LEPENDINA, O.L.; POLAK, L.S.

Effect of the structure of hydrocarbons on the formation of radicals in low temperature γ-radiolysis in the solid phase. Neftekhimia 2 no.1:68-70 Ja-F '62. (MIRA 15:5)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Hydrocarbons) (Radicals (Chemistry)) (Gamma rays)

ALEKSANDROV, A.Yu.; DORFMAN, Ya.G.; LEPENDINA, O.L.; MITROFANOV, K.P.; PLOTNIKOVA, M.V.; POLAK, L.S.; TEMKIN, A.Ya.; SHPINEL', V.S.

Resonance absorption spectra of γ-quanta and the magnetic susceptibility of solutions of some organotin compounds. Zhur. fiz. khim. 38 no.9:2190-2197 S '64. (MIRA 17:12)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

S/194/62/000/004/052/105
D295/D308

AUTHORS: Lepending, L. F., Rudenko, Yu. S. and Ruchko, R. I.

TITLE: Calorimetric method for the measurement of ultrasonic power

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 4, 1962, abstract 4-5-29k (V sb. Prom. primeneniye ul'trazvuka. Kuybyshevsk. aviats. in-t, Kuybyshev, 1962, 72-74)

TEXT: The mean intensity of the ultrasonic field of a magnetostriction radiator was measured by means of a calorimeter consisting of two containers insulated from each other and separated by a sound-conducting diaphragm. In one container is the vibrator to be measured and in the other a sound-absorbing substance. Running water is fed into both containers, the temperature of the water being determined by thermometers at the outlet of the containers. The rate of flow of the water is so chosen that the temperatures at the outlet of the calorimeter are equal (in order to

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S/194/62/000/004/052/105
D295/D308

Calorimetric method for ...

eliminate thermal exchange between the containers). The efficiency of the transducer and the power coefficient are determined on the basis of the rate of flow of water and of the current and voltage applied to the radiator. [Abstracter's note: Complete translation.]

Card 2/2

LEPEHTSOV, P. A.

Agriculture

Skidding timber; vol. 1. (Moskva), Goslesizdat, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED.

LEFENTSOV, P. A.

Windlass

Technical upkeep of winches TL-3. Les. prom. 12 no. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August, 1952 ~~1958~~ Unclassified.

PETER, Ferenc; LEPENYE, Gyorgy

Investigation of the reduction of anthraquinone derivatives in homogeneous phase. Magy kem folyoir 68 no.2:45-49 F '62.

1. Budapesti Muszaki Egyetem Gyakorlati-Kemiai Tanszeke 2. Jelenlegi munkahely: Textilipari Kutato Intezet, Budapest.

RUSZNAK, Istvan; LEPENYE, Gyorgy

Stabilization of sodium sulfite solutions. Magy kem folyoir 69 no.2: 54-56 F '63.

1. Textilipari Kutato Intezet, Budapest.

LEPENYE, Gyorgy; KIMPEL, Gabor

Concentration control in the textile industry. Magy textil 15 no.12:555-556 D '63.

1. Textilipari Kutato Intezet.

AUTHOR: Leper, D.P., Chernavskiy, D.S. 56-5-46/46

TITLE: The Application of the Dispersion Energy as a Criterion for the Accuracy of the Variation Method (Primeneniye dispersii energii v kachestve kriteriya tochnosti variatsionnogo metoda)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol.33, Nr 5, pp. 1311-1312 (USSR)

ABSTRACT: Hitherto the accuracy of the computation of the energy of the Schroedinger equation solved by means of the variation method has been judged only by a comparison with experimentally obtained values. However, the error limits in energy determination exercise their influence both on the inaccuracy of the "trial function" and on the Hamiltonian. It is shown theoretically that by applying the dispersion of energy to the "trial function" the limit of error can be judged separately. There is 1 Slavic reference.

ASSOCIATION: Physics Institute imeni P.N.Lebedev AN USSR (Fizicheskiy institut im.P.N.Lebedeva AN SSSR)

SUBMITTED: August 10, 1957
AVAILABLE: Library of Congress

Card 1/1

S/707/60/003/000/011/013
B108/B102

AUTHOR: Leper, D. P.

TITLE: Optical model of meson production at high energies

SOURCE: Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki. Trudy. v. 3, 1960. Vzaimodeystviye vysokoenergichnykh chastits s atomnymi yadrami, 142 - 149

TEXT: The quantum mechanical theory of multiple meson production leads to an isotropic angular distribution. This work is an attempt to eliminate this shortcoming by means of a quantum mechanical model with a certain angular distribution as an additional postulate. The wave function for the mesons with momenta k_n produced in the collision of two nucleons is obtained in the form of a second-order Fredholm integral equation and is proportional to the individual distribution $|F(\vartheta,k)|^2$ of the mesons: $\psi_k(\vec{r}) \sim \frac{F(\vartheta,k)}{r} e^{ikr}$ for $r \to \infty$. The angular distribution of the departing mesons is $\frac{dN}{d\Omega} = A \int_0^\infty dk \, |F(\vartheta,k)|^2 \, |g(k)|^2$ where A is a normali-

Card 1/3

Optical model of meson production ...

zation factor. This can be written on the assumption that there is no interference between the individual mesons. In dimensionless cylindrical coordinates, the angular distribution has the form

$$I^{(o)}(\varkappa_\perp) = B \frac{\left[I_{3/2}(\varkappa_\perp)\right]^2}{\varkappa_\perp^{3/2}}$$ where B is a normalization constant.

$\varkappa_\perp = \varkappa \sin\vartheta$; $\varkappa = \frac{k}{m_\pi}$ is the dimensionless momentum. The distribution with respect to the transverse momentum, $W(\varkappa_\perp)$ is calculated with the aid of the dimensionless variables of energy $\nu = \frac{\varepsilon}{m} = \sqrt{\varkappa^2 + 1}$ and transverse energy $\nu_\perp = \sqrt{\varkappa_\perp^2 + 1}$:

$$W(\varkappa_\perp) = \varkappa_\perp I(\varkappa_\perp) L(\varkappa_\perp), \tag{20}$$

$$L(\varkappa_\perp) = \int_{\sqrt{\varkappa_\perp^2+1}}^{\infty} \frac{d\nu \cdot w(\nu)}{\sqrt{\nu^2-1}\sqrt{\nu^2-1-\varkappa_\perp^2}} = \int_1^{\infty} \frac{d(\Phi(\nu_\perp \cdot t))}{\sqrt{t^2-1}}$$

$$t = \frac{\nu}{\nu_\perp}, \quad w(\nu) = \sqrt{\nu^2-1}\,\Phi(\nu). \tag{21}$$

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Optical model of meson production ...

where $w(v)$ denotes the energy distribution, $I(\varkappa_1) = I^{(o)}(\varkappa_1)$. The angular and momentum distributions of the departing mesons obtained by these formulae are in good agreement with experimental results. There are 3 figures and 10 references: 4 Soviet and 6 non-Soviet. The three references to English-language publications read as follows: H. W. Lewis et al. Phys. Rev., 73, 127, 1948; E. Fermi. Prog. of theor. Phys., 5, no. 4, 1950 and Phys. Rev., 81, 683, 1951.

Card 3/3

IEPER, D.P.

Quadrupole oscillations of axial nuclei in the representation of second quantization. Izv. AN Kazakh. SSR. Ser. fiz.-mat. nauk no. 2:3-13 '63. (MIRA 17:6)

LEPER, D.P.

Octupole oscillations of even-even deformed slightly nonaxial nuclei. Vest. AN Kazakh. SSR 21 no.12:69-71 D '65. (MIRA 18:12)

TEBEN'KOV, M.N.; LEPERSKIY, Ye.A.; KUZ'MINOV, O.D.

Effect of bilateral ligation of the AA. Mammariae internae and pedicardectomy on the coronary circulation in an experiment. Grud.khir. 3 no.6:48-51 N-D '61. (MIRA 15:3)

1. Iz gospital'noy khirurgicheskoy kliniki pediatricheskogo fakul'teta II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova (zav. - prof. A.V. Gulyayev).
(CORONARY VESSELS) (PERICARDIUM--SURGERY)
(MAMMARY GLANDS--BLOOD SUPPLY)

GORANSKIY, Vladimir Aleksandrovich [deceased]; LEPERSON, M.A., redaktor. PERESYPKIN, Z.D., tekhnicheskiy redaktor; VESKOVA, Ye.I. tekhnicheskiy redaktor.

[Fundamentals of mechanical engineering] Osnovy tekhnicheskoi mekhaniki. Izd. 6-oe, dop. i perer. Moskva, Gos.izd-vo selkhoz. lit-ry, 1955. 169 p. (MLRA 9:1)
(Mechanical engineering)

ROYTER, V.A.; KORNIYCHUK, G.P.; LEPERSON, M.O., [deceased]; STUKANOVS'KA, N.O.; TOLCHINA, B.I.

Method of diaphragms for studying porous catalysts and kinetics of reactions occuring on them. Dop. AN URSR no.2:41-47 '49. (MLRA 9:9)

1. Institut fizichnoi khimii im. L.V. Pisarzheva'kogo AN URSR. Predstaviv diysniy chlen AN URSR O.I. Brods'kiy.
(Catalysts)

GEL'TSER, R.R.; LEPERT, Z.S.

Certain biologic properties of pure cultures of Spirochaeta pallida strains isolated in Stavropol. Vest. vener. no.3:23-27 May-June 1951. (CIML 20:11)

1. Prof. Gel'ttser. 2. Of Stavropol' Institute of Epidemiology and Microbiology (Director--L.I. Makhlinovskiy; Scientific Supervisor--Prof. R.R. Gel'ttser).

LEPES, Peter

Protective vaccinations. Elet tud 16 no.39:Suppl.:Tarkatudomany 12 no.20:159 24 S 61.

LEPES, Peter

Winter sources of vitamins. Elet tud 16 no.53:Suppl.:-
Tarkatudomany 2 no.27:214 31 D '61.

SIMIC, C.; RIHTER, B.; PETROVIC, Z.; LEPES, T.

Intestinal parasities in man in Yugoslavia. VI. Intestinal parasites in children in Bosnia and Hercegovina. Glas Srpske akad. nauka, odelj. med. no.8:105-121 1953.

1. Primljeno na X skupu Odeljenja medicinskih nauka 24.IX.1953 g.
(PARASITIC DISEASES, epidemiol.
*Yugosl., school child.)

SIMIC, C; [illegible], B.; PETROVIC, Z.; LEPES, T.

Intestinal parasites in man in Yugoslavia. VII. Intestinal parasites in school children in Dalmatia. Glas Srpske akad. nauka, odelj. med. no.8:123-133 1953.

1. Primljeno na X skupu Odeljenja medicinskih nauka 24.IX.1953 god.
(PARASITIC DISEASES,
*intestinal, epidemiol., school child. in Yugosl.)

SIMIC, C.; GLADILIN, N.; PETROVIC, Z.; LEPES, T.

Intestinal parasites in man in Yugoslavia. III. Intestinal parasites in school children in Metohia. Glas. srpske akad. nauka, odelj med. 211 no.7:109-120 1953.

1. Iz Instituta za parazitologiju SAN, upravnik prof. dr. Ced.P. Simic. Primljeno na I skupu Odeljenja med. nauk 15 I 1953 god.

(PARASITIS DISEASES
intestinal, epidemiol. in Yugosl. in School child.)

SIMIC, C.; LEPES, T.

Intestinal parasites in man in Yugoslavia. IV. Intestinal parasites in man in Backa. Glas srpske akad. nauka, odelj med. 211 no.7: 121-132 1953.

1. Primljeno na I skupu Odeljneja med. nauka 15 I 1953 god.
(PARASITIC DISEASES
intestinal, epidemiol. in Yugosl.)

LEPES, Tibor, Major dr

Amebiasis and amebic dysentery. Bibl.Hig.inst.Srbije no.5:133-141 '54.

1. Parazitolosko odeljenje Vojno-medicinske akademije.
(AMEBIASIS)
(AMEBIASIS,INTESTINAL)

LEPES, T.

Distribution and treatment of taeniasis in Yugoslavia. Higijena, Beogr. 6 no.2:178-185 1954.

1. Parazitolosko odeljenje Vojno-medicinske akademije JNA, Beograd.
(TAPEWORM INFECTIONS, epidemiol.
Yugosl.)
(TAPEWORM INFECTIONS, ther.
quinacrine)
(QUINACRINE, ther. use
tapeworm infect.)

LEPES, T.

The problem of amebiasis in Yugoslavia. Med. pregl., Novi Sad 7 no.4:276-281 1954.

1. Parazitolosko odeljenje Vojno-medicinske akademije JNA, Beograd.
(AMEBIASIS, epidemiol.
Yugosl.)

SIMITCH, Tch.; CLADILIN, N.; PETROVIC, Zl.; LEPES, T.

Studies on intestinal human parasites in Yugoslavia. III. Intestinal parasites in children in Metohia. Bull.Acad.serbe sc.,classe med. 11 no.2:85-86 1954.

(HELMINTH INFECTIONS, epidemiology,
in Yugosl., in child.)

SIMITCH, Tch.; LEPES, T.

Studies on intestinal parasites in man in Yugoslavia. IV. Intestinal parasites in Backa. Bull.Acad.serbe sc.,classe med. 11 no.2:87-88 1954.

(HELMINTH INFECTIONS, epidemiology, in Yugosl.)

LEPES, Tibor, major dr.; NIKOLIC, Borivoje, dr.

The problem of carriers of Endamoeba histolytica cysts among the persons dealing with food services. Voj. san. pregl., Beogr. 11 no.11-12:604-608 Nov-Dec 54.

1. Katedra za higijenu i epidemiology VMA, Paraxitolosko odeljenja.
(ENDOMOEBA HISTOLYTICA
cyst carriers in Yugosl.)

SIMIC, C., prof. dr.; LEPES, MAJOR DR.; PETROVIC, Z., doc. dr.

Intestinal parasites in Yugoslavia. X. Intestinal parasites in school children in Beograd, Zemun and Pancevo. Voj. san. pregl., Beogr. 11 no.11-12:617-628 Nov-Dec 54.

1. Odeljenje za parazitologiju Instituta za medicinska istrazivanja Srpske Akademije Nauka. Katedra za higijenu i epidemiologiju VMA - Institut za higijenu (Otsek za parazitologiju)

(PARASITIC DISEASES
intestinal, in school child. in Yugosl.)

LEPES, Tibor, Major dr.

The study of the extension and the treatment of visceral helminth infections in our country. Voj. san. pregl., Beogr. 12 no.7-8: 427-430 July-Aug 55.

1. Katedra za higijenu i epidemiologiju VMA. Institut za mikrobiologiju i parazitologiju--parazitolosko odeljenje.
(HELMINTH INFECTIONS, epidemiol.
in Yugosl., types, incidence & ther. (Ser))

SIMIC, C.; RIHTER, B.; LEPES, T.

Intestinal parasites in Yugoslavia. VIII. Intestinal parasites in school children in Slovenia. Glas.Srpske akad. nauka.odelj. med. 215 no.9:79-91 1955.
(HELMINTH INFECTIONS, statistics,
in Yugosl.)

LEPES, Tibor, Major dr.; VITANDVIC, Radmila, biolog.

Resistence of Anopheles maculipennis to DDT in Macedonia. Voj. san. pregl., Beogr. 13 no.5-6:243-249 May-June 56.

1. Katedra za higijenu i epidemiologiju, VMA. Institut za mikrobiologiju i parazitologiju. Parazitolosko odeljenje.
(MOSQUITOES, eff. of drugs on
DDT on Anopheles maculipennis (Ser))
(DDT, eff.
on Anopheles maculipennis (Ser))

GASPAROV, Antun, Potpukovnik dr.; LEPES, Tibor, major dr.;
AVRAMOV, Nebojsa, potpukovnik dr.

Clinical and x-ray diagnosis of teniasis. Voj. san. pregl. Beogr. 13 no.11-12:551-556 Nov-Dec 56.

1. Oblasna bolnica Beograd i Parazitolosko odeljenje VMA.
(TAPEWORM, diag.
(Ser))

SIMITCH, Tch.; RICHTER, B.; PETROVITCH, Zl.; LEPES, T.

Parasitic fauna in man in Yugoslavia. VI. Intestinal parasites in school children in Bosnia and Hercegovina. Bull. Acad. serbe sc., classe med. 15 no.3:55-56 1956.

1. De l'Academie yôguoslave des Sciences et des Arts de Zagreb et de l'Academie serbe des Sciences de Belgrade.
(HELMINTH INFECTIONS, statistics,
in Yugosl. (Fr))

SIMITCH, Tch.; RICHTER, B.; PETROVIC, Z.; LEPES, T.

Parasitic fauna of the intestines in man in Yugoslavia. VII. Intestinal parasites in school children in Serbia. Bull. Acad. serbe sc., classe med. 15 no.3:57 1956.

1. De l'Academie yougoslave des Sciences et des Arts de Zagreb et de l'Academie serbe des Sciences de Belgrade.
(HELMINTH INFECTIONS, statistics,
in Yugosl. (Fr))

LEPES, Tibor, Major dr.

Resistance of body lice (Pediculus humanus corporis, deg.) to DDT in Istok District (Kosmet Region). Voj. san. pregl., Beogr. 14 no.1-2:18-27 Jan-Feb 57.

1. Katedra za higijenu i epidemiologiju VMA. Institut za mikrobiologiju i parazitologiju (Parazitolosko odeljenje).
(PEDICULI, eff. of drugs on
DDT (Ser))
(DDT, eff.
on pediculi (Ser))

LEPES, Tibor, San. major dr.

Treatment of malaria with daraprim. Voj. san. pregl., Beogr. 14 no.3:120-123 Mar 57.

1. Katedra za higijenu i epidemiologiju VMA. Institut za mikrobiologiju i parazitologiju--Parazitolosko odeljenje.
(ANTIMALARIALS, ther. use
pyrimethamine in malaria (Ser))
(MALARIA, ther.
pyrimethamine (Ser))

Surname (in caps); Given Names

Country: Yugoslavia

Academic Degrees: Docent Dr.

Affiliation: not given

Source: Belgrade, Narodno zdravlje, No 7-8, 1961, p. 258.

Data: "Late Relapse of Infections with Pl. Malariae."

LEPES, T.
SURNAME (in caps); Given Names

Country: Yugoslavia

Academic Degrees: Docent Dr.

Affiliation: not given

Source: Belgrade, Narodno zdravlje, No 7-8, p. 259.

Data: "Blood Transfusion and Malaria."

IEPES, Tibor

SURNAME (in caps); Given Names

Country: Yugoslavia

Academic Degrees: Docent Dr

Affiliation: /not given/

Source: Belgrade, Narodno Zdravlje, Vol XVII, No 5, May 1961, pp 167-169

Data: "Malaria Eradication Service and the Program in Venezuela."

LEPES, T.

SURNAME (in caps); Given Names

Country: Yugoslavia

Academic Degrees: Docent Dr

Affiliation: /not given/

Source: Belgrade, Narodno Zdravlje, Vol XVII, No 6, June 1961, pp 205-207

Data: "The Importance of Supervising Certain Measures Carried out Within the Malaria Eradication Program."

GASPAROV, Antun, sanitetski pukovnik, doc., dr.; SMIRCIC, Petar, sanitetski potpukovnik, dr.; LEPES, Tibor, sanitetski potpukovnik, doc., dr.

Treatment of taeniasis with tin. Vojnosanit. pregl. 19 no.3: 198-201 Mr '62.

1. Armijska bolnica u Beogradu, Interno odeljenje.
(TIN) (TAPEWORM INFECTIONS)
(ANTHELMINTICS)

S

LEPESA, A.I.

Session of the Scientific Council on the problem "Theory of chemical structure, kinetics, and reactivity." Dop. AN URSR no.9:1253-1254 '65. (MIRA 18:9)

BAS'YAS, I.P.; LEPESA, A.M.

Mineralogical composition of magnesite-dolomite-cinder and magnesite-dolomite-furnace slag calcinated mixes. Ogneupory 25 no.10:478-483 '60. (MIRA 13:10)

1. Vostochnyy institut ogneuporov.
(Refractory materials)

KIRSANOV, A.V., [Kirsanov, O.V.] akademik; LEPESA, A.M.; DERKACH, G.I. [Derkach, H.I.]

Et ers of monoanilides of aro/lamidophosphoric acids. Dop. AN URSR no.3:384-386 '62. (MIRA 15:5)

1. Institut organicheskoy khimii AN USSR. 2. AN USSR (for Kirsanov).

(Phosphoramidic acid) (Ethers)

DERKACH, G.I.; LEPESA, A.M.; KIRSANOV, A.V.

Alkyl esters of N-dialkoxy- and N-diaroxyphosphinyliminocarboxylic acids. Zhur.ob.khim. 31 no.10:3424-3433 O '61. (MIRA 14:10)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.
(Esters) (Acids, Organic)

DERKACH, G.I.; LEPESA, A.M.; KIPSANOV, A.V.

Alkyl esters of N-dialkoxyphosphinyliminocarboxylic acids.
Zhur. ob. khim. 32 no.1:171-174 Ja '62. (MIRA 15:2)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.
(Phosphinic acid)

DERKACH, G.I.; LEPESA, A.M.; KIRSANOV, A.V.

Derivatives of monoanilides of aroylamidophosphoric acids. Zhur.-ob.khim. 32 no.8:2600-2606 Ag '62. (MIRA 15:9)

1. Institit organicheskoy khimii AN Ukrainskoy SSR.
(Phosphoramidic acid)

DERCHAK, G.I.; LEPESA, A.M.

Derivatives of phenoxydichlorophosphazoacyls. Zhur.ob.khim. 34 no.2: 525-529 F '64. (MIRA 17:3)

1. Institut organicheskoy khimii AN UkrSSR.

25(5) SOV/32-25-9-17/53

AUTHORS: Bas'yas, I. P., Danilovich, Yu. A., Lepesa, A. N.

TITLE: Application of Radioactive Isotopes in the Investigation of the Performance of the Bottom Surface of Martin Furnaces

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1076-1077 (USSR)

ABSTRACT: Investigating the reaction between the bottom surface (B) of Martin furnaces and the charge (C) with the liquid steel (S) containing iron oxides (IO) is particularly complicated. Diffusion of (IO) into (B) can, however, greatly influence the durability of (B). For the investigation of the displacement of (IO) from (C) or (S) into (B) in the case under review radioactive Fe^{59} was used being poured onto the ore in the form of a suspension of hydroxide. The active ore is put onto (B) simultaneously with the first (C) in the 185 ton Martin furnace. After (C) has melted down, samples of the slag, the metal and the (B) are taken by means of a special steel tube. The activity of the samples was investigated with a B-2 unit and AS counter. It was established that most of Fe^{59} passed into the smelting and only a small part of the radioactive iron passed from the

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ore into (B). An even smaller migration from the smelting into (B) was observed. The observations made lead to the assumption that the iron of (IO) reacts most with the periclase of (B). For this reason the migration from the ore is larger than that from the smelting as there is considerably less oxygen present in the latter. Thus an increase in the oxygen content of the smelting results in greater wear on (B). There is 1 figure.

ASSOCIATION: Ural'skoye otdeleniye Instituta ogneuporov i Chelyabinskiy metallurgicheskiy zavod (Ural's Department of the Institute for Refractory Materials and Chelyabinsk Metallurgical Works)

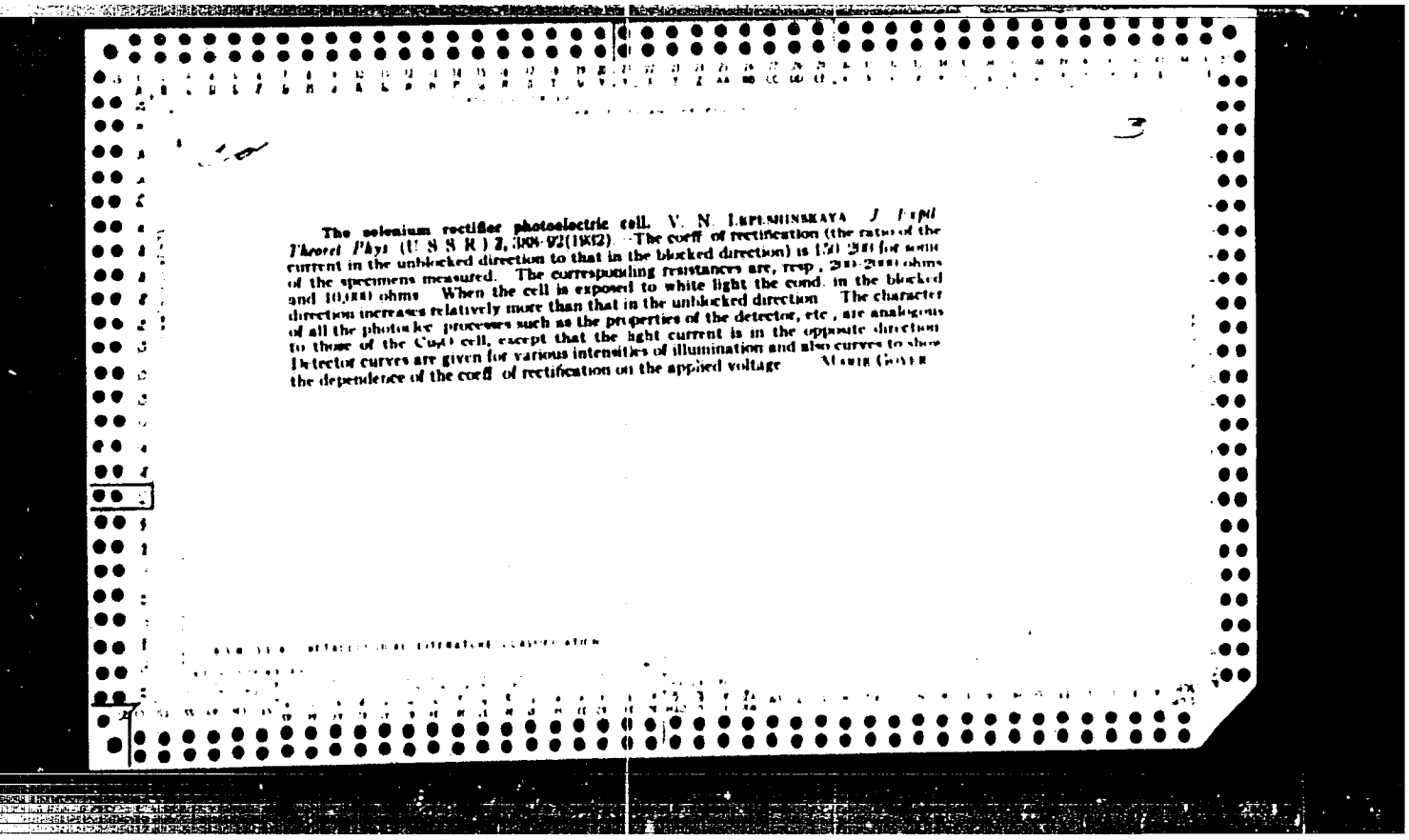
LEPESHKINOVA, R.I.; MAKOVKINA, I.V.

Institute of worker and researchers at the Yaroslavl Plant of Industrial Rubber Goods. Kauch.i rez. 21 no.5:58-59 My '62. (MIRA 15:5)

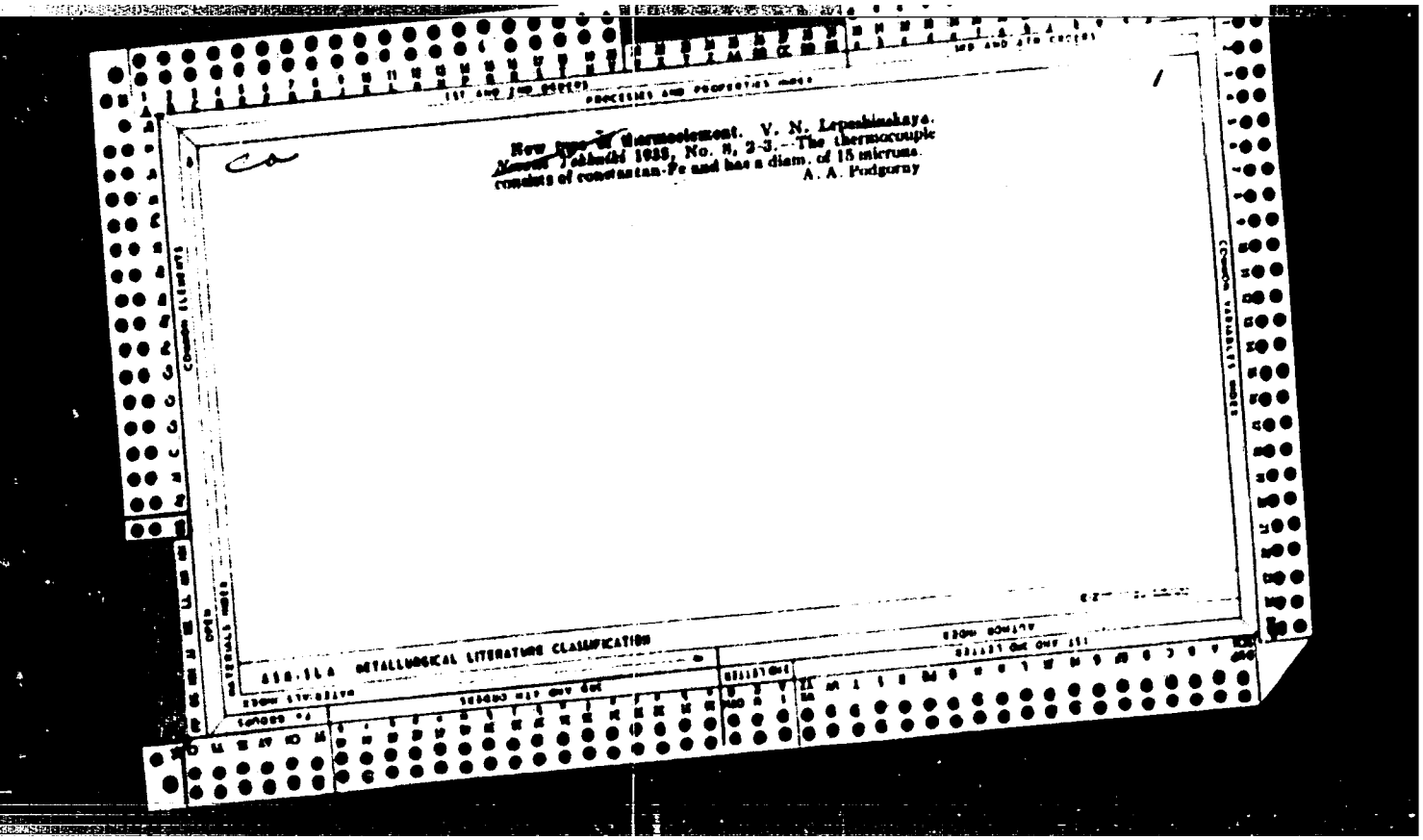
1. Yaroslavskiy zavod rezino-tekhnicheskikh izdeliy.
(Yaroslavl--Rubber industry)
(Research, Industrial)

BORKOVSKIY, M.A.; VOSTOKOV, A.I.; ZHVIRKO, I.S.; LEBESHKIN, I.P.; MEL'NIK, M.K.; MITROFANOV, V.P.; RODKEVICH, A.V.; SILIN, P.I.[deceased]; YAKUBOVSKIY, V.V.; YEREMENKO, B.A., retsenzent; MAR'YANCHIK, V.L., retsenzent; MAKSIMOV, A.I., retsenzent; PRITYKINA, L.A., red.

[Handbook for the sugar manufacturer] Spravochnik sakharnika. Moskva, Pishchevaia promyshlennost'. Pt.2. 1965. 778 p. (MIRA 18:9)

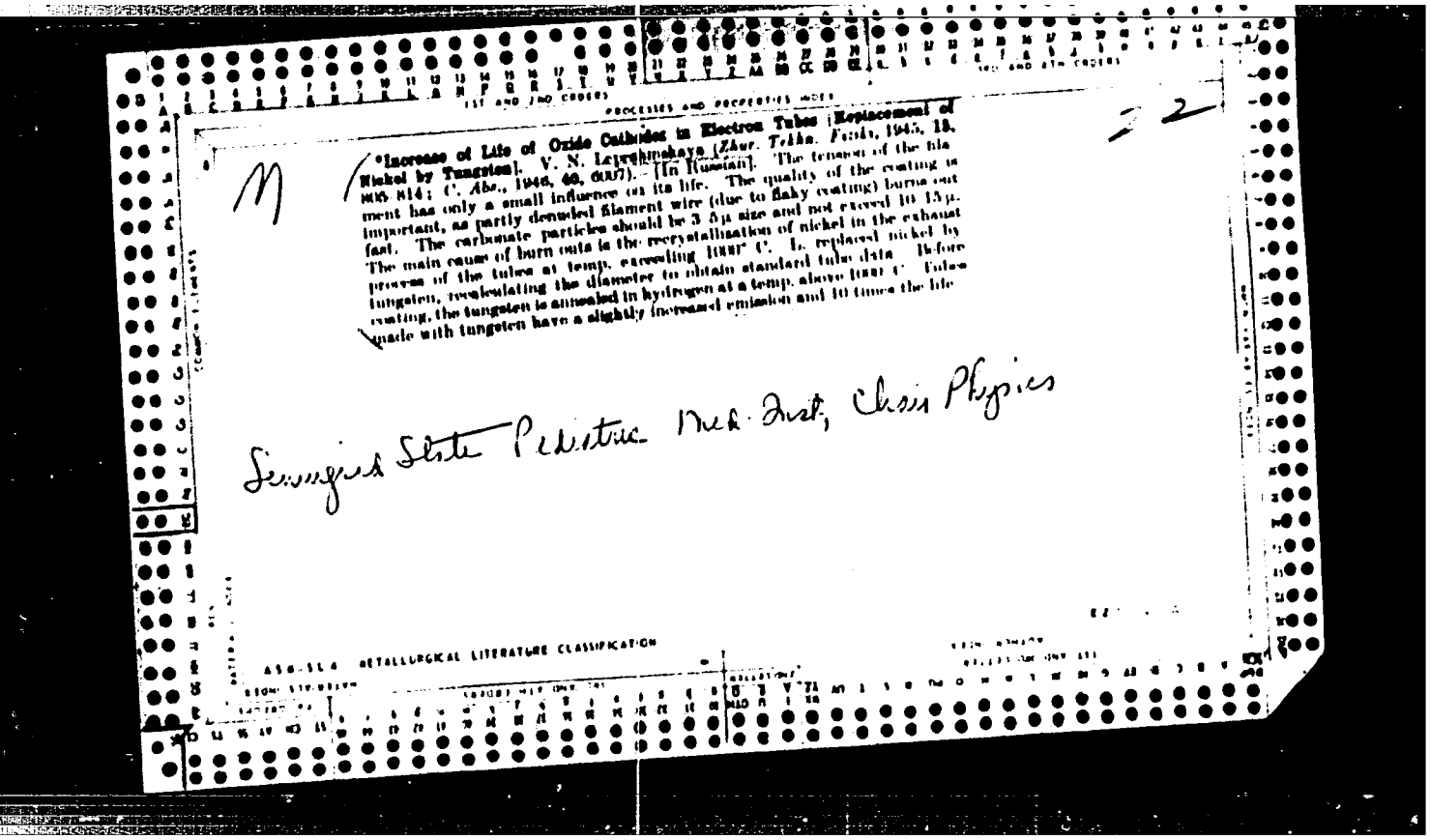


The selenium rectifier photoelectric cell. V. N. LEPESHINSKAYA *J. Exptl Theoret. Phys.* (U.S.S.R.) 2, 309-92(1932). The coeff. of rectification (the ratio of the current in the unblocked direction to that in the blocked direction) is 150-280 for some of the specimens measured. The corresponding resistances are, resp., 200-2000 ohms and 10,000 ohms. When the cell is exposed to white light the cond. in the blocked direction increases relatively more than that in the unblocked direction. The character of all the photoelec. processes such as the properties of the detector, etc., are analogous to those of the Cu_2O cell, except that the light current is in the opposite direction. Detector curves are given for various intensities of illumination and also curves to show the dependence of the coeff. of rectification on the applied voltage. MARIE GOEPPERT



LEPESHINSKAYA, V.N.

"Piezoelectric Surgical Probe," Dok.AN, 33, No. 2--3, 1943. Dept. Physics, Leningrad State Pediatric and Med. Inst. [illegible].



PROCESSES AND PROPERTIES INDEX

M

"Increase of Life of Oxide Cathodes in Electron Tubes | Replacement of Nickel by Tungsten]. V. N. Lavrushmakaya [Zhur. Tekh. Fiziki, 1945, 15, No. 8-9; C. Abs., 1946, 40, 6037). — [In Russian]. The tenacity of the bla ment has only a small influence on its life. The quality of the coating is important, as partly denuded filament wire (due to flaky coating) burns out fast. The carbonate particles should be 3 μ size and not exceed 10-15 μ. The main cause of burn outs is the recrystallisation of nickel in the exhaust process of the tubes at temp. exceeding [illegible] C. It is replaced nickel by tungsten, recalculating the diameter to obtain standard tube data. Before coating, the tungsten is annealed in hydrogen at a temp. above [illegible] C. Tubes made with tungsten have a slightly increased emission and 10 times the life

Lavrushmakaya Leningrad State Pediatric Med. Inst., Chair Physics

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

LEPESHINSKAYA, V.N.

USSR/Physics - Ions, Neutralization Jun 52

"Neutralization of Ions Of Potassium and Sodium on Tungsten and Tantalum," L. N. Dobretsov, V. N. Lepeshinskaya, I. E. Bronshteyn

"Zhur Tekh Fiz" Vol XXII, No 6, pp 961-967

Present formulas showing relation of ions leaving the surface of a metal to volatile atoms in the case of particles moving with thermal velocities. Decribes construction of equipment and method of measurements. For higher velocities of particles formulas by L. N. Dobretsov (cf. "Electron and Ion Emission," 1950) are applied. Received 1 Feb 52.

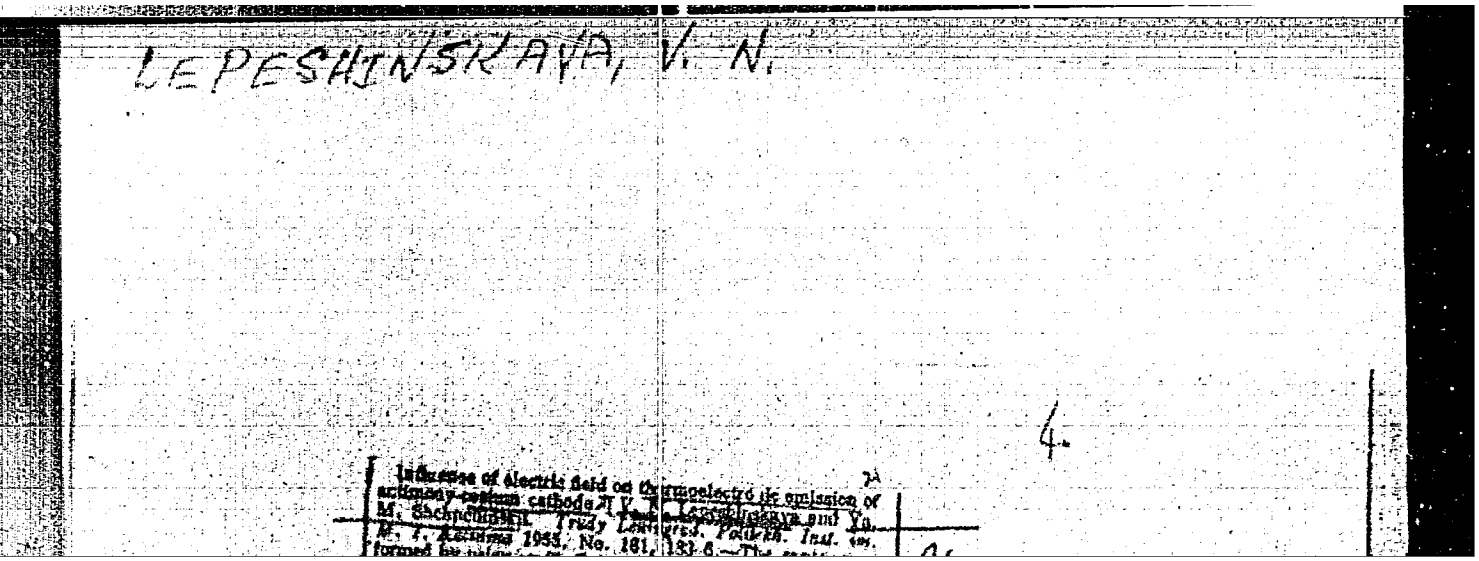
219T85

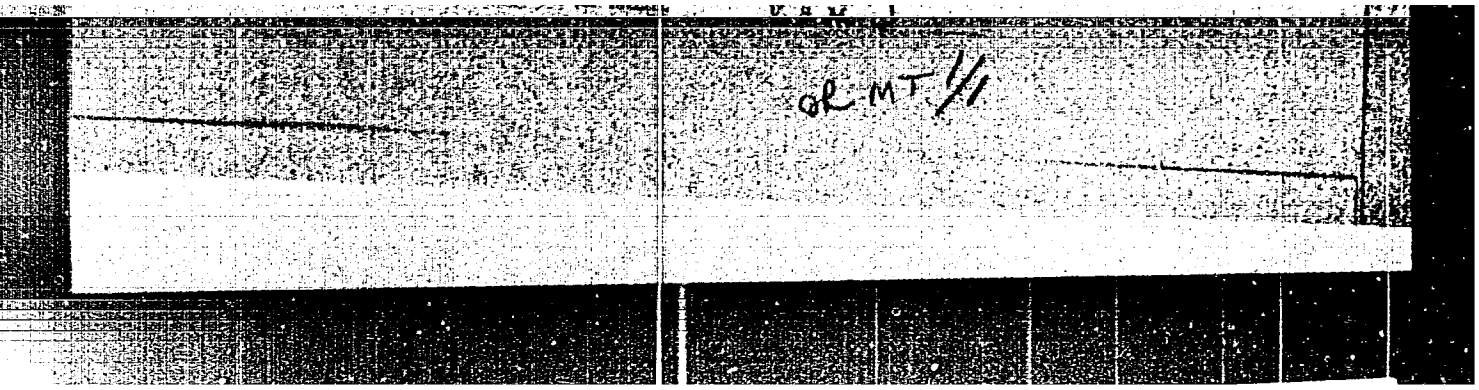
LEPESHINSKAYA, V.N.

USSR

Distribution of secondary electrons in magnesium and beryllium alloys. V. N. Lepeshinskaya and V. M. Tumorin. *Zhur. Tekh. Fiz.* 24, 1933-41(1954).—Secondary emission in activated CuMg, AgMg, AlMg, and CuBe electrodes was studied by using the spherical condenser method (the ratio of the collector to the target diams. was 11 with potential V_a = 300 v., 600 v., and 1100 v.) at 2-4 × 10^{-4} mm. Hg pressure. For each alloy the coeff. of the secondary emission (δ) vs. energy of the primary electrons (V_p) and the secondary current-collector voltage (V_k) relationships were plotted. The δ for CuMg deld. at 25°, 190°, 240°, 350°, and 480° is 12.4, decreasing only a few % with increase in temp. A 500-fold change in the primary current in this range of temps. had no effect on the integral distribution curves. The increase of the secondary emission in AgMg was only due to the slow electrons. The satn. occurred at V_k = + 4 v. (δ = 15.3). The activation of the AlMg alloy was carried out in O_2 1 atm. prior to heating in vacuum (the CuMg and AgMg alloys were calcined in vacuum only). At V_p = 800 v. δ_{max} for this alloy was 8.8. In case of the CuBe alloy longer heating at higher temps. was required for max. emission. At 880° and 950° δ_{max} was 8.4.

A. P. Kotloby





LEPESHINSKAYA, V. N.

3

Investigation of secondary electron emission of petrolatum oils. V. N. Lepeshinskaya and M. I. Bakai. *Trudy Leningrad. Politekh. Inst. im. M. I. Kalinina* 1955, No. 181, 187-9.—A thin layer of petrolatum oil, flowing upon the surface of a Ni ball, 14 mm. in diam., is the target for primary electrons, bombarding it in a vacuum of $1\text{-}2 \times 10^{-6}$ mm. Hg with 10^{-11}–10^{-12} amp. current. The secondary emission coeff. as a function of primary electron energy was found to be 3-4 at 600-900 v., depending on the specific oil and its degree of purity. B. Ryabkewitch

9R 1/1

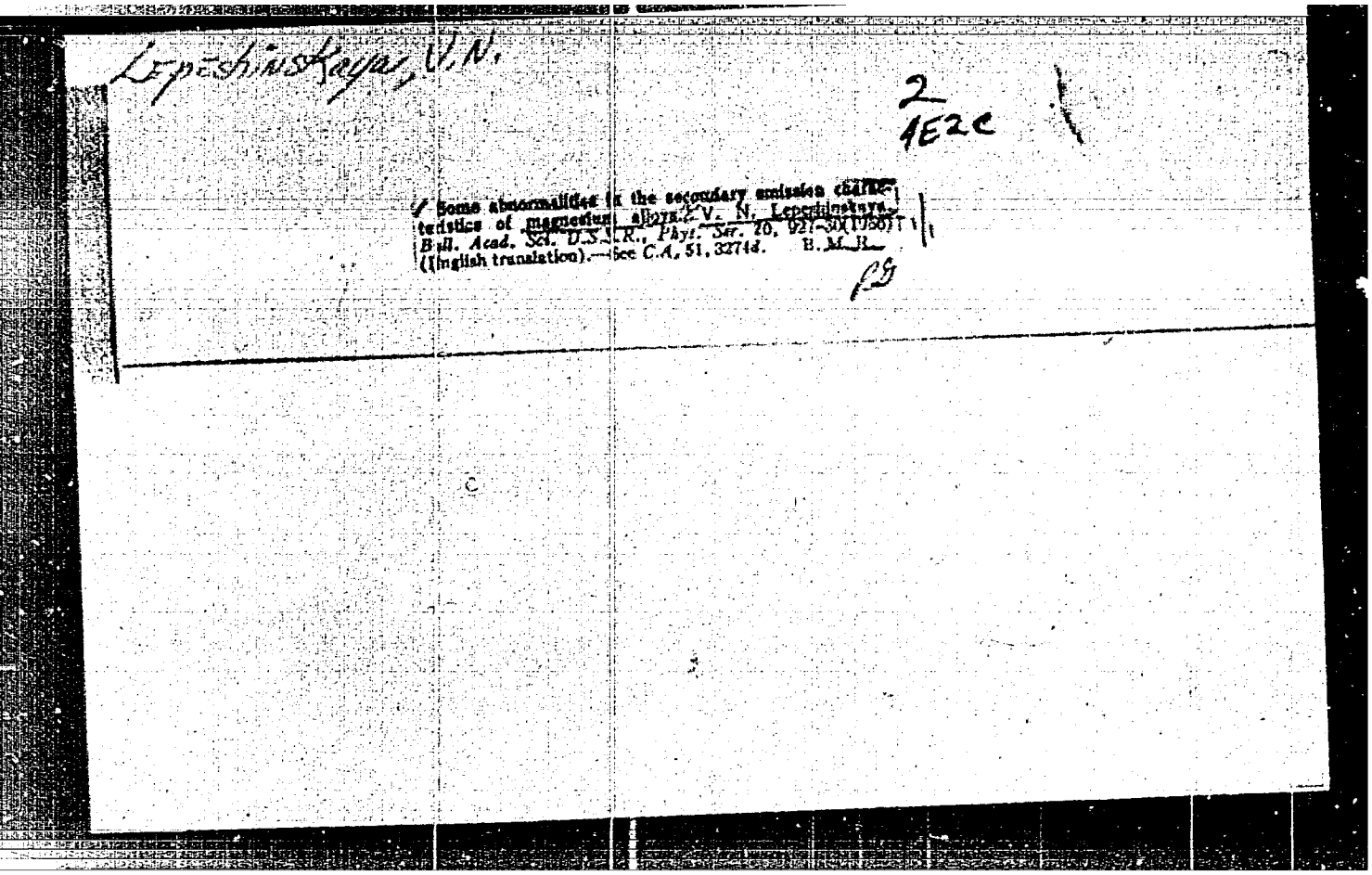
LEPESHINSKAYA, V. N.

5

Study of the capacity and secondary emission heterogeneities of dielectric films by the method of a fast oscillating electron ray. V. N. Lepeshinskaya and Yu. L. Klefman. *Trudy Leningrad. Elektrotek. Inst. im. M. I. Kalinina* 1955, No. 181, 195-200.—To avoid an elec. charge of the dielec. film target, the bombarding primary electron beam oscillates on the target surface with a high frequency. The beam focus was 0.6-0.7 mm. in diam. The impulse minimum duration was 15 microsec. The oscillation speed was approx. 2-3 × 10⁴ cm./sec. Simultaneously, a corresponding impulse is given to the measuring oscillograph. When the beam hits the target, a signal, proportional to $(I_s - I_1)$, is generated. Amplified, the signal is combined with the deflection of the primary beam, producing an oscillogram, the ordinates of which correspond to $(I_s - I_1)$, and the abscissas to the deflections. Depending on the secondary emissivity, the indicated current is const. or variable. For capacity measurements, the speed of the primary beam oscillation was decreased 10-20 times, and the primary current intensity increased 7 times. Under this condition, the signal depended on the capacity of the dielec. at the spot where it was hit by the primary beam. Tests gave correct results of Ni secondary emission. Electrolytically produced Al_2O_3 film on pure Al was 30-40 microns thick and showed, after a repeated oxidation, 1000 megohm resistance. In vacuum thermally treated film had a secondary emission coeff. up to 3.2. A Cu-Mg alloy had shown a coeff. up to 8 with a high uniformity. Cataphoretically produced MgO film of several dozens microns thickness had a secondary emission coeff. up to 3.2. Capacitance of Al_2O_3 was found to be uniform.

E. Ryshkewitch

1/1 gp



Lepeshinskaya, V. N.

2
1E2c

Some abnormalities in the secondary emission characteristics of magnesium alloys. V. N. Lepeshinskaya. *Bull. Acad. Sci. U.S.S.R., Phys. Ser.* 10, 921-30(1950) (English translation). — See *C.A.* 51, 3274d. B. M. R.

...Lepeshinskaya, V.N.

Some abnormalities in the secondary emission characteristics of magnesium alloys. V. N. Lepeshinskaya. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 1025–8(1956).—Retardation potential secondary emission measurements were made on Cu Mg alloys by 4 different methods—static, with periodic pulses, with singular pulses, and thermal. Periodic square pulses had a duration of 2.5 microsec. and a frequency of 5 cycles. For single pulses the charges were discharged by heating. The different methods gave the same curves for $\sigma/\sigma_{max} = f(U_r)$; the satn. point in these curves at high collector potential U_r depended on the state of activation of the alloy (U_r highest for $\sigma_{max.} = 6.7$, lowest for $\sigma_{max.} = 4$). Smaller size targets were satd. at lower U_r. This observation indicates that the measurements are modified by the secondary emission from the Ag collector. The results also point to a "patchy" surface structure. S.P.

Ref's

Lepeshinskaya, V.N.

Distr: 4Eh1/4E2c

21 Spectral characteristics of the external photoelectric effect from an activated copper/magnesium alloy / V. N. Lepeshinskaya and G. A. Yuzhev (Polytech. Inst., Leningrad). Soviet Phys. Tech. Phys., 2, 450-4(1957); Zhur. Tekh. Fiz. 27, 604-7.—The properties of surface films on a Cu-Mg alloy contg. 2% Mg were investigated by measuring the photoelec. effect produced by light between 3931 and 7699 A. The alloy was incorporated into cathodes and dynodes of multipliers contg. 18 stages of multiplication and amplification factors of 10^6 to 10^7. Electrodes were activated *in situ* by heating to 500-600° for 1 hr. at 10^{-5} mm. Hg, by using an induction coil. Three tubes prepd. in this way gave similar responses which showed a threshold at 6700 A., a small max. at 6200 A., a min. at 5000 A., and a continuous rise thereafter at shorter wave lengths. A work function of 1.7-1.9 e.v. corresponds to the threshold, whereas the min. at 5000 A. is equiv. to 2.5 e.v. These values are well below the 6-e.v. estd. width of the forbidden band and indicate the presence of centers that serve as sources of electrons. James H. Pannell

6
2

V1

PA - 2539

AUTHOR: LEPESHINSKAYA, V.N., YUDAYEV,G.A.

TITLE: Spectral Characteristic of Surface Photoeffect from Activated Cu - Mg Alloy. (O spektral'noy kharakteristike vneshnego foto-effekta s aktivirovannogo mednomagniyevogo splava, Russian)

PERIODICAL: Zhurnal Tekhn.Fiz., 1957, Vol 27, Nr 3, pp 502-507 (U.S.S.R.)
Received: 4 / 1957 Reviewed: 5 / 1957

ABSTRACT: The surface photoeffect of cathodes consisting of activated copper magnesia alloys is investigated. As the orders of photocurrents of semiconductors are very small, methods for measuring weak currents were applied. Spectral-characteristics of the surface photoeffect were recorded in amplifiers. All electrodes consisted of CuMg (2% Mg). The photocurrents amplified in the amplifier were measured by means of an electrometer and reduced to the same energy of light current for different wave lengths. The curves of the spectrum obtained (in its visible part) had a maximum at about 5200 Å and within the domain of the waves under 5000 Å they showed a monotonous increase. All three amplifiers investigated possessed similar spectral characteristics with a photoeffect rapidity at 6700 Å and a sharp minimum nearly reaching zero within the domain of 5000 Å. In one case only a maximum within the long wave domain of the spectrum and a photoelectric rapidity of about 7500 Å was observed. After

Card 1/2

LEPESHINSKAYA, V.N.

57-6-14/36

AUTHOR: LEPESHINSKAYA, V.N., LEBEDEVA, V.A.

TITLE: On the Work Function of Activated CuAlMg and CuAlBe Alloys (O rabote vykhoda aktivirovannykh splavov CuAlMg i CuAlBe. Russian)

PERIODICAL: Zhurnal Tekhn. Fiz. 1957, Vol 27, Nr 6, pp 1240 - 1247 (U.S.S.R.)

ABSTRACT: The modification of the work function of both alloys was carried out in various stages of their activation and compared with the values obtained for the coefficient of the secondary electron emission. The modification of the work function $\Delta\varphi$ during activation of the alloy was measured by means of the voltampere characteristic shifting method. The observed parallel-shifting of the curves determined the modification of the potential drop at the contacts between the cathode of the target to be investigated. Tantalum was used as a calibrated target. A low voltage electron gun served as a monokinetic electron source. Measurements resulted in an important decrease of the work function after activating of the CuAlMg alloy, on which occasion the samples to be investigated may be divided into two groups: with max. $\Delta\varphi$ = 2.2 eV and $\Delta\varphi$ = 1.1 - 1.3 eV. In the case of the CuAlBe alloy $\Delta\varphi$ is low and the absolute value of φ is near that of φ for tantalum. The experiment was undertaken here to connect the here observed modification of the work function with the conditions of the activation process. (With 8 illustrations, 2 tables, and 3 Slavic references).

Card 1/2

57-6-14/36

On the Work Function of Activated CuAlMg and CuAlBe Alloys

ASSOCIATION LPI
PRESENTED BY
SUBMITTED 29.12.1956
AVAILABLE Library of Congress

Card 2/2

AUTHORS: Lepeshinskaya, V. N., Sukova, T. M. 48-22-5-7/22

TITLE: On Some Particularities of the Retardation Curves of Secondary Emission Film Cathodes (O nekotorykh osobennostyakh krivykh zaderzhki plenochnykh vtorichno-emissionnykh katodov) (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. 528-533 (USSR)

ABSTRACT: For several times retardation curves from a spherical capacitor were observed, which reached the saturation in the domain of the positive voltage at the collector. This took place in the investigation of the energy spectrum of the secondary electrons of various substances. According to the notation by some authors they are "electrons with insufficient energies" (Ref 1). The mentioned saturation takes place at the current voltage curves for activated Mg- and Be-alloys (Refs 4, 5) in the case of a positive potential at the collector of from a few to some dozens volt. Without entering discussion of the physical nature

Card 1/4

of these phenomena the authors first discuss a number of collateral causes: 1) The presence of tertiary electrons from the collector in the current. 2) The charge of the surface in case of a very low electric conductivity of the target by which in some cases even an effect of the Malter-type is produced, 3) The presence of an ohmic resistance in the chain target - collector; 4) The distortion of the field near the target as a [illegible] configuration of the device. The authors have controlled these 4 factors for several times and removed them. In case of their absence it must be assumed that on the target surface a hindering field exists for the compensation of which an additional voltage at the collector must be applied. The authors have produced a number of targets at which the oxides MgO or BeO were laid upon a metal backing by means of various methods: a) brushed on as an MgO suspension in alcohol. b) Magnesium evaporisation in an oxygen atmosphere, c) the same in vacuum with a subsequent oxidation by a smoldering discharge in oxygen. There were no anomalies of the retardation-curves (fig 3) if charging was removed and the saturation of the secondary current took place near the point of zero

of the collector potential. On the other side the mentioned curves for an MgO layer on a magnesium plate were distorted by heating in residual gases at a pressure of 10^{-3} torr. The saturation took place at the [illegible] of the above mentioned facts the authors tried to create a hypothesis which could explain the totality of all observed facts. If an activated target of copper magnesium alloy (fig. 6) is activated, magnesium diffuses into the depth and becomes oxidized so that on the surface is formed a thin film of MgO. In the tangent point of the backing with the oxide the surface is not homogeneous because magnesium diffuses more easily into between the grains of the alloy than through crystal facets. Also the magnesium oxidation takes place in separate places with different intensity. By this a spotty surface is formed on the boundary between the backing of alloy and the MgO film exhibiting different work function of single microscopical parcels. These apparently consist partly of a non activated alloy, partly of pure non-oxidized magnesium, partly of MgO of stoichiometric composition and finally of MgO with a different quantity of ingressed

On Some Particularities of the Retardation Curves of Secondary Emission Film Cathode. (Data From the VIIIth All-Union Conference on Cathode Electronics, Leningrad October 17-24 1957) 48-22-5-7/22

additional magnesium atoms. The contact variations of the potentials between the separate microelements form fields of spots which the authors want to call "internal" ones. Their magnitude might surmount the thickness of the dielectric film (which is about 1000 Å). This "internal" field shows up above the emitter surface through the thin layer of the dielectric. It forms above the elements with a weak work function a hindering field for the secondary electrons. To compensate this field a corresponding voltage is necessary at the collector. This is the cause for the saturation of the secondary current at considerable secondary voltages. In the discussion on this abstract participated: N. M. Politova, N. I. Ionov, G. S. Vil'degrube, V. G. Burkevich, N. B. Gornyy, V. L. Makedonskiy, Lifshits, Pen'yarskiy and the first author. There are 10 figures, 5 references, 4 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad Polytechnical Institute imeni M. I. Kalinin)

1. [illegible] 2. Secondary emission—Analysis

Card 4/4

AUTHORS: Borisov, V. L. Lepeshinskaya, V. N

TITLE: The Secondary Emission Properties of the Magnesium-Beryllium-Alloy Emitters After Short Activation (Vtorichno-emissionnyye svoystva magniyevykh i berilliyevykh splavnykh emitterov posle kratkovremennoy aktivirovki)(Data From the VIIIth All-Union Conference on Cathode Electronics, Leningrad, 9 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. 534-545 (USSR)

ABSTRACT: Because of the high values of the coefficient of the secondary electron emission of the mentioned alloys they more and more are used in photoelectronic multipliers and in electric valves with a secondary emission. A bibliography (Refs 1-9) on their production and properties is given. The activated samples must be in a position to stand a long exposure to air and must recover their properties after an easy and simple reactivation. In this work investigations of the secondary [illegible] properties of emitters are discussed which were activated [illegible] fulfilling the enumerated requirements. It was: Cu-Al-Mg (95...1,-), Cu-Si-Mg, Cu-Al-Be (97,5 ... 0,5 ... 2%) and Cu-Be (99 2%). This select-

Card 1/3

The Secondary Emission Properties of the Magnesium- and 48 22-8-8/22
Beryllium-Alloy Emitters After Short Activation (Data From the VIIIth All-
-Union Conference on Cathode Electronics, Leningrad, October 17-24, 1957)

ion was dictated by practical demands The authors came to the
following conclusions: 1) The activation method, worked out by
them for [illegible] alloyed emitters reduces the duration of work-
ing [illegible] hours. The special oxidizing environment can
be omitted, as the whole process takes place in the "re-
sidual gases" of the apparatus The highest attainable coeffi-
cient of the secondary electron emission σ is equal to 9-13; at
V_p = 100 V σ = 3.2-3.6 for Cu-Mg-alloys and 3.5-4.0 for Cu-Be-
alloys. Also for the reactivation of the Cu-Mg-emitters that
have become weaker in the air the described method gives a
relatively simple possibility. The temperature coefficient has
proved to be negative and equal to from -0,02 to -0,03% per degree.
The character of the $\sigma(V_p)$-curves was investigated-finally the
functions were ascertained of the secondary current dependent on
the collector potential and the distribution curves of the se-
condary electrons according to the energies for all examined al-
loys. N. N. Khrisanforov and T. A. Kuz'mina took part in the work.
In the discussion on the abstract I. M. Bronshteyn, A. I.Pyat-
nitskiy, E. P. Dashchenko, V. A. Astrin, N. A.Yasnopol'skiy,

Card 2/3

The Secondary Emission Properties of the Magnesium- and Beryllium-Alloy Emitters After Short Activation. (Data From the VIIIth All Union Conference on Cathode Electronics Leningrad, October 17-24, 1957) 48-22-5-8/22

Yaskovskaya, G. S. Valdgrube, I. N. Dobretsov, N. K. Danilenko, V. M. Lovtsov and the first author participated.
There are 11 figures, 1 table, and 14 references, 5 of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad, Polytechnical Institute imeni M. I. Kalinin)

1. Secondary emitters---Properties 2. Secondary emitters--Performance 3. Secondary emitters---Applications 4. Magnesium alloys---Effectiveness 5. Beryllium alloys---Effectiveness

Card 3/3

BAZHANOVA, N.P. [translator]; FRIDRIKHOV, S.A. [translator]; KAPITSA, M.L. [translator]; LEPESHINSKAYA, V.N. [translator]; SHUL'MAN, A.R., red.; POPOV, R.Yu., red.; KLIMENKO, S.V., tekhn.red.

[Characteristic energy losses of electrons in solids; collection of articles] Kharakteristicheskie poteri energii elektronov v tverdykh telakh; sbornik statei. Moskva, Izd-vo inostr.lit-ry, 1959. 270 p. (MIRA 12:7)

1. Sotrudniki kafedry elektroniki Leningradskogo politekhnicheskogo instituta (for Bazhanova, Fridrikhov, Kapitsa, Lepeshinskaya).
(Electrons)

LEPESHINSKAYA, V.N.; BELOGUROV, V.N.

Measuring the work function of molybdenum covered with thin layers of sodium and cesium. Fiz.tver.tela 1 no.12: 1806-1812 D '59. (MIRA 13:5)

1. Politekhnicheskiy institut im. M.I.Kalinina, Leningrad.
(Molybdenum) (Work function(Physics))

28318

26.2531
18.8100 1147, 1160, 1164

S/112/60/000/010/002/004
A052/A101

AUTHORS: Lepeshinskaya, V.N.; Belogurov, V.N.

TITLE: The variation of the work function of molybdenum at application of thin sodium and cesium layers

PERIODICAL: Referativnyy zhurnal. Elektrotekhnika, 1960, no. 10, 239, abstract 5. 5243. (Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1959, 60, no. 1, 50 - 57

TEXT: The variation of the work function $\Delta\varphi$ was determined by the method of contact potential difference from the shift of volt-ampere characteristics of diodes in the initial current region while varying the thickness of Na or Cs film on a molybdenum anode. The accuracy of measurement was $\pm$ 0.05 v. Vacuum of the order of 10^{-9} mm Hg secured the absence of gas and vapor adsorption during ~20 min of the experiment. The obtained curve of dependence of φ on the number of monolayers for Na shows at first an increase of the work function by 0.2 electron-volt at 0.6 monolayer, a transition through the value exceeding that for pure Mo at one monolayer, and a drop to the value for pure Na (2.7 electron-volt) at two monolayers. For cesium at first a sharp drop of the work function to 1.5

Card 1/2

The variation of the work function of....

electron-volt at 0.7 monolayer is observed and then a gradual increase to the value for pure Cs (1.9 electron-volts) at 1.5 monolayers. There are 20 references.

A.P.I.

[Abstracter's note: Complete translation]

Card 2/2

21033

9.3120 (1003,1137,1140)

S/058/61/000/005/037/050
A001/A101

AUTHORS: Lepeshinskaya, V.N., Borisov, V.L., Zakrevskiy, V.A.

TITLE: The dependence of the coefficient of secondary electron emission on the incidence angle of primary electrons

PERIODICAL: Referativnyy zhurnal. Fizika, no 5, 1961, 323, abstract 5Zh15 ("Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t", 1960, no 3, 79 - 83)

TEXT: The authors derived the expression for the coefficient of secondary electron emission σ depending on the incidence angle of primary electrons φ under the following assumptions: 1) the path of primary electrons in a solid is rectilinear; 2) the number of excited electrons is proportional to the energy lost by the primary electron; 3) the relation between the range of the primary electron in a solid and its energy is linear; 4) distribution of secondary electrons in the spot of their origination is isotropic; 5) secondary electrons in a solid do not suffer scattering; 6) absorption of secondary electrons proceeds according to an exponential law; 7) probability of escape of the secondary electron which

Card 1/2

reached the surface does not depend on its energy. The course of the theoretical curve $\sigma(\varphi)$ agrees satisfactorily with the course of the experimental relation for alloy CuBe plotted according to data of H. Salow ("Phys. Z.", 1940, v 41, 434). There are 18 references.

[Abstracter's note: Complete translation.]

S/058/61/000/010/094/100
A001/A101

9,3120

AUTHORS: Lepeshinskaya, V.N., Stuchinskiy, G.B.

TITLE: Peculiarities of secondary-emission properties of activated alloys at high energies of primary electrons

PERIODICAL: Referativnyy zhurnal. Fizika, no. 10, 1961, 285, abstract 10Zh19 ("Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t", 1960, no. 9, 82 - 91)

TEXT: The authors investigated a spherical capacitor-type device with an antidynatron grid as to the following characteristics: dependence of the coefficient of secondary electron emission σ and reflection coefficient η on energy U_p (0.5-20 kev) and incidence angle φ (0-70°) of primary electrons, and energy spectrum of slow secondary electrons in alloys CuAlMg, AlMg, CuAlBe and CuBe activated to different degrees. On the basis of the results obtained, thickness of active films forming during the activation process is estimated, and its dependence on activation time is determined. Estimated is also effective depth of outlet of slow secondary electrons ($\sim$500 Å) from the active surface film. It is shown that inelastic-reflected electrons contribute essentially to the magnitude

Card 1/2

Peculiarities of secondary-emission properties ...

of σ. Moreover, it is established that energy spectrum of secondary electrons is independent of U_p in the range of U_p indicated. Angular dependence of σ shows that its value grows with increasing φ, and the relative increase of σ is the larger, the greater is U_p. There are 13 references.

G. Stepanov

[Abstracter's note: Complete translation]

B

32913

S/194/61/000/011/040/070
D256/D302

9,3120 (1003, 1138, 1160)

AUTHORS: Lepeshinskaya, V.N. and Stuchinskiy, G.B.

TITLE: Peculiarities of the secondary emission from activated alloys at high energies of primary electrons

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 11, 1961, 3, abstract 11 G21 (Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1960, no. 9, 82-91)

TEXT: Properties of the secondary emission were investigated for activated alloys of CuAlMg, AlMg, CuAlBe, CuBe (1 to 2% contents of alkaline metals) at high energies of the primary electrons (0.5 to 20 keV). The targets were activated by heating for 10 to 20 minutes at 800°C for the Be alloys and at 600°C for Mg, in the presence of residual gases at a pressure (3 to 5) x 10^{-3} mm Hg. The coefficient of secondary emission and the coefficient of reflection were investigated against the energy of the primary electrons

Card 1/2

Peculiarities of the secondary...

and their angle of incidence. The thickness of the active layers obtained during activation on the surface of the emitter was estimated. The results suggest that inelastically scattered electrons play an important part in the process of secondary emission. The effective depth (~ 500 Å) for the work function of the slow secondary electrons was estimated. 13 references. [Abstracter's note: Complete translation.]

Card 2/2

81656

S/181/60/002/06/46/050
B006/B056

24,7800

AUTHORS: Lepeshinskaya, V. N., Stuchinskiy, G. B.

TITLE: Inelastic Electron Reflection and Secondary Electron Emission of an Activated CuAlMg Alloy in the Region of Primary Electron Energies of From 0.5 to 20 kev

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1328-1332

TEXT: A parallel investigation of the secondary emission properties and the inelastic electron reflection from dielectric films fastened on to a metal base makes it possible to estimate the effective emission depth of secondary electrons. The activated CuAlMg had a surface film of MgO, produced in consequence of the diffusion of magnesium and heating in an oxidizing medium. By varying the temperature and the duration of heating films of various thicknesses were obtained. On such samples the authors measured the coefficient of secondary electron emission σ and the coefficient of the inelastic electron reflection η by employing a static method at 350°C. The experiments were carried out in a quasi-spherical condenser with a high-voltage electron gun and an antidynatron grid.

Card 1/3

Inelastic Electron Reflection and Secondary Electron Emission of an Activated CuAlMg Alloy in the Region of Primary Electron Energies of From 0.5 to 20 kev

S/181/60/002/06/46/050
B006/B056

Fig. 1 shows the results of σ- and η-measurements. σ_{max} amounted to 13, at 20 kev σ was 2.3. The η-value between 15 and 16% was characteristic of the MgO-layer. At E_p = 20 kev the curves for activated and non-activated samples had a very similar course, η being $\simeq$30%. An estimation of the emission depth of the inelastically reflected electrons (which was equal to half the range of the electrons), shows good agreement with the results obtained by other authors. For the thickness of the MgO-layer one obtains 500 to 600 A. The results obtained by experiments carried out with different film thicknesses (activation between 1 min and 1 hour) are discussed in the following. Fig. 2 shows the functions $\sigma(E_p)$ and $\eta(E_p)$ for 4 films of different thickness. The σ_{max} of all samples was about 10 to 13. With the duration of activation E_p^* increases from 1.3 to 4.3 kev, i.e., film thickness increases (if the effective range of the electrons in MgO equals the double film thickness,

Inelastic Electron Reflection and Secondary Electron Emission of an Activated CuAlMg Alloy in the Region of Primary Electron Energies of From 0.5 to 20 kev

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B006/B056

$E_p - E_p^*$). Fig. 3 shows the dependence of δ and η on the angle of incidence φ of the primary electrons for different E_p. The higher the primary energy, the more quickly $\delta/\delta_{\varphi=0}$ and $\eta/\eta_{\varphi=0}$ grow with increasing φ. An estimation of the emission depth of the secondary electrons gives ~500 A. There are 3 figures and 5 non-Soviet references.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

SUBMITTED: October 22, 1959

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21586

9.3/20 (1003, 1137, 1140)
26.2340

S/109/60/005/010/009/031
E033/E415

AUTHORS: Lepeshinskaya, V.N., Borisov, V.L. and Perchanok, T.M.

TITLE: Secondary-Emission Characteristics of Effective Emitters on an Alloy Base Over a Wide Range of Primary Electron Energies

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.10, pp.1636-1642

TEXT: This paper was presented at the 9th All-Union Conference on Cathode Electronics, Moscow, October 1959.

The processes of diffusion and oxidation occurring during the formation of effective emitters on CuAlMg and CuBe alloys are examined, mainly on the basis of existing literature, to obtain a rational selection of activation conditions. Then the article gives the statistical results of measuring the secondary electron emission coefficient σ and the coefficient of non-elastic electron reflection η in the medium-energy (200 to 2000 ev) and high-energy (2 to 30 kev) primary-electron energy ranges. Non-elastic reflection electrons are those with energies exceeding

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Secondary-Emission ...

50 ev. Graphs of $\sigma(E_p)$ and $\eta(E_p)$ (E_p being the primary electron energy) are plotted. With medium-energy primary electrons σ_{max} varies from 10 to 15 and occurs in the region of 600 to 1000 ev. The value of η is approximately constant at 15 to 16% for MgO film and at 12 to 13% for BeO film, formed on the corresponding alloys. Curves are also given for the region E_p = 0.5 to 30 kev. Then σ for normally activated CuAlMg alloy has a maximum in the region E_p = 1.3 kev after which it falls sharply. η is approximately constant up to 2.5 kev and then it increases to approximately 30% with increase of E_p. When $E_p = E_p^M$ (about 20 kev) η has its value for the base material. Thus the thickness of the activated film can be estimated from the $\eta(E_p)$ curve and the values obtained (400 to 700 Å) coincide approximately with those obtained by calculations based on the activation conditions. The curves $\sigma(E_p)$ and $\eta(E_p)$ were obtained for samples having four different film thicknesses (obtained by activation times of 1, 10, 20 and 60 min) and the lower limit to the effective depth of the output of slow secondary electrons was obtained. For MgO it was approximately 500 Å. Finally, it was found that the energy spectrum of the

secondary electrons does not depend on the value of E_p in the range 1 to 16 kev. The results are summarized in the table which compares the calculated thicknesses of the MgO film based on CuAlMg (93% Cu, 6% Al, 1% Mg) for different activation times. The activation temperature was 600°C, the CO_2 pressure was 0.1 mm Hg. Acknowledgments are expressed to G.B.Stuchinskiy for his assistance. There are 4 figures, 1 table and 15 references: 6 Soviet and 9 non-Soviet.

SUBMITTED: December 21, 1959

S/109/60/005/010/009/031
E033/E415

Secondary-Emission ...

(1) Время активирования, мин	(2) Толщина слоя MgO, Å (3) рассчитанная по (4) диффузии	(5) окислению	(6) данным η	(7) $\sigma_{макс}$	(8) $E_{рмакс}$, эв	(9) $E^{*}_{р}$, кэв
1	180	—	225	10,2	700	1,3
3	310	180	300	11,3	800	1,6
5	400	300	350	12,1	900	1,8
10	560	600	490	13,1	1000	2,3
15	680	900	820	13,0	1100	3,4
20	800	1200	—	12,5	1300	—
60	1380	—	1300	8,5	1300	4,3

1 - Activation time (min). 2 - Thickness of the MgO layer Å.
3 - calculated by. 4 - diffusion. 5 - oxidation. 6 - η.
7 - σ_{max}. 8 - $E_{p\,max}$ ev. 9 - E^{*}_{p} kev.

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9.3120 (1042, 1137, 1140)
26.2340

21587
S/109/60/005/010/010/031
E033/E415

AUTHORS: Borisov, V.L., Perchanok, T.M. and Lepeshinskaya, V.N.

TITLE: Angular and Temperature Dependences of the Secondary Emission Coefficient σ and of the Coefficient of Non-Elastic Electron Reflection η of Activated Alloy-Type Emitters

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.10, pp.1643-1649

TEXT: This paper was presented at the 9th All-Union Conference on Cathode Electronics, Moscow, October 1959.

The use of alloy-type emitters in "dynode" particle multipliers demands information on the physical processes occurring in such emitters in different temperature ranges, in particular in the range -60 to -70°C. This information is partly obtainable by investigation of the manner in which the secondary-emission coefficient σ and the non-elastic reflection coefficient η depend on temperature and on the angle of incidence φ of the primary electrons. The article is in three sections, viz investigation of (1) the temperature dependence of σ; (2) dependence of σ and η on the angle of incidence of the

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primary electrons; (3) the "outflight" angular distribution of secondary electrons. In the first section, after a description of the apparatus and the method of investigation, the results are shown graphically by a series of curves of $\sigma(V_p)$ (V_p is the primary electron voltage) for temperatures $T = -70$, 20, 200, 300°C. For comparison, a graph of σ_T/σ_{20}, calculated according to Dekker's theory (Ref.1), is also given. With increase of temperature, σ decreases over the whole range of V_p but the change is smaller in the region of low primary-electron energies. The experimental results support Dekker's theory and consequently justify his assumptions that interaction of slow electrons with the dielectric lattice plays a fundamental role in the energy loss of these electrons, and that there is in fact a film of MgO on the surface of the activated CuAlMg alloy. In the second section, the apparatus is briefly described. Activated alloys of CuAlMg and CuBe at 350 and 450°C respectively at the instant the measurements were taken were investigated. Three groups of emitters were studied: (1) CuAlMg with a thick layer of MgO with a rough surface finish. (2) CuAlMg and CuBe with thin layers of

Angular and Temperature ...

MgO and BeO with a rough surface; (3) CuBe with a mechanically polished surface. The results are presented graphically by plotting $\sigma_\varphi/\sigma_o = f(\varphi)$ for different values of primary electron energies (V_p = 400, 800, 1200, 1500 and 2000 V). For all three groups the following conclusions were drawn: σ_φ/σ_o is large with large values of φ; σ_φ/σ_o increases with increase of V_p; σ_φ/σ_o is independent of angle for V_p less than 200 V. The degree of dependence on φ is greatly affected by the surface finish. η/η_o increases with φ and also with the energy of the primary electrons. The angular dependence $\sigma(\varphi)$ is explained on the basis of the simultaneous action of three factors: (1) change in the conditions of formation of secondary electrons as the angle of incidence of the primary-electron beam is altered, (2) the angular dependence of η, (3) the micro-finish of the surface. In the third section, the apparatus for investigation of the angular distribution of secondary electrons is described and illustrated. The polar diagrams (for T = 400°C) for activated CuAlMg are produced. The polar diagrams show the distribution of secondary electrons and the distribution of reflected electrons for normal incidence and for 20° angle of

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incidence. The diagrams relate to V_p = 500 V but the same general shape holds for from 50 to 500 V. The distribution conforms to a cosine law. Finally, the maximum of the energy distribution of the secondary electrons does not depend on the angle of incidence. This confirms the work of Gornyy (Ref.12) but is in opposition to the results obtained by Frumin and Kushnir (Ref.11). Acknowledgments are expressed to V.A.Zakrevskiy, G.V.Lomakin and G.N.Chizhukhin who participated in this work. There are 6 figures and 12 references: 9 Soviet and 3 non-Soviet.

SUBMITTED: December 21, 1959

LEPESHINSKAYA, V. N., Dr. Phys-Math Sci. (diss) "Secondary Electron Emission of Effective Emitters from Acids of Magnesium and Acids of Beryllium on Basis of Alloys," Moscow, 1961, 20 pages (Acad of Sci USSR, Institute of Radio Engineering and Electronics), 200 copies (KL Su , 12-61, 248).