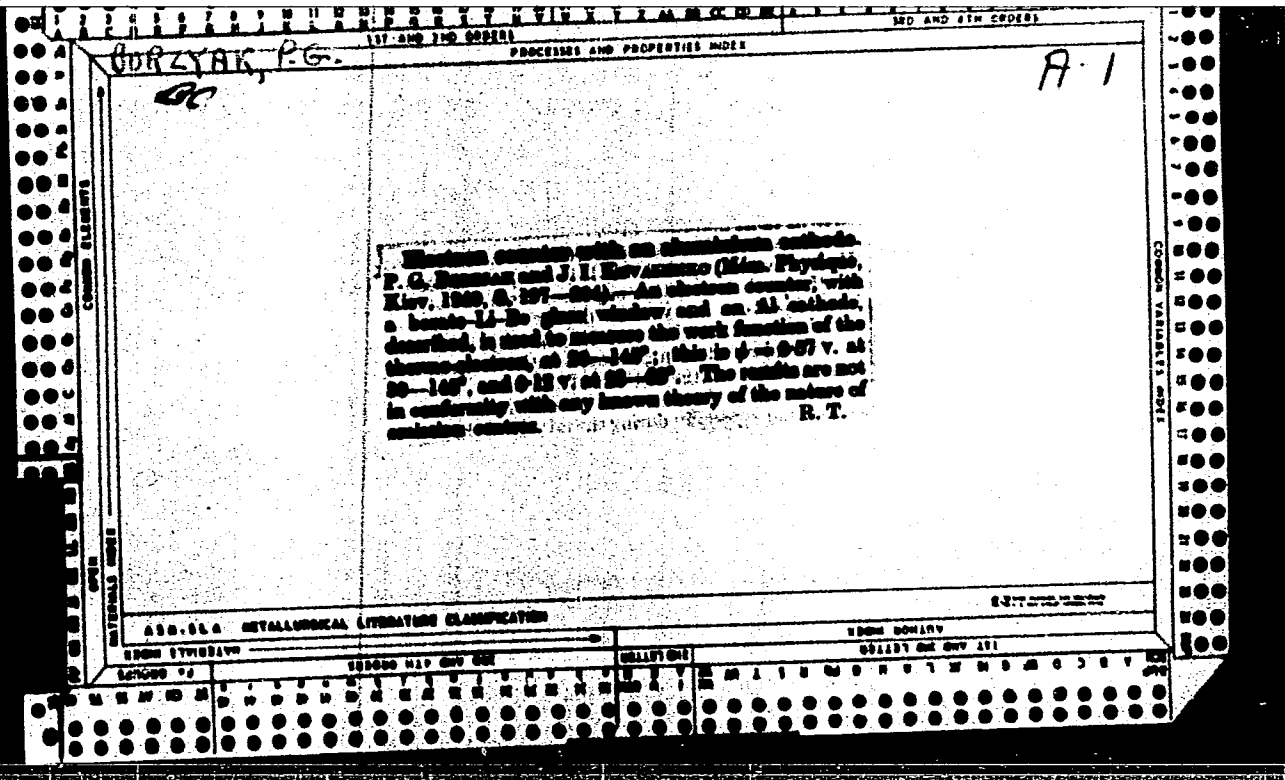
RELATIONSHIP AND PROPERTIES INDEX

3

Relation between conductivity and emission characteristic of oxide-coated cathodes. P. Burzyak, *J. Tech. Phys. (U. S. S. R.)* 9, 2002-2010 (1970). When Cs was gradually distd. away from a Pt-C₂₀-Cs cathode the elec. cond. of the cathode usually diminished, the photocurrent and the coeff. of secondary emission passed through maxima (at different times for these two effects), and the work function for thermoemission did not change. As the secondary emission did not change in the same direction as the concn. of Cs it could not originate in free atoms of Cs. The cond. of the cathode was so high that its fatigue could not be due to a deficiency of electrons in the surface layer (cf. DeBoer and Teves, *C. A.* 27, 4728).
I. T. Bikerman

METALLURGICAL LITERATURE CLASSIFICATION

E-27



111 AND 112 ORDER 113 AND 114 ORDER

PROCESS AND PROPERTIES INDEX

A-1

BC

Relation between conductivity and emission characteristics of cesium oxide cathodes. I. G. Janspohel-Kyvala *et al.*, *Ukrain. Acad. Sci.*, 1940, 9, 3, 40. Two Pt strips were fixed on glass, and a transparent layer of Cs was condensed on the strips and the glass surface between them and then partly oxidized. The amount of Cs in the cell was gradually reduced by heating to 170-210° and cooling out Cs vapor. After each heating and cooling the conductivity σ of the Cs-CeO layer between the Pt electrodes, the photoelectric current i , and the coeff. δ of the secondary emission were measured. σ decreased regularly, and i and δ passed through a max. as the no. of heating cycles increased, the max. of δ being reached always later than that of i . Near the max. of δ the magnitude of σ was still so high that the large no. of photoelectrons could not be ascribed to a shortage of electrons. At high temp. (125-166°), [Cs] being kept low and const., σ was much higher and δ slightly higher. Secondary emission is no definite function of [Cs] and appears to be chiefly due to Cs₂O cathodes are reported. J. J. H.

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

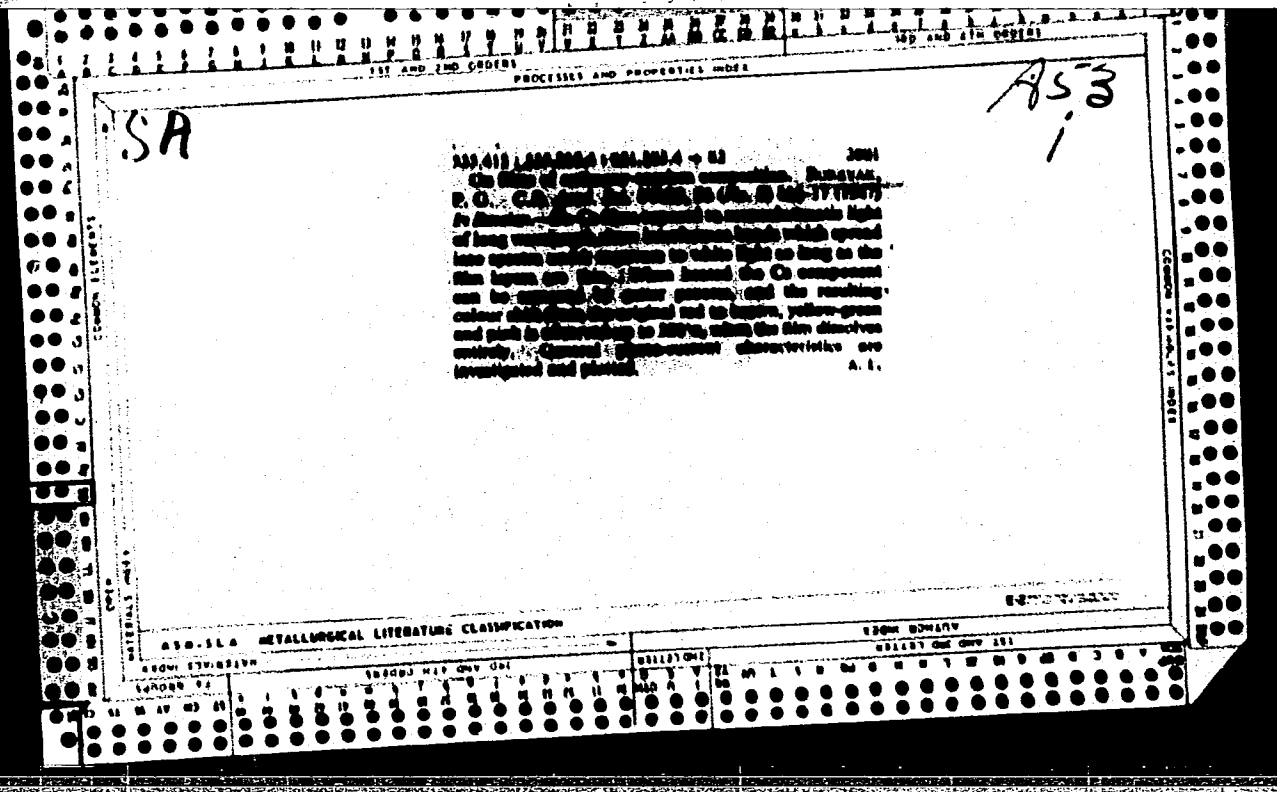
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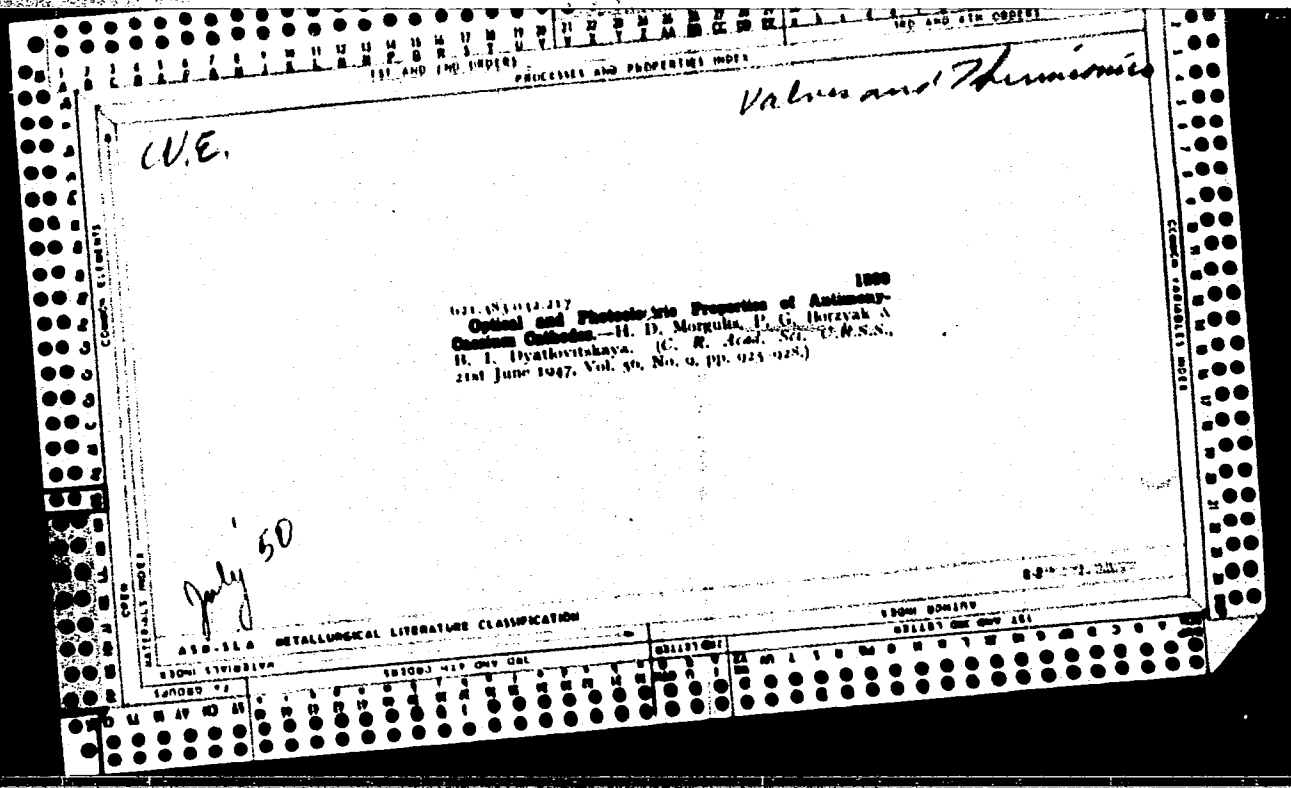
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

BOBZYAK, P. G.

Antimony-calcium films. P. G. Bobzyak (Compt. rend. Acad. Sci. U.R.S.S., 1961, 22, 546-549).—Investigation of the sign of the thermoe.m.f. of Sb-Ca films in different stages of formation indicates that they have predominantly a hole conductivity, which, however, becomes electronic on introduction of excess of Ca into the film. If excess of Ca is added to a formed film, its dark conductivity decreases, but rises again on removal of the excess of Ca. The photo-conductivity of the films is discussed.

A. J. M.





BORZYAK, P. G.

PA 11/49T1

USSR/Academy of Sciences
Physics

Jan 48

"Session of the Department of Physicomathematical and
Chemical Sciences, Academy of Sciences, Ukrainian
SSR, on Problems in Physics," P. G. Borzyak, 6½ pp

"Uspekhi Fiz Nauk" Vol XXXIV, No 2

Reports session held 2 - 5 Feb 48. Discussed work of
Kharkov Physicotech Inst, Kiev Inst of Phys, Lab of
Metallophys. Group of papers was devoted to work
of Prof B. G. Lazarev on superconductivity. Other
subjects on the agenda were phase transformations in
alloys, electronic phenomena in nonmetallic solids,
and crystal lattices.

11/49T1

CP

Optical and photoelectric properties of silver-oxygen-cadmium cathodes. P. G. Borzjak and N. D. Morgulis. *Doklady Akad. Nauk S.S.S.R.* 61, 625-8(1948).—A wedge-shaped layer of Ag was evapd. onto glass and Pt surfaces within a cell immersed in liquid air. The Ag was oxidized to Ag₂O by creating a glow discharge in the presence of O₂. The Ag₂O was transparent, and had a n of about 1.0. Curves showing its reflecting power as a function of d , the distance from the center of the wedge, have a periodic structure. A layer of Cd was evapd. atop the Ag₂O, and a second reflection curve measured. The photocurrent I_1 , measured with a "light probe" ($\lambda = 3000$ m μ) showed a periodic variation with d which was almost exactly out of phase with the second reflection curve. A graph shows D , the optical transparency, and I_2 , the reverse photo-current as a function of d at 800 m μ . D increases with decreasing layer-thickness; I_2 has a sharp max. Curves are given showing I_1 , I_2 , and D as functions of λ for a layer 0.2 μ thick. If the effective mean free paths of light quanta and photoelectrons in the layer are $1/\mu$ and $1/\sigma$, resp., the layer-thickness for max. reverse photocurrent d_m is $[\ln(\mu/\sigma)]/(\mu - \sigma)$. C. Feldman

ASD-314 METALLURGICAL LITERATURE CLASSIFICATION

C. ↑.

Photoconductivity of antimony cesium films (P. J. Buscayal (Phys. Inst., Acad. Sci. Ukr. S.S.R., Kiev). *Zhur. Tekh. Fiz.* 20, 1023 (1950)). The absorption curve of CsSb films has a max. only in the short-wave part of the visible region, extending into the near ultraviolet, and no addnl. absorption in the infrared (measured up to 2.0 μ). Consequently, Khlebnikov and Melamid's (C.I. 43, 3705) interpretation of the high-temp. depend. energy of the current carriers, 0.8 e.v. (from the temp. dependence of the elec. cond. above room temp.) as width of the forbidden zone is incorrect, and the effects observed by K. Ickhten and M. must be due to impurities. Whereas introduction of excess Cs turns hole cond. in the dark into electronic cond., and first reduces, and finally suppresses photocond., the integral photoelec. sensitivity and the color of the film, detd. as they are by the main absorption band, remain essentially unaffected. From oscillograms of the current intensity in rectangular light impulses of 0.01 sec., with dark pauses of 0.4 sec., at room temp., the lives of the photocurrent carriers were detd. to ~ 0.003 and ~ 0.021 sec., i.e. of a length corresponding to trapping of photoelectrons on local levels. Spectral curves of the photoelec. e.m.f. and of the photocond. are essentially of the same form, tailing off to the same red limit (0.85-1.00 μ), i.e. $h\nu \sim 1.1$ e.v. This is one more proof that the value of 0.8 e.v. cannot possibly correspond to an interzonal distance in optical transitions. The external photoelec. effect of CsSb film, being detd. by the energy structure of the lattice, is a const. characteristic of the substance. In contrast thereto, elec. cond., photocond., and luminescence, being largely detd. by impurities, show strong variability.

N. Thon

C. T.
BORZYAK, P. G.

Study of oxygen-cesium films. P. G. Borzyak (Phys. Inst., Acad. Sci. Ukr. S.S.R., Kiev). *Zhur. Tekh. Fiz.* 29, 928-930 (1959). Wedge-shaped films of Cs on glass were produced by condensation from a mol. beam. Oxidation of this Cs film with O₂ at the temp. of liquid air produces a colorless transparent film, undetectable in transmittance, but noticeable by interference figures in reflection. By microweighing, the oxidized film has the compn. CsO₂, remaining unchanged on heating to room temp. and above; the same film, but whitish, is obtained by oxidation at room temp. Its colorlessness contradicts the literature statement that CsO₂ is dark-yellow. When a CsO₂ film is treated with Cs vapor at 150-180°, an external photoelec. effect begins to appear even while the film is still colorless; the effect increases with the progress of incorporation of Cs, with color setting progressively to yellow. The photoelec. sensitivity is a max. with a still-yellow film, whereas CsO₂ is said to be red. A film produced by treatment of CsO₂ with Cs vapor at above 200° did show red formation, but its photoelec. sensitivity was lower than that of the yellow films. Consequently, either the statement about the red color of CsO₂ is incorrect, or the optimum photoelec. sensitivity of CsO₂ is not linked with the compn. CsO₂. The spectral max. of the sensitivity of the yellow Cs-O film lies at 500-550 mμ. The spectral curve of the transparency, increasing uniformly with wave length, shows no similarity whatever to the spectral curve of the photoelec. sensitivity, in contrast to Cs-Sb films. Likewise, Cs-O-Ag films show no parallelism between the spectral curves of photoelec. sensitivity and of absorption. For these films, the spectral curves of the refractive index n and the absorption coeff. k were detd. from the expl. spectral curves of reflectance and transmittance. The data of n and k show that reflection at the boundary film/vacuum is 2-3 times greater

than at the boundary film/glass, consequently, with films of a thickness less than the effective depth of emission of photoelectrons, the back photocurrent must be somewhat greater than the front photocurrent, as with Cs-Sb photocathodes. In contrast to the latter, where the quantum efficiency of the photoelec. effect is close to 1, the Cs-O-Ag cathode has a quantum efficiency of less than 0.01. Consequently, in Cs-O and Cs-O-Ag films, the main part of the absorption is not photoelec. N. Thom

BORZYAK, P.

169785

USSR/Physics - Academy of Sciences
Low Temperatures
Aug 50

"Meeting of the Department of Physicomathematical and Chemical Sciences, Academy of Sciences Ukrainian SSR P. Borzyak

"Uspekh Fiz Nauk" Vol XII, No 4, pp 555-562

Chronicles subject session on low-temperature physics held in Kiev 25-28 Apr 50. Lectures by B. G. Lazarev (low temperatures); Ye. S. Borovik (Hall effect and strong fields); B. I. Verkin (magnetism at low temperatures); A. A. Galkin and P. A. Bezuglin (frequency dependence of AC detection by superconductors); I. M. Lifshits (rupture of superconducting

169785

USSR/Physics - Academy of Sciences
(Contd)
Aug 50

state by magnetic field); S. I. Pekar (F-centers); Pekar and Yu. Ye. Perlin (recombination of electrons in colored crystals); F. M. Lifshits and L. S. Guldin (local phase transformations in solids); V. I. Dantloy and A. F. Skrishevskiy (determination of molecules by X-raying fluids); D. Ye. Ovsyenko (crystallization centers); V. S. Kagan and B. Ye. Pines (local state by X-ray methods); and others.

169785

BORZYAK, P.

General sessions of the Ukrainian Academy of Science and of its departments for
physics, mathematics and chemistry
Usp. fiz. nauk. 45 no.4, 1951

USSR.

Optical and photoelectric properties of a gold-cesium film.
G. Kovtun, *Izv. Vuzov. Fiz.* Acad. Sci. USSR, Div. Phys. Math. Sci., Ser. Phys. Math. Sci., No. 10, 1984, p. 2084. By using a method developed earlier (cf. C.A. 43, 324), the optical constants were detd. for Au-Cs films in the visible region. The spectral characteristics of the external photoeffect was detd. for these films and the change in the characteristic upon treating the films was studied. J. Kovtun Leach

Special
[Signature]

BORZYAK, P. G.

USSR/Physics - Semiconductor Cathodes, Jan/Feb 52
Photoemission

"Investigation of Photo- and Secondary Electron
Emission of Some Semiconducting Cathodes," N. D. Mor-
gulis, P. G. Borzyak, B. I. Dyatlovitskaya

"Iz Ak Nauk SSSR, Ser Fiz" Vol XVI, No 1, p 121

Current article is a brief description of a report
that appeared in Jubilee issue of 60th Birthday of
S. I. Vavilov. States comparative investigation of
some cathodes with similar optic characteristics but
different integral sensitivity proved that the cause
was related to a difference in photoelec output of
electrons from filled zones.

218794

BOREYAK, P.G.

Characteristics of the photoelectric effect of silver-oxygen-cesium
photo-cathodes. Trudy Inst.fiz. AN URSS no.4:11-27 '53.
(Photoelectric cells)

(MLRA 7:12)

BOREYAK, P.G.

Optical absorption and photoelectric effect of semiconductor
antimony-caesium photocathodes at low temperatures. Trudy Geof.
inst. no.4:28-32 '53. (MIRA 7:12)
(Photoelectric cells) (Metals at low temperatures)
(Semiconductors)

~~BORZYAK, PETR GRIGOR'YEVICH~~

BORZYAK, Petr Grigor'yevich

BORZYAK, Petr Grigor'yevich, Academic Degree of Doctor of Physico-Mathematical Sciences, based on his defense, 3 July 1954, in the United Council of the Insts of Physics and Mathematics of the Acad Sci UkSSR, of his dissertation entitled: "Research on Effective Cathodes". For the Academic Title of Doctor of Sciences.

SO: Byulleten' Ministerstva, Vysshego Obrazovaniya SSSR, List No 19, 24 Sept. 1955, ^{29 Sept. (P)}
Decision of Higher Certification Commission Concerning Academic Degrees and Titles.

BORZYAK, P. G.

USSR/Electronics - Electronic and Ionic Emission

H-2

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12286
Author : Borzyak, P.G., Bibik, V.F., Kramarenko, G.S.
Inst : Institute of Physics, Academy of Sciences, Ukrainian SSR.
Title : On the Nature of Silver-Oxygen-Cesium Photocathodes and Their Spectral Sensitivity.
Orig Pub : Dopovidi AN USSR, 1956, No 4, 330-333
Abstract : As a result of an investigation of the optical properties of films of cesium oxide it has been shown that in the ultraviolet region, they have great "intrinsic" absorption. The red boundary of this absorption lies near 600 *mμ*. The forbidden zone for Cs₂O can be estimated at two electron volts. It is shown also that the spectral characteristics of the photocurrent from the cesium oxide consists of two parts -- a short-wave part, due to the "intrinsic"

Card 1/3

BORZYAK, P.G.

Category : USSR/Electronics - Photoeffect. Electron and Ion Emission

H-2

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4266

Author : Borzyak, P.G., Bibik, V.F., Kramarenko, G.S.

Inst : Institute of Physics , Academy of Sciences Ukrainian SSR, Kiev

Title : Investigation of the Fatigue of Silver-Oxygen-Caesium Photocathodes

Orig Pub : Radiotekhnika i elektronika, 1956, 1, No 3, 358-369

Abstract : Based on many observations of phenomena occurring during the fatigue of oxygen-silver-caesium photocathodes (changes in the spectral characteristics and in the contact potential of the cathode, changes in the sensitivity of portions of the cathode that are not subjected to illumination during the fatigue process, fatiguing action of infrared illumination, and phenomena of illumination aftereffects) the authors reach the conclusion that the ideas proposed by de Boer concerning the fatigue mechanism of such photocathodes are not adequate. Considering that an important role in the fatigue of oxygen-silver-caesium cathodes should be played by processes occurring when light acts on the caesium oxide in the latter, the authors call attention to the need of a fundamental investigation of the physical features of this property. Bibliography, 8 titles.

Card : 1/1

The influence of an adsorbed film of the evaporation products of barium oxide from platinum upon the work function of the electrons from germanium. P. G. Borzyak and O. G. Sarbel. *Ukrain. Fiz. Zhur.* 1, 395-401. Russian summary 401-2(1956). -- The change was studied in thermionic and the photoelectric work functions of Ge if on its surface an active film of BaO was formed, which latter had been evapd. from Pt. The optimum concn. of the particles in the film was somewhat greater than 2×10^{14} cm.⁻² (that is essentially a unimol. layer), and the photoelectric work function of Ge was lowered from about 1.6 to 2.2 e.v. Conclusion: The optimum covering here goes about to the raising of the work function owing to the formation of an elec. double layer.

Werner Jacobson

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BORZYAK, P.G.; DYATLOVITSKAYA, B.I.; CHERNYSHEVA, T.N.

Efficiency of light utilization in coating of antimony-caesium photocathodes. Radiotekh. i elektron. 1 no.3:370-376 Nr 156.
(MLBA 9:7)

1. Institut fiziki AN SSSR, Kiyev.
(Photoelectric cells)

BORZYAK, P.G.

Beginning period in the history of the external photoelectric effect
and the significance of Steletov's work; 60th anniversary of A.G.
Steletov's death. Usp.fiz.nauk 58 no.4:715-747 Ap '56. (MLRA 9:8)
(Steletov, Aleksandr Grigor'evich, 1839-1896)
(Photoelectricity--History)

9 (3)

SOV/112-57-5-10960

Translation from: Referativnyy zhurnal. Elektrotehnika, 1957, Nr 5, p 202 (USSR)

AUTHOR: Borzyak, P. G.

TITLE: Coated Gold-Base Photocathodes (Slozhnyye fotokatody na zolotoy osnove)

PERIODICAL: Tr. in-ta fiziki AS UkrSSR, 1956, Nr 7, pp 35-43

ABSTRACT: The interest in oxygen-cesium photocathodes containing gold can be explained by the views of a number of researchers in the USSR and abroad on their new important characteristics, viz.: (1) a higher integral sensitivity and a possibility of appreciably controlling the photocathode spectral sensitivity by means of the fourth metallic component; (2) the photocathode fatigue decrease with an increase in the quantity of gold introduced into the cathode; (3) the possibility of preparing gold-oxygen-cesium and gold-silver-oxygen-cesium photocathodes on the basis of initial gold films without resorting to the glow oxygen discharge. The tests made, however, did not give the results expected. The spectral characteristic of gold-oxygen-cesium photocathodes, as compared to that of silver-oxygen-cesium and to gold-silver-oxygen-cesium

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SOV/112-57-5-10960

Gold-Base Coated Photocathodes

photocathodes, extends less over the longer-wave range because free gold and cesium cannot exist together in the cathode film. This fact is responsible for an integral sensitivity three times less than that of silver- and gold-silver-oxygen cesium cathodes. By introducing the third component in the form of metal particles into the cathode, only the short-wave and medium-wave ranges of the spectral characteristic can be adjusted, and the phototube sensitivity can be increased around 630-800 millimicrons. The gold-oxygen-cesium photocathodes suffer very little fatigue; hence, they can be used in specific cases of photocathode applications around $\lambda = 650$ millimicrons, where the sensitivity of an antimony-cesium cathode is already low and the sensitivity of silver-oxygen-cesium cathode has the same order as that of the gold-oxygen-cesium. The gold-silver-oxygen-cesium photocathodes do not completely solve the problem of fatigue, although their fatigue is lower than that of commercial silver-oxygen-cesium cathodes. This testifies to the fact that our knowledge about photocathode fatigue phenomenon is incomplete and further investigations are necessary.

Card 2/2

A. M. B.

Particularities of the photoeffect in silver-oxygen-cesium photocathodes. P. G. Borzyak, V. P. Bibik, and G. S. Kramarenko. *Izv. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 1039-49 (1958).—Ag layers, ranging from solid to microdispersed films were condensed on the inside surface of a ultraviolet transmitting glass bulb. The red cut-off of Ag photoemission is $\lambda = 250 \text{ m}\mu$. Cs absorption does not influence the optical properties of Ag films. An anomaly of transparency appears in light of $405 \text{ m}\mu$ in the transition region solid-microdispersed. A transparency band exists at $366 \text{ m}\mu$. The spectral sensitivity curves for Ag films with absorbed Cs have a min. at $316 \text{ m}\mu$ and max. at ≈ 340 and $280 \text{ m}\mu$. Cs-O layers were also obtained by condensing Cs on the spherical wall, oxidizing it to Cs_2O , and treating it with Cs vapor above 150° to obtain Cs_2O . Absorption and emission curves are shown for Cs_2O and Cs_2O . From these tests the half-width of the forbidden zone is estd. to 2 e.v. From the difference of the absorption edge and the photoeffect red limit wave length the height of the potential barrier in Cs_2O can be calcd. to 1.0 e.v. and sometimes to 0.5-0.6 e.v. Some Cs_2O layers are more sensitive at $250 \text{ m}\mu$ than Cs-Sb cathodes. The ultraviolet sensitivity of Cs_2O is larger than that of Ag-Cs and introduction of Ag into Cs_2O decreases short wave sensitivity but it also increases long wave sensitivity. Evapn. of Ag on Cs_2O films and consecutive heating increases long wave sensitivity but does not affect short wave absorption. The photoeffect in the long wave max. is enhanced by incorporation of Ag. This is attributed to the formation of Cs_2O films around aggregated Ag crystallites. The Ag-O-Cs cathode is considered as a combination of 2 separate cathodes—a semi-conductive cathode of Cs_2O (detg. the ultraviolet sensitivity) and a cathode formed by dispersed Ag covered with Cs_2O detg. the long wave sensitivity. Introduction of Ag does not cure fatigue phenomena. S. Paksver

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RWS

INST. PHYSICS
AS U.K.R. SSR

BORZYAK, P.G. [Borziak, P.H.]

Optical methods to increase the sensitivity of Cs₃Sb-phctocathodes
[with summary in English]. Ukr. fiz. zhur. 3 no.3:324-327 My-Je
'58. (MIRA 11:10)

1. Institut fiziki AN USSR.
(Cesium antimonide)

(Photoelectricity)

SOV/109-3-9-17/20

AUTHOR: Borzyak, P. G.

TITLE: On the Problem of the Presence of a Discontinuous Change of the Sensitivity of an Antimony-Caesium Photo-Cathode (K voprosu o nalichii skachkoobraznogo izmereniya chuvstvitel'nosti sur'myano-tseziyevogo fotokatoda)

PERIODICAL: Radiotekhnika i elektronika, 1958, Vol 3, Nr 9, p 1220 (USSR)

ABSTRACT: It is pointed out that the discontinuous change in the sensitivity of an antimony-caesium photo-cathode was never observed by the author, as was erroneously stated in a paper by G. A. Zheludeva and N. A. Akhmatova, which appeared in this journal (Vol 3, Nr 3, p 400).

SUBMITTED: April 12, 1958.

Card 1/1

AUTHORS: Borzyak, P. G., Bibik, V. F., Sarbey, O. G. 48-22-5-12/22

TITLE: Photoelectronic Emission of Some Semiconductor and Metal Cathodes With a Diminished Work Function (Fotoelektronnaya emissiya nekotorykh poluprovodnikovyykh i metallicheskiykh katodov s umen'shennoy rabotoy vykhoda) (Data From the VIIIth All-Union Conference on Cathode Electronics, Leningrad, October 17-24, 1957) (Materialy VIII Vsesoyuznogo soveshchaniya po katodnoy elektronike, Leningrad, 17-24 oktyabrya 1957 g.)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958 Vol. 22, Nr 5, pp. 566-575 (USSR)

ABSTRACT: At present the interest of the physicists is occupied by the electronic processes in semiconductors. Therefore all concerning phenomena must be investigated as perfectly as possible. In view of several difficulties the authors had the idea (reference 1) to enlarge the spectrum range on account of the work function of the photocathode which is to be investigated. A short bibliography (Refs 2, 3) is given. Fig. 1 shows the devices used for this work. The experiments made possible the following conclusion: The application of the method of the work function of electrons from the cathode by means of dusted BaO films makes possible a considerable enlargement of the spectrum

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Photoelectronic Emission of Some Semiconductor and Metal Cathodes With a Diminished Work Function. (Data From the VIIIth All-Union Conference on Cathode Electronics, Leningrad, October 17-24, 1957) 48-22-5-12/22

domain of the photoelectric sensitivity of these cathodes and the shift of the boundary of the spectrum characteristic into the visible domain. A comparative investigation of the metal and semiconductor samples showed that the concentration of the dipole molecules of BaO, which guarantees a minimum of the work function in a metal (Ta), is $1/4 \approx 1/5$ of that concentration which provides a work function to a semiconductor. (InSb; Ag₂Te) In case of both kinds of cathodes the lowering of the photoelectric emission starts somewhat before the low point of the work function on occasion of precipitation of BaO molecules on the surface was reached. The spectrum characteristics of metallic photocathodes of the type Me - BaO can be worked after the method by Fowler (Fawler) just as well as in the case of pure metals. Even at a quite long distance from the red limit the sensitivity of the photocathodes of InSb and Ag₂Te is considerably less than the sensitivity of the efficient Cs₃Sb photocathodes, in spite of the known proper character of the photoeffect. In the discussion on this abstract participated: A. A. Mostovskiy, A. I. Pyatnitskiy, Kireyko, N. M. Politova, Ye. A. Krasovskiy, K. B. Tolpygo, I. M. Dykman and the first author.

Card 2/3

Photoelectronic Emission of Some Semiconductor and Metal Cathodes With a Diminished Work Function. (Data From the VIIIth All-Union Conference on Cathode Electronics, Leningrad, October 17-24, 1957) 48-22-5-12/22

There are 8 figures and 6 references, 3 of which are Soviet.

ASSOCIATION: Institut fiziki Akademii nauk USSR
(Institute of Physics AS Ukrainian SSR)

1. Semiconductors--Properties
2. Cathodes (Electron tubes)--Properties
3. Work functions

Card 3/3

AUTHORS: Borzyak, F. G., Sarhey, O. G. 11/27-23-7-4/33

TITLE: Photoelectronic and Secondary-Electron Emission of Germanium
(Fotoelektronnaya i vtorichnoelektronnaya emissiya germaniya)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, ^{Vol 28,} Nr 9, pp. 1905-1912 (USSR)

ABSTRACT: The paper under review presents an investigation of the photoelectron emission of W-BaO- and Ge-BaO-cathodes in the visible range of the spectrum. The shape of the spectral distribution of the photoeffect of the W-BaO-cathode is in accordance with the theory by Fowler (Fauler) to the same extent as the distributions exhibited by pure W-cathodes. When the BaO-molecules on the tungsten surface had a near-optimum concentration a value of $h\nu_0 = \varphi_0 = 1,9$ eV was obtained for the threshold energy of the photoeffect according to the method of Fowler. The approximation of the course taken by the spectral distribution of the quantum yield from a Ge-BaO-cathode specified by the equation of L. Apker (Apker) (Ref 2 5) gives ~~also~~ a threshold value of $\varphi_0 = h\nu_0 = 1,5$ eV. ~~The decrease in the value of the work~~ **function** has a considerable influence on the amount of secondary electron emission in germanium, resulting in an increase of the

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107/57-21-9-6/53

Photoelectronic and Secondary-Electron Emission of Germanium

coefficient of secondary emission by a factor of 4. The efficiency of photoelectron emission of a Ge-BaO-emitter considerably exceeds that of a metallic emitter, as W-BaO. The same Ge-BaO-emitter, however, with a photoelectron work function similar to that of Cs_2Sb exhibits a smaller emission of photoelectrons as well as of secondary electrons, although the conditions of photoelectron excitation should be better in germanium. Hence, apart from the conditions which are valid in the electron emission of semi-conductors still other causes play an important role in the electron emission of semiconductors. The authors advance the assumption that this cause is represented by the inelastic collisions of the excited electrons with the intrinsic electrons of the same conductor. The conditions prevailing in this process are, however, determined by the ratio of the width of the forbidden zone of the semiconductor and the photoelectron work function of the intrinsic electrons of the semiconductor. There are 8 figures and 21 references, 15 of which are Soviet.

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SOV/57-2-9-6/33

Photoelectronic and Secondary-Electron Emission of Germanium

ASSOCIATION: Institut fiziki AN USSR, **Kiyev** (Institute of Physics AS UkrSSR, Kiyev)

Card 3/3

БОРЗЯК, Р. Г.

24(4) ФУНД I НАУК РАДИОТЕХНІКИ SOV/3140

Академія наук Української ССР. Інститут фізики

Фотоелектричеські і оптичеські явлєня в полупровідниках: першє первого вєздузиско совєщєhaniya po fotoelektricheskim i opticheskim явлєnyam v poluprovodnikakh, g. Kiyev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductor: Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR, Prezidium. Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSSR, Academy of Science.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive forces, optical properties, photoelectric cells and photoresistors, the actions of hard and corpuscular radiations, the properties of thin films and complex semiconductor systems, etc. The materials were prepared for publication by E. I. Maslov, O. V. Shchegolev, A. P. Lushenko, and M. K. Shvablan. References and discussion follow each article.

Photoelectric and Optical Phenomena (Cont.) SOV/3140

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BORZIYAK, P.G. [Borziak, P.H.]; Marchuk, P.M.; Sarbey, O.G. [Sarbei, O.H.]

Current-voltage characteristics of the photoelectron emission of germanium. Ukr.fiz.shur. 4 no.4:525-526 J1-Ag '59.

(MIRA 13:4)

1. Institut fiziki AN USSR.
(Germanium) (Photoelectricity)

~~BORZYAK, P.G. [Borziak, P.H.]; MIROSHNICHENKO, L.S. [Myroshnychenko, L.S.];~~
~~SARBEY, O.G. [Sarbei, O.H.]~~

Photoelectron emission of germanium and silicon in the amorphous
and crystalline states. Ukr.fiz.shur. 4 no.4:524-525 J1-Ag
'59. (MIRA 13:4)

1. Institut fiziki AN USSR.
(Germanium) (Silicon) (Photoelectricity)