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REEL
488
SARBC, MARKO

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBC, Marko, dr.

Health protection in Croatia. Liječ. vjes. 81 no.11:791-714 '59.
(PUBLIC HEALTH)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

The influence of an adsorbed film of the evaporation products of barium oxide from platinum upon the work function of the electrons

ing of the work function owing to the formation of an elec. double layer

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBEY, O.G. [Sarbei, O.H.]

Effect of an absorbed BaO film on the photoelectric properties of Cs_3Bi photocathodes [with summary in English]. Ukr. fiz. zhur. 3 no.3:358-364 My-Je '58. (MIRA 11:10)

1. Institut fiziki AN USSR.
(Barium oxides) (Cesium bismuthide) (Photoelectricity)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

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 poluprovodnikovykh i metallicheskikh 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 ÷ 1/5 of that concentration which provides a work function to a semiconductor. (InSb, Ag_2Te) 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 Ag_2Te is considerably less than the sensitivity of the efficient Cs_3Sb 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.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

Photoelectronic Emission of Some Semiconductor and Metal Cathodes With a Diminished Work Function. (Data From the VIII th 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

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

AUTHORS: Borzyak, P. G., Sarbey, O. G. SOV/57-28-9-5/33

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 b) gives the threshold value of $\varphi_0 = h\nu_0 = 1,8$ eV. The decrease in the value of the work function has a considerable influence upon the magnitude of secondary electron emission in germanium, resulting in an increase of the

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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_3Sb 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)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBEY, O. G. Cand Phys-Math Sci -- (diss) "Study of certain factors determining the effectiveness of photoelectron emissions." Kiev, 1959. 9 pp including cover (Inst of Physics, Acad Sci UkSSR), 125 copies (KL, 44-59, 125)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBEY, O.G. [Sarbey, O.H.]

Depth of photoelectron escape from germanium. Ukr. fiz. zhur. 4 no.3:399-400 My-Je '59. (MIRA 13:2)

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

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

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.zhur. 4 no.4:524-525 Jl-Ag '59. (MIRA 13:4)

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

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

BORZYAK, 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.zhur. 4 no.4:525-526 Jl-Ag '59. (MIRA 13:4)

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

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

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S/181/60/002/02/21/033
B006/B067

9.3120

AUTHORS: Borzyak, P. G., Marchuk, P. M., Sarbey, O. G.

TITLE: Current-voltage Characteristics of the Photoelectron Emission of Germanium

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 2, pp. 306-313

TEXT: The authors report on investigations of the current-voltage characteristics of photoelectron emission of germanium layers with a low work function. P. I. Lukirskiy (Ref. 1) has already shown that these characteristics can be obtained in the field of a spherical condenser when the diameter of the emitter is small compared with the diameter of the collector. For the investigations germanium was vaporized on a metal disk in vacuum. With strongly reduced work function of the electrons from the germanium surface, the contact potential difference between the front, the emitting, and the back layers of the disk forms a barrier field for the photoelectrons, as is shown by model experiments in the electrolytical tank of Fig. 1. For investigating the current-voltage characteristics of germanium of three-electrode device was used whose

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schematical drawing is shown in Fig. 2. Its construction is described in detail. The results which are shown in diagrams are discussed after a detailed description of the experiments. Fig. 3 shows the characteristics which were recorded at an irradiation wavelength of 240, 254, 280, 313, 365, 435, and 546 mμ. A quartz monochromator with a ПРК-4 (PRK-4) lamp served as light source. The energy distribution of the emitted electrons is discussed in the following. Fig. 4 shows $dI/dV = f(V)$ for the first six λ-values. The first of these curves (largest $h\nu$) shows linear course, the following linear rise, a peak, and steep decline. With increasing λ the curves become more symmetrical, the curve for 435 mμ shows a steep exponential rise, a peak with a horizontal peak line and a decline corresponding to the rise. The characteristics shown in Fig. 3 are then referred to the lines λ = 313 mμ and the lines on the left side are, according to Einstein's law, referred to the quantities $(h\nu_{313} - h\nu)/e$ and those on the right side to $(R\nu - h\nu_{313})/e$. The results are shown in Fig. 5 and discussed in the following. There are 5 figures and 8 references: 7 Soviet and 1 American.

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Current-voltage Characteristics of the Photoelectron Emission of Germanium

S/181/60/002/02/21/033
B006/B067

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

SUBMITTED: April 20, 1959

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

81778

S/181/60/002/02/22/033
B006/B067

9.3120

AUTHORS: Borzyak, P. G., Miroshnichenko, L. S., Sarbey, O. G.

TITLE: Photoelectronic Emission of Germanium and Silicon in the Amorphous and Crystalline States

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 2, pp. 314-318

TEXT: The germanium and silicon samples examined by the authors were produced by vaporizing films onto metallic backings. The germanium films were sputtered onto tungsten backings, cold as well as at $T \approx 450^{\circ}C$. Electron diffraction studies showed that the films sputtered at room temperature were amorphous, and crystalline at increased temperature. An investigation of the contact potential differences between the amorphous and crystalline films produced under otherwise equal conditions showed that the thermoelectronic work function of the latter was some ten electronvolts smaller than that of the former. Fig. 1 shows the change of the work function $\Delta\varphi(t)$ with time of simultaneously sputtered BaO for crystalline (Curve 1) and amorphous (Curve 2) films. The values of the primary photoelectronic work function of crystalline germanium films are

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81778

Photoelectronic Emission of Germanium and Silicon in the Amorphous and Crystalline States S/181/60/002/02/22/033 B006/B067

lower than those of amorphous ones. Experiments were also made with monocrystalline p- and n-type germanium samples. The preparation of these samples is described; the pure surfaces of the single-crystal samples were obtained in such an evacuated tube as shown in Fig. 2. Fig. 3 shows the spectral characteristics of the photoelectronic emission of three crystalline germanium samples with reduced work function. Curve 1 refers to high-resistance single-crystal germanium, Curve 2 to n-type Ge single crystals with 3 ohm.cm, and Curve 3 to a crystalline film. Fig. 4 gives a comparison of the spectral characteristics of amorphous and crystalline germanium. Similar investigations were also made with silicon. The amorphous films were obtained by sputtering onto a backing at room temperature, the crystalline ones were obtained from a p-type single crystal in high vacuum. The spectral characteristics of these samples are also shown in Fig. 4. For comparison, this diagram also shows the characteristics of the spectral sensitivity of W - BaO photocathodes and two Cs_3Sb samples. In contrast to amorphous germanium, crystalline germanium shows a weak minimum in the short-wave region, which corresponds to the maximum of the spectral characteristic of the optical

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24904

S/181/61/003/006/001/031
B102/B201

9.4175 (1163,1482)

AUTHORS: Katrich, G. A. and Sarbey, O. G.

TITLE: Photoelectron emission by gold and chromium

PERIODICAL: Fizika tverdogo tela, v. 3, no. 6, 1961, 1629 - 1637

TEXT: By way of an introduction, a very detailed discussion is offered on some papers by Thomas, Mayer et al. (H. Thomas, Zs. f. Phys. 147, 4, 395, 1957; H. Mayer, R. Nossek, H. Thomas. J. Phys. Rad. 17, 204, 1956; H. Mayer, H. Thomas. Zs. f. Phys., 147, 4, 419, 1957; A. Ebel. Zs. f. Phys., 147, 4, 465, 1957; S. Methfessel, Zs. f. Phys., 147, 4, 442, 1957), which contain reports on the photoelectron emission of potassium films; the abovementioned authors have stated that photoelectron emission in this metal is of the volume type. The correctness of such a conclusion appears, however, to be dubious, and the problem of the nature of photoelectron emission cannot yet be considered as being definitely solved. The authors of the present paper have therefore again studied the phenomenon of photoelectron emission. They chose gold and chromium for their purposes, because the excitation energy of "plasmons" in these metals is considerably higher

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(> 20 ev) than the energy of photoelectrons in the spectral region concerned. Photocurrents as a function of thickness were measured at different light wavelengths by an apparatus which is shown in Fig. 3. The film of variable thicknesses that were submitted to investigation were sputtered onto a mobile quartz base (2) by a spherical vaporizer (1). The base could be either arranged above the BaO vaporizer (5) or in front of the uviol glass windows (4) (for the purpose of photoelectric or optical measurements). The film was adjusted to the desired position by means of ruler (6) and indicator (3). The residual gas pressure in the tube could be kept at $3 - 5 \cdot 10^{-9}$ mm Hg by the diffussion pump (7) and the barium getter (8). Both apparatus and method have been repeatedly described elsewhere (cf. also C. Moore, A. W. Allison. Phys. Rev. 77, 247, 1950) Pure surfaces of the metals concerned were obtained by sputtering films upon metallic backings (tungsten or tantalum); here, the maximum pressures were at $5 \cdot 10^{-8}$ (Au) and $3 \cdot 10^{-7}$ mm Hg (Cr) The effect of adsorbed BaO was examined first. The volt-ampere characteristics obtained showed the maximum change of the thermo-electronic work function, that depended on BaO adsorption, to be about 3.2 - 3.4 ev for gold and 2.8 ev for chromium. The effect of BaO adsorbed on Au and Cr films was

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considerable in some cases; the effect was not restricted upon the work function. In case of thicker BaO coatings on Au films the characteristics had fully the appearence of BaO characteristics. For gold, the quantum yield of photoemission was larger compared with a pure metal surface even with a reduced work function for $h\nu = 5$ev. The work functions of pure metal surfaces amount to 5.1 (Au) and 4.4 ev (Cr), the work functions for an optimum BaO adsorption on the films amount to 1.8 and 1.7 ev, respectively. A study of the photocurrent as a function of thickness showed the gold photoelectrons to come from a depth < 7 mμ, and the chromium ones from a depth < 3.5 mμ, i.e., the depth dependence of photoelectrons on the photon energy to be expected for a volume photoeffect is present at these slight depths only. For longer waves (the data are valid in the range 248 - 435mμ) these depths are even smaller. Results indicate that either a surface photoeffect of very high electron energy losses on very short paths are involved here. The data on quantum yield and light absorption cannot prove the surface character of the photoeffects. The experiments have been conducted at the laboratory of Professor P. G. Borzyak, to whom the authors express their gratitude.

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B102/B201

Photoelectron emission ...

There are 9 figures and 12 references: 5 Soviet-bloc and 7 non-Soviet-bloc.

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

SUBMITTED: October 28, 1960

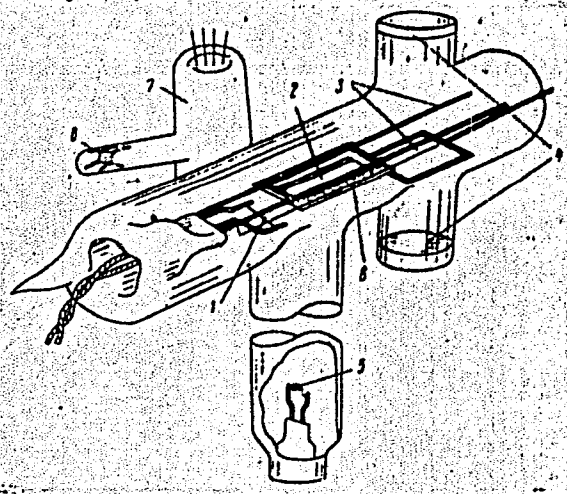

Fig. 3

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BORZYAK, P.G.; KATRICH, G.A.; SARBEY, O.G.

Electron emission from CdS during current flow. Fiz.tver.tela 3 no.7:2186-2188 Jl '61. (MIRA 14:8)

1. Institut fiziki AN USSR, Kiyev.
(Electrons--Emission) (Cadmium sulfide)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBEY, O.G. [Sarbei, O.H.]; KATRICH, G.A. [Katrych, H.A.]

Photoelectronic emission from dispersed silver films.
Ukr. fiz. zhur. 6 no.3:418-420 My-Je '61. (MIRA 14:8)

1. Institut fiziki AN USSR, g. Kiyev.
(Silver)
(Electrons—Emission)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

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S/181/62/004/011/001/049
B102/B104

27.7000

AUTHORS: Bibik, V. F., Borzyak, P. G., and Sarbey, O. G.

TITLE: Emission of non-equilibrium electrons from cadmium sulfide

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3003 - 3009

TEXT: The characteristics of non-equilibrium electron emission from CdS crystals were investigated and the effect of illumination was measured. In a previous work (FTT, 3, 2186, 1961) it had been shown that the electron emission from CdS is affected by an electric field far stronger than that due to the potential difference applied. An ohmic probe was used to measure this field along the crystals before and after the treatment known as "forming". In the previous work the treatment was given in vacuo whereas now it was carried out in air. This was found to have a substantial effect on the potential distribution within the crystal (Fig. 1). The strong field was observed also in the electrooptical effect. The forming leads to the formation of two zones within the crystal which are separated by a thin layer (0.02-0.06 mm) exhibiting a high potential drop. This separating layer can be made visible in transmitted light (λ 520 mμ). At

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the point where the potential drops sharply, the electron emission current has a peak. Further, the forming either increases or decreases resistivity; some crystals showed a kind of rectifying effect. In most cases, the emission increased considerably on being illuminated, whereas in some cases emission occurred already at potentials much lower than those required for observing dark emission. Illumination with $h\nu < 5$ ev produces no electron emission if no potential is applied to the crystal or if no current is flowing through it. The conductivity of some crystals was found to be completely independent of illumination. In order to clarify these effects, the spectral characteristics of photoconductivity and light emission were measured. The results differed between various crystals. For the crystal whose potential distribution is shown in Fig. 3, the energy of the electrons emitted was calculated from the emission current density to be ≈ 1.4 ev. The field strength within this crystal appears to have the order of $2\text{-}3 \cdot 10^5$ v/cm, which is high enough for the electrons to collect sufficient energy for emerging into the vacuum. On illumination, photoconducting crystals increase the conduction electron concentration and moreover intensify the field in the emitting regions, thus causing or intensifying the dark emission. Electron photoexcitation in

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the strong-field regions is negligible. There are 6 figures. The most important English-language references are: J. Z. Moll et al. Phys. Rev. Lett. 7, 87, 1961; R. E. Simon, W. E. Spicer, Phys. Rev., 119, 621, 1960; J. Appl. Phys. 31, 1505, 1960.

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

SUBMITTED: April 9, 1962

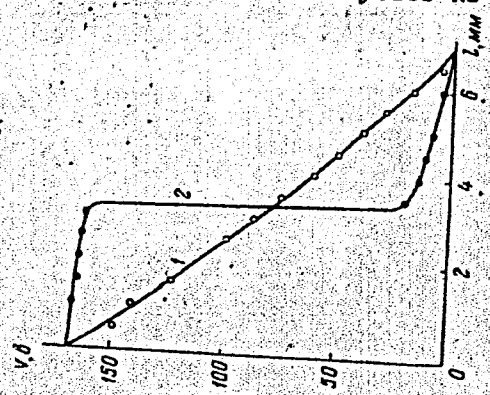

Fig. 1. Potential distribution along the crystal before (1) and after (2) "forming"

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KATRICH, G.A.; SARBEY, O.G.

Surface conductivity of germanium alloyed with gold. Fiz. tver. tela 5 no.11:3321-3322 N '63. (MIRA 16:12)

1. Institut fiziki AN UkrSSR, Kiyev.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

BORZYAK, P.G.; SARBEY, O.G.; TOMCHUK, P.M.

Symposium on Hot Electrons, held in Kiev. Vest. AN SSSR 33 no.10: 100-102 O '63. (MIRA 16:11)

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L 18848-65 EWT(m)/EWP(t)/EWP(b) IJP(c)/AFWL/AS(mp)-2/ASD(a)-5/AEDC(a)/SSD/ESD(t) JD

ACCESSION NR: AP4043337 S/0181/64/006/008/2249/2255

AUTHORS: Borzyak, P. G.; Sarbey, O. G.; Fedorovich, R. S.

TITLE: Electron emission and conductivity of a silicon p-n junction following adsorption of barium oxide on its surface

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2249-2255

TOPIC TAGS: silicon, barium inorganic compound, pn junction, surface emissivity, adsorption, electron emission, temperature dependence

ABSTRACT: A study was made of the electron emission from clean diffusion-alloyed junctions and of the effect of BaO coating on this emission. Clean surfaces were obtained by fracturing 0.4 mm thick slab-shaped samples in air and heating at 250C or by fracturing in vacuum. Such clean surfaces produced no emission current (down to 10^{-16} A) on application of a reverse voltage to the junction. A

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L 18848-65

ACCESSION NR: AP4043337

strong emission current was observed at 200--270K under reverse voltages only on adsorption of BaO molecules on the junction surface, which reduced the work function. The energy of impact ionization by electrons was estimated to be 2.5 eV from the maximum value of the work function at which electron emission still occurred. The emission current appeared at voltages representing fields of 5×10^3 V/cm in the surface channel. Direct experiments on silicon samples free of junctions showed no emission even in stronger fields, suggesting that the emission current was due to electron heating in a surface junction formed on adsorption of BaO. This conclusion was confirmed by a comparison of the temperature dependences of the emission current and the reverse current through the junction. This reverse current was raised by the adsorption of BaO due to formation of a thick inversion layer above the p-region of the sample. Orig art. has: 9 figures.

ASSOCIATION: Institut fiziki AN UkrSSR, Kiev (Physics Institute,

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L 18848-65

ACCESSION NR: AP4043337

AN UkrSSR)

SUBMITTED: 25Dec63 ENCL: 01

SUB CODE: SS NR REF SOV: 005 OTHER: 005

Card 3/4

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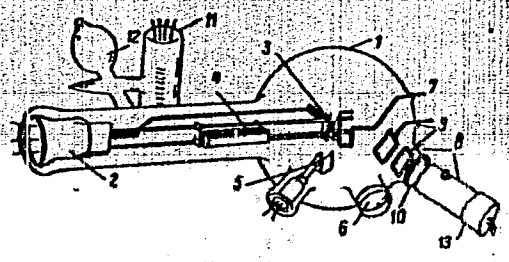
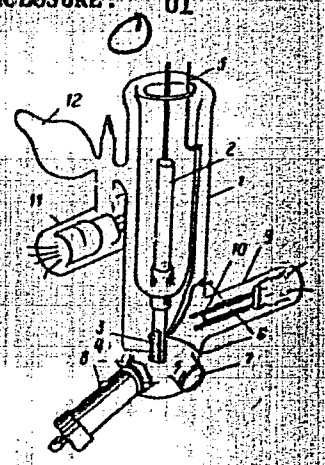
L 18848-65

ACCESSION NR: AP4043337

ENCLOSURE: 01

Instruments for measurement of conductivity and electron emission at room temperature (left) and at low temperatures (right)





Left: 1 - envelope, 2- post, 3 - sample holder, 4 - striker 5 - evaporator, 6- window 7 - electron collector 8 - weak electron current meter 9 - electrodes, 10 - cathodo-luminor, 11 - manometer, 12 - bulb for getter

Right: 1 - Dewar, 2 - molybdenum rod, 3 - sample 4 - clamp for sample, 5 - lead-in, 6 - thermocouple lead, 7 - window, 8 - weak electron current meter, 9 - post, 10 - evaporator, 11 - manometer, 12 - bulb for getter

Card 4/4

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

L 1312-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP5012541 UR/0181/65/007/005/1352/1361

AUTHOR: Katrich, G. A.; Sarbey, O. G.; Tarashchenko, D. T.

TITLE: Surface conductivity of gold-doped germanium

SOURCE: Fizika tverdogo tela, v. 7, nb. 5, 1965, 1352-1361

TOPIC TAGS: germanium, semiconductor conductivity, Hall effect, temperature dependence

ABSTRACT: This is a continuation of earlier work by the authors (FTT v. 5, 3321, 1963), where it was found that by shaving the surface its conductivity in compensated germanium doped at low temperatures can be made much larger than the volume conductivity. The present investigation was devoted to the temperature dependence of the surface conductivity, to the Hall effect, and to the influence of the crystallographic orientation of the conductivity of a germanium surface obtained by cleavage in vacuum. The temperature dependence of the surface conductivity was measured in a special vacuum instrument in the temperature interval from 60 to 190K. The experimental details were described in the already cited paper and also in a later paper (FTT v. 6, 2249, 1964). The result showed that the volume conductivity does not come into play until 125K. The Hall mobility was measured on a surface cleaved on the crystal by a low-temperature shrinkage technique, at temperatures of

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L 1312-66

ACCESSION NR: AP5012541

liquid oxygen, liquid nitrogen, and liquid-nitrogen evaporation. The sign of the Hall mobility indicates that the surface conductivity is due to holes. Measurements on surfaces cut in different crystallographic orientations have shown that the conductivity in the (100) direction is generally lower (100 micromho) than the conductivity in the (111) and (110) directions (200 micromho). The theoretical reasons for the increase for the surface conductivity are discussed. Comparison of the measured and theoretical conductivities indicates that a high degree of degeneracy takes place at the surface (5--10 kT above the Fermi level). The theory of J. R. Schrieffer (Phys. Rev. v. 97, 641, 1965) is modified to explain the experimental facts. "This work was performed in the laboratory of Professor P. G. Borzyak, to whom the authors are grateful for a discussion of the results." Orig. art. has: 9 figures and 17 formulas.

ASSOCIATION: Institut fiziki AN UkrSSR, Kiev (Institute of Physics, AN UkrSSR)

SUBMITTED: 22Oct64 ENCL: 00 SUB CODE: SS

NR REF SOV: 003 OTHER: 006

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

L 8851-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/AT

ACC NR: AP5022727 SOURCE CODE: UR/0181/65/007/009/2803/2808

44,55 44,55 44,55 72 65 13

AUTHOR: Brezyak, P. G.; Katrich, G. A.; Sarbey, O. G.

44,55

ORG: Institute of Physics AN UkrSSR, Kiev (Institut fiziki AN UkrSSR)

TITLE: Effect of light on the surface conductivity of germanium with a clean surface

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2803-2808

21,44,55 21,44,55

TOPIC TAGS: germanium, semiconductor, photoconductivity, surface property, absorption edge

ABSTRACT: Previous studies have shown that compensated split specimens of gold-doped germanium display a surface conductivity which considerably exceeds the volume conductivity at low temperatures. The authors describe the changes in conductivity and various other phenomena which take place when this type of surface is illuminated in the region of natural absorption for germanium, in particular the negative photoconductivity which occurs at the natural absorption edge. Curves are given for the change in conduction current under illumination as a function of wavelength, and for the spectral characteristics of photocurrent in specimens with negative photoconductivity. Analysis shows that the change in photoconductivity under illumination is the result of two effects: a positive and a negative effect with different time lags. Illumination of the clean surface of a specimen often resulted in a reduction in cur-

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ACC NR: AP5022727

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rent through the crystal, i. e. negative photoconductivity, in the spectral region adjacent to the natural absorption edge on the short wave side. Curves are given for this effect in gold- and nickel-doped crystals. Oscillograms taken during illumination by square light pulses show that the nature of relaxation curves is considerably dependent on wavelength. Analysis of curves for negative stationary photoconductivity as a function of illumination intensity for a clean surface and for the same relationship with respect to positive photoconductivity in a specimen with an oxidized surface indicates that transition from negative to positive photoconductivity may take place under strong incident illumination. It was found that the stationary negative photoconductivity is considerably dependent on the surface conductivity. A model is proposed to explain the negative photoconductivity observed in these specimens. This model may also explain the energy position occupied by surface levels. It is pointed out that further research is needed to definitely establish the mechanism responsible for the observed phenomena. The authors thank P. M. Tomchuk and O. V. Snitko for a number of useful discussions. Orig. art. has: 6 figures. 44,55 44,55

SUB CODE: 20/ SUBM DATE: 19Apr65/ ORIG REF: 003/ OTH REF: 001

BVK

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

L 29982-66 EWT(1)/EEC(k)-2 IJP(c)

ACC NR: AP6012483 SOURCE CODE: UR/0181/66/008/004/1188/1192

AUTHORS: Ashe, M.; Bondar, V. M.; Sarbey, O. G. 74 B

ORG: Institute of Physics, AN UkrSSR, Kiev (Institut fiziki AN UkrSSR)

TITLE: Dependence of the piezoresistance of germanium on the electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1188-1192

TOPIC TAGS: germanium, single crystal, piezoelectric property, carrier scattering, pressure effect, electric field, semiconductor band structure

ABSTRACT: The purpose of the investigation was to check experimentally, in the case of germanium, a hypothesis advanced in an earlier paper (Phys. St. Sol. v. 11, 255, 1965) that in semiconductors in which the intervalley scattering does not play an important role in the electron-lattice energy balance, the piezoresistance should have a nonmonotonic dependence on the field. To this end the authors investigated samples of n-type germanium, cut along the <111> direction from a single crystal ingot with electron density 3.25×10^{13} cm^{-3} and mobility 2.6×10^{4} cm^{2}/v-sec, at 77K. The electric field was applied along the crystal and its deformation was effected in the same direction. The field was applied

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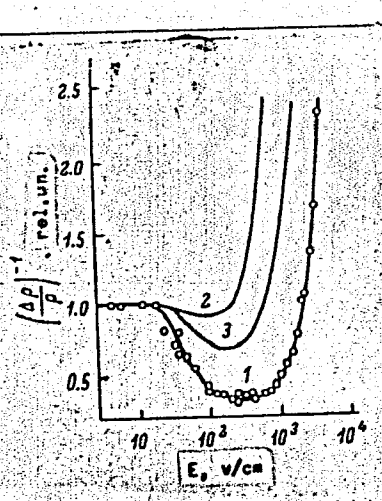

Fig. 1. Dependence of piezoresistance of n-type G on the electric field intensity. 1 -- Experimental, 2 and 3 -- theoretical, based on the assumption that the temperatures and electron concentrations in the nondeformed state of the crystal are the same (2) or different (3) in all the valleys.

in the form of rectangular pulses of 0.2 μsec duration and repetition-frequency 10 -- 15 cps. The dependence of the resistance on the pressure was linear up to 300 kg/cm^2 and the experiments were carried out in the linearity region. The results (Fig. 1) confirm the theoretically deduced nonmonotonicity of the piezoresistance. This confirmation, however, is only qualitative, and quantitatively the minimum of theoretical curve, and the experimental change in the piezoresistance due to the

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L 29982-66

ACC NR: AP6012483

field is larger than called for by the theory. The discrepancies are ascribed to the simplifying assumptions made during the calculation. Orig. art. has: 4 figures and 3 formulas.

SUB CODE: 20/ SUBM DATE: 24Aug65/ ORIG REF: 001/ OTH REF: 007

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

L 06148-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6026727 SOURCE CODE: UR/0181/66/008/008/2511/2513

41
B
21

AUTHOR: Bondar, V. M.; Sarbey, O. G.; Tomchuk, P. M.

ORG: Physics Institute, AN UkrSSR, Kiev (Institut fiziki, AN UkrSSR)

TITLE: Dependence of the anisotropy of scattering of current carriers in n-Ge on the impurity concentration

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2511-2513

TOPIC TAGS: semiconductor carrier, germanium single crystal, carrier scattering

ABSTRACT: The anisotropy parameter $K = \mu_\perp / \mu_\parallel$ was measured at the liquid nitrogen temperature on single crystals of n-germanium doped with antimony. The carrier concentrations were between 3×10^{13} and 8×10^{17} cm^{-3}. Fig. 1 shows the measured anisotropy of mobility versus the carrier concentration in n-Ge. Curve 1 represents results obtained without considering interelectronic interaction, and curve 2 shows them with this interaction taken into account. With the exception of very high concentrations ($n \approx 5 \times 10^{17}$ cm^{-3}), a good agreement was obtained between the experimental results and the curve calculated by allowing for the electron-electron interaction. The value of $\tau_\parallel^{(a)} / \tau_\perp^{(a)}$, which characterizes the anisotropy of the relaxation time for acoustic scattering, was found to be 1.52. Authors thank V. N. Vasilevskiy and A. N. Kvasnitskaya for supplying certain germanium samples and V. M. Vsetskiy for his assist-

Card 1/2

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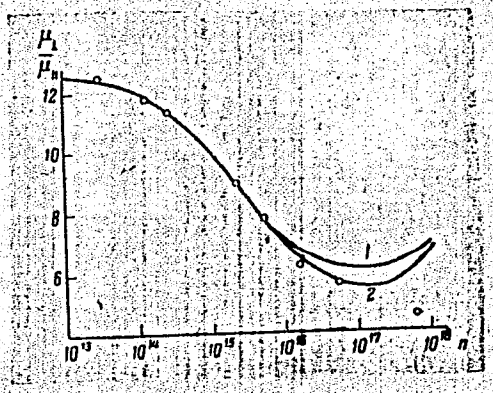
"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

L 06448-67

ACC NR: AP6026727

ance in the measurements. Orig. art. has: 1 figure.

Fig. 1



SUB CODE: 20/ SUBM DATE: 20Jan66/ ORIG REF: 001/ OTH REF: 004

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBEY, S.G.

A large-litter sow. Zhivotnovodstvo 20 no. 7:59 Jl '58. (MIRA 11:8)

1. Starshiy zootekhnik kolkhoza im. Lenina.
(Sows)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

UNKSOV, V.A.; BOROVIKOV, P.P.; RUNDKVIST, D.V.; PAVLOVA, I.G.; ALYAVDIN, V.F.; VOLOSTNYKH, G.T.; ROZINOV, M.I.; SHCHEGLOV, A.D.; IVANOVA, A.A.; KORMILITSYN, V.S.; SHCHEGLOV, A.D.; ARTEMOV, V.R.; RYTSK, Yu.Ye.; GINZBURG, A.I.; DORTMAN, N.B.; TOPORETS, S.A.; TRUNINA, V.Ya.; YAKOVLEV, I.K.; BOGDANOVA, L.A.; SARBEYEVA, L.M.

Problems of the geology and characteristics of the distribution of mineral deposits. [Trudy] VSEGEI 92:53-89 '63. (MIRA 17:4)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Gray cast iron can also be cast precisely. Musz.elet. 15 no.5:7 Mr '60. (MEAI 9:5)

(Hungary--Cast iron)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

A new kind of combustion chamber. Musz elet 15 no.15:5 Jl '60. (EEAI 9:12)

(Hungary--Motorbuses)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Gas-phase annealing. Musz elet 15 no.16:7 Ag '60. (EEAI 10:1)
(Annealing of metals)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Grinding and cutting with a nylon disk. Musz elet 15 no.19:12 S '60. (EEAI 9:12)

(Hungary--Grinding) (Nylon)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Instead of steel a casting die of great strength made of synthetic materials. Musz elet 15 no.21:11 O '60. (EEAI 10:2)
(Hungary--Founding)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Interturn insulation with modern materials. Musz elet 15 no.22:6 O '60. (EEAI 10:3)

(Hungary--Electric insulation and insulators)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

A more advantageous manufacturing technology thanks to compelling conditions. Musz elet 15 no.23:4 N '60. (EEAI 10:1)
(Hungary--Industries)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

How can we obtain high-strength thin sheets? Musz elet 15 no.24:6 N '60. (EEAI 10:2)

(Hungary--Sheet metal)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Acid-resistant beton. Musz elet 15 no.25:11 D '60. (EEAI 10:2)
(Hungary--Concrete) (Acid-resistant materials)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

The Hungarian universal sharpening edge and its accessories. Musz elet 15 no.26:6 D '60. (EEAI 10:3)
(Hungary--Machine tools) (Sharpening)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Production of pure vanadium pentoxide. Musz elet 15 no.26:11 '61.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Semiautomatic device for sticking fuses. Musz elet 16 no.2:5 Ja '61. (EEAI 10:9)

(Electric fuses)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Metallurgical ladles with light finish. Musz elet 16 no.3:5 F '61.
(Hungary--Metallurgy) (EEAI 10:4)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Data on a new type of pump. Musz elet 16 no.4:6 '61. (EEAI 10:7)
(Hungary--Pumping machinery)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Spraying gun with catalyzer made of synthetic material. Musz elet 16 no.6:5 Mr '61. (EEAI 10:5)
(Hungary--Spray painting)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Manufacturing shell core for diesel parts. Musz elet 16 no.7:6 Mr '61. (EEAI 10:6)

(Hungary--Diesel engine)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

A new pouring technique for fused refractory materials. Musz elet 16 no.8:2 Ap '61. (EEAI 10:9)

(Hungary—Refractory materials)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Cement molding in the Lang Machine Factory. Musz elet 16 no.9:4 Ap '61. (EEAI 10:6)

(Hungary--Machinery industry)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

New technology of the spheroid graphite cast iron manufacture.
Musz elet 16 no.10:4 '61. (EEAI 10:7)

(Cast iron)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

An automatic level. Musz elet 16 no.11:5 My '61. (EEAI 10:9)

(Levels)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Core making with water glass ammonium carbonate. Musz elet 16 no.12:4 Je '61. (EEAI 10:9)

(Steel)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

A new technology of manufacturing acid-proof brick. Musz elet 16 no.13:6 Je '61. (EEAI 10:9/10)

(Bricks)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

A new manufacturing process of the cups of Petri. Musz elet 16 no.15:7 Jl '61.

(Porcelain)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Isothermic softening of high-speed steel. Musz elet 16 no.20:3 '61.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Manufacturing concrete with quarry impurities. Muss elet 16 no.21:7 '61.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Welding of steel variations of great strength. Musz elet 16 no.22:6 '61.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Automatic feeding of alumina. Musz elet 16 no.23:7 N '61.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Mechanized furniture polishing with polyester varnish. Muszaki elet 16 no.25:6 D '61.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Improving the quality of anode mass. Musz elet 17 no.9:4 Ap '62.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Development of the Hungarian refractory concretes. Musz elet 17 no.11:6 24 My '62.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Increasing our cellulose production by a new technology. Musz elet 17 no.17:6 16 Ag '62.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Developing machine production by means of analytical investigations.
Muez elet 17 no.18:4 30 Ag '62.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARRO, Gyorgy

Preparation of our radiophosphate production. Musz elet 17 no.18:6 30 Ag '62.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

The TV tower on the Kab Hill. Musz elet 17 no.21:6 11 O '62.

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SARBO, Gyorgy

Protection of motor vehicles against corrosion. Misz elet 17 no.22:6 25 O '62.

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SARBO, Gyorgy

Manufacturing specific firebricks. Musz elet 17 no.22:11 25 O '62.

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SARBO, Gyorgy

New manufacturing method for bent furniture. Musz elet 17 no.23:2 8 N '62.

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SARBO, Gyorgy

New type detergent for washing machines. Mun elet 17 no.23:6 8 N '62.

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SARBO, Gyorgy

Miniature automatic profiling machine. Musz elet 18 no.1:4 3 Ja '63.

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SARBO, Gyorgy

Saving of sinking buildings. Musz elet 18 no.2:2 17 Ja '63.

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SARBO, Gyorgy

Small-sized sand preparatory installation. Musz elet 18 no.3:4 31 Ja '63.

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SARBO, Gyorgy

Newer Hungarian-made soft magnetic substances. Musz elet 18 no.3:6 31 Ja '63.

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SARBO, György

The highest chimney of Europe. Musz elet 18 no.4:3 14 F '63.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SÁRBO, Gyorgy

Heavy-current cable manufacture by large-size solid conductors.
Musz elet 18 no.4:10 14 F '63.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Specific measuring and control devices. Musz elet 17 no.26:7
20 D '62.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Development of color photographic materials in Hungary. Musz elet 18 no.6:7 14 Mr '63.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Molding by fly ash. Musz elet 17 no.24:2 22 N '62.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Preparing the manufacture of a new thermal insulator. Musz elet 17 no.24:7 22 N '62.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Roughing "cutting tool." Musz elet 17 no.25:5 6 D '62.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Tomato cooling machine. Mus: elet 17 no.25:6 6 D '62.

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SARBO, Gyorgy

Manufacturing transmitting tubes with ceramic insulation.
Musz elet 18 no.5:6 28 F '63.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Development of cement with initial high strength in Hungary.
Musz elet 18 no.8:3 11 Ap '63.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Short-fibered celluloses in the paper industry. Musz elet 18 no.7:4 28 Mr '63.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001447210001-1

SARBO, Gyorgy

Chip boards made of a new basic materials. Musz elet 18 no.10:6 16 My '63.

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