S/181/60/002/01/09/035
B008/B011

AUTHORS: Borsyak, P. G., Fedorovich, R. D.

TITLE: Intrinsic Optic Absorption in Amorphous and Crystalline Germanium

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 45 - 47

TEXT: For comparison, the authors studied the amorphous and the crystalline germanium within the range of strong absorption. The absorption coefficients were determined on the strength of measurement results of the passage of light through and its reflection from thin foils on a quartz base. A certain shrinkage was always found to occur with the crystallization of amorphous foils. This reduction in thickness by 5-9% is indicative of a transition to a denser packing of the atoms. The optical properties of the foils were measured in the air, as soon as possible after their removal from vacuum. The authors detected some qualitative characteristics of the optical properties of amorphous (solid lines) and crystalline (broken lines) germanium (Fig. 1). The reduced absorption coefficients $k(\lambda)$ for calculated values of the

spectral characteristics are shown in Fig. 2. It may be stated that amorphous and crystalline germanium resemble each other as to their optical properties. They have the same range of intrinsic absorption, whose general course and intensity do not exhibit any great differences, although there are some distinctly marked qualitative differences. These are caused by differences in the long-range order. The authors thank L. Apker, H. R. Philipp, and E. A. Taft for communicating their investigation results in advance of publication. There are 2 figures and 7 non-Soviet references.

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

SUBMITTED: May 4, 1959

√B

81777
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

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

Current-voltage Characteristics of the Photoelectron Emission of Germanium

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 $(h\nu - h\nu_{313})/e$. The results are shown in Fig. 5 and discussed in the following. There are 5 figures and 8 references: 7 Soviet and 1 American.

Card 2/3

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

Card 3/3

81778

9.3120

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

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

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

8178

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

S/181/60/002/02/22/033
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reflection of crystalline germanium. Amorphous samples do not even have this maximum. Since optical absorption in silicon is weaker than in germanium, the photoelectronic sensitivity of silicon is also lower. Such a parallel cannot be observed in a comparison of germanium and Cs_2Sb. In conclusion, the authors thank Professor D. N. Nasledov for the preparation of the Si single crystals, Ye. G. Miselyuk and A. N. Kvasnitskaya for the supply of the germanium single crystals, and R. M. Khaykina for the conduction of the electron diffraction studies. There are 4 figures and 4 references: 3 Soviet and 1 American.

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

SUBMITTED: April 20, 1959

Card 3/3

S/181/60/002/012/006/018
B006/B063

9,4300
26.2421

AUTHORS: Borzyak, P. G. and Fedorovich, R. D.

TITLE: Optical Properties and Photoelectron Emission of Amorphous and Crystalline Germanium Films

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 12, pp. 3020-3025

TEXT: The optical properties of germanium films within the range of intrinsic absorption have been studied many times. The types of films, however, were not named. Following a previous paper (Ref. 2) in which the spectral characteristics of transmissivity, reflection, and absorption of amorphous and crystalline germanium films were studied, the authors have now analyzed the results obtained and determined the influence of the type of film upon these characteristics. The experiments were repeated with an improved method, and more exact results were obtained since various corrections (eg., for the spectral dependence of the refractive index) were taken into account. The device used for the purpose is illustrated in Fig. 1 and described in detail. The authors studied the spectral characteristics of the reflection and transmission

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Optical Properties and Photoelectron Emission of Amorphous and Crystalline Germanium Films

S/181/60/002/012/006/018
B006/B063

coefficients, and determined the influence of the atmosphere (air, vacuum). The spectral characteristics of absorption coefficient $k(\lambda)$, refractive index $n(\lambda)$, and reflection coefficient $R(\lambda)$ may be represented by $I = I_o(1-R)(1-R')\exp(-4\pi kd/\lambda)$ and $n = \frac{1+R}{1-R} \pm \sqrt{\frac{(1+R)^2}{(1-R)^2} - (1-k)^2}$. Fig. 4 shows $k(\lambda)$ and $n(\lambda)$ for amorphous (continuous lines) and crystalline germanium (broken lines) which were applied in vacuo. The dotted lines obtained by Philipp and Taft (Ref. 5) show $k(\lambda)$ and $n(\lambda)$ for single crystals of germanium, without taking account of the oxide film on the surface. The effect of optical peculiarities of the films upon the characteristics of photoelectron emission was studied with the same device. There are 6 figures and 6 references: 4 Soviet and 2 US.

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

SUBMITTED: April 18, 1960

Card 2/4

Legend to Fig. 1: 1) Holders; 2) Germanium vaporizer; 3) Hot cathode; 4) Heater; 5) Windows; 6) BaO vaporizer; 7) Photoelectron collector; 8) Getter; 9) Ionization pressure gauge; 10) Carriage. The germanium coming from the vaporizer is precipitated on the hot part of the base as a crystalline film, and on the cold part as an amorphous one.

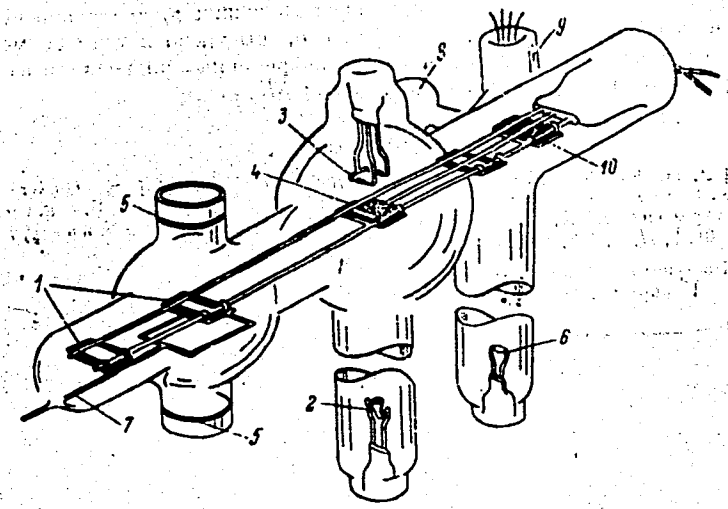

Рис. 1.

Card 3/4

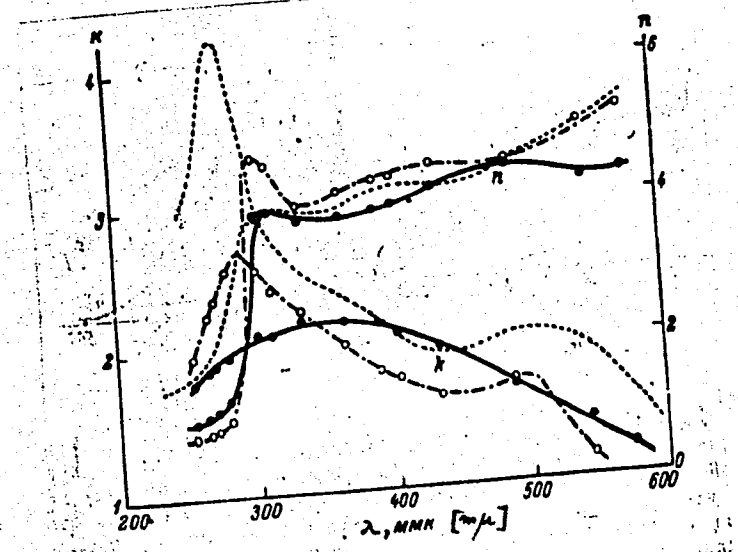

Рис. 4.

Card 4/4

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S/185/60/005/001/006/018
A151/A029

9.4160 (3201, 1003, 1105)
26.1512

AUTHORS: Borzyak, P.G.; Marchuk, P.M.; Mityans'kiy, G.F.

TITLE: Photo-Electronic Emission of the Intermetallic Compounds Mg_2Sn and InAs

PERIODICAL: Ukrayins'kyy Fizychnyy Zhurnal, 1960, Vol. 5, No. 1, pp. 65 - 74

TEXT: Only the spectral characteristics of the photo-effect of the $A^{II}B^{IV}$ and $A^{III}B^{V}$ - type compounds are studied which are characterized by small, one-order widths of the restricted energy zone. The films Mg_2Sn were obtained by means of the condensation of a tungsten strip cleaned in a vacuum. For studying the film of a changeable composition of Mg - Sn, the distribution of the thermo-electronic effect of the yield φ_{temp} [ABSTRACTOR'S NOTE: Subscript temp (temperatura)] stands for the original T (temperatura)] along the strip 5 was determined. The results are given in Figure 3, where the curve 1 shows the distribution of φ_{temp} along the surface of the tungsten strip. Further, the film was applied on the strip, which again was cleaned in a vacuum. After that, the curve 2 was obtained. A repetition of this cycle yielded a curve which coincided with the curve 2. After a third investigation of the film, a distribution was obtained for it which

1/5

Photo-Electronic Emission of the Intermetallic Compounds Mg_2Sn and InAs

is illustrated by the curve 3. For various sections of the film characterized by the curve 3, the authors have determined the spectral photo-electric sensitivity I_1 toward I_2 of the Cs_3Sb-photocathode: $\frac{I_1}{I_2} = (\lambda)$. The results are shown in Figure 4. Each curve is marked by a figure being the coordinate of the investigated section according to the data of Figure 3. The photo-electronic properties of Mg are characterized by the curve 28, those of Mg_2Sn by the curves 10, 13 and 16. It was established that the optimum value of the yield effect in respect to the photo-electronic emission is achieved for a metal surface at values t within the limits 4-20 and for the surface of Mg_2Sn at $t \geq 70$. It can also be seen that in the case of a photoelectronic yield effect of only about 2 ev, the values of the quantum yield in Mg_2Sn remain small, reaching only the tenth part of a percent even at the highest values of $h\nu = 5$ ev. For studying the photo-electronic emission of InAs, an investigation was carried out of the surface of the break of a massive crystalline sample obtained in a high vacuum. The results of photo-electric measurements conducted on a clean, newly-obtained surface are shown by dots on the curve 1 in Figure 7. In the case of a consecutive deposition of BaO molecules on the surface of InAs, the yield effect is decreasing, according to which the characteristics 2,3 are obtained. The curve 4 corresponds to a state of the

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A151/A029

Photo-Electronic Emission of the Intermetallic Compounds Mg_2Sn and InAs

surface with a concentration of barium oxide molecules which is already higher than the optimum concentration. For comparison Figure 7 depicts also the curve obtained for a Cs_3Sb-photocathode, which at λ = 400 mμ had a quantum yield of n = 18%. A comparison of the spectral characteristics of the 3 intermetallic compounds Mg_2Sn, InAs and Cs_3Sb shows that the first two compounds differ from the latter one by efficiency values and appearance. Even at a distance of 3 ev from the border, they do not show any tendency to saturation and have lesser efficiencies than Cs_3Sb by one order or more. By making a comparison of the values $\Delta\varphi = \varphi - \varphi'$ for Mg_2Sn, InAs, and Cs_3Sb (Ref. 7) including here the data for Ge (Ref.8) the tendency toward a decrease of $\Delta\varphi$ is noted which occurs when the energy of the electronic affinity is also decreasing. There is, however, no direct proportional relationship between the electronic affinity and $\Delta\varphi$, which shows that there are still other factors affecting the value $\Delta\varphi$. There are 8 figures, 2 tables and 8 references: 6 Soviet, 1 English and 1 German.

ASSOCIATION: Instytut Fizyky AN URSR (Institute of Physics, AS UkrSSR).

SUBMITTED: July 6, 1959

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S/185/60/005/001/006/018
A151/A029

Photo-Electronic Emission of the Intermetallic Compounds Mg_2Sn and InAs

Figure 3:

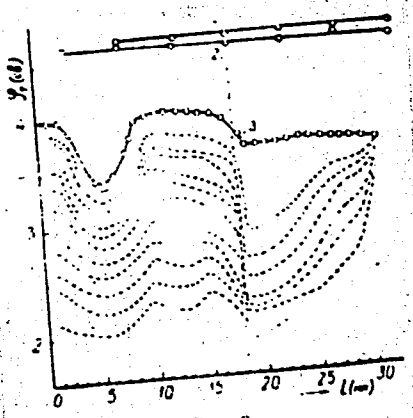

Рис. 3.

Figure 4:

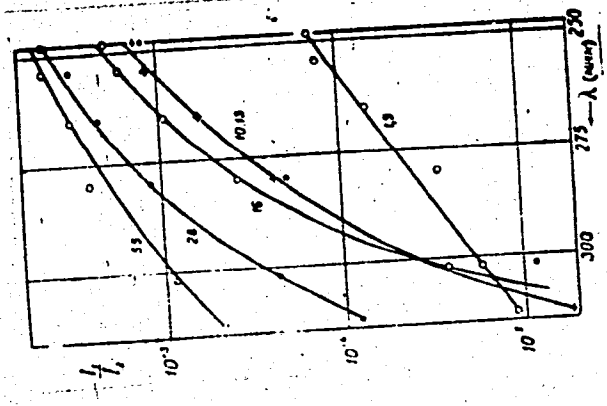

Рис. 4.

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A151/A029

Photo-Electronic Emission of the Intermetallic Compounds Mg_2Sn and InAs

Figure 7:

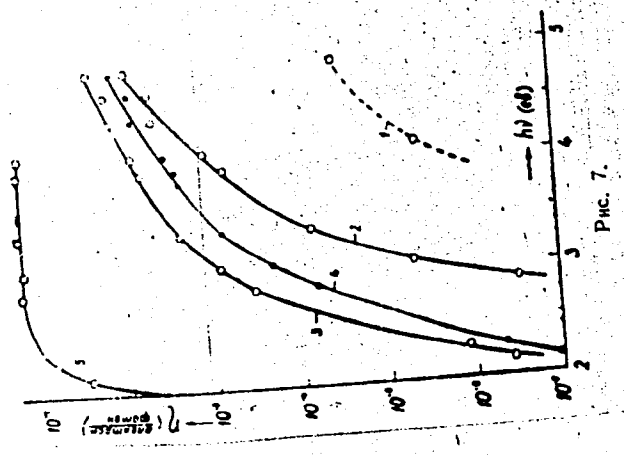

Рис. 7.

Card5/5

9.4175
24.3950

24919

S/181/61/003/006/016/031
B102/B201

AUTHORS: Borzyak, P. G., Miroshnichenko, L. S., and Fedorovich, R. D.

TITLE: Optical properties and photoelectron emission of Mg_3Sb_2

PERIODICAL: Fizika tverdogo tela, v. 3, no. 6, 1961, 1778 - 1785

TEXT: Mg_3Sb_2, the intermetallic compound of type II^a-V^b studied the most thoroughly heretofore, has been examined by the authors for its photoelectric and optical properties. The Mg_3Sb_2 films used for the investigation were prepared in different ways from pure magnesium and pure antimony; the initial substances had been supplied from the Institut obshchey i neorganicheskoy khimii AN USSR (Institute of General and Inorganic Chemistry AS UkrSSR) by V. P. Zosimovich. The photoelectric characteristics of the films prepared in three different ways were the same. A method described previously (FTT, II, p. 45 and p. 3020, 1960) was used to determine the optical constants: the measurement of the reflection and transmission coefficents of light under exposure from front and rear. The monochromator

Card 1/4

Optical properties and photoelectron...

of an СФ-4(SF-4) spectrophotometer was employed for measurements in the 254 - 578 mμ spectral range, while a УМ-2(UM-2) monochromator was used for the 450 - 1100 mμ range. An ИСК-12 (ISK-12) spectrometer was used with $\lambda > 1000$ mμ. Since absorption is dependent upon λ, variously thick films were used for different spectral ranges. Since, however, a considerable light scattering was already observable for $d > 1$, the longwave limit for the experiments was set at $h\nu = 1.55$ ev. For wavelengths outside the region of self-absorption, only the refractive index was determined, namely, by an interference method. Films up to 3μ could be used for this purpose. Beyond the self-absorption region the refractive index was $n = 4.7$, and the dielectric constant at high frequencies was $\varepsilon = 22.1$. As may be seen from diagrams $(1-R) = f(h\nu)$, light with $h\nu > 3.3$ ev is practically absorbed fully in layers of 50 mμ. The light source in the measurements of photoelectron emission (with SF-4 and ИСП-28(ISP-28)) was provided by a mercury-quartz lamp of the type ПРК-4(PRK-4); the light energy at the input of the monochromator was determined by means of standard photocells. The photocurrents were measured by a d-c amplifier. The measured energy characteristics (as compared with those of Na_3Sb) are as follows:

Card 2/4

S/181/61/003/006/016/031
B102/B201

Optical properties and photoelectron...

Characteristic [ev]	Na_3Sb	Mg_3Sb_2
φ_{photo}	3.2	3.8
ΔE	1.1	0.8
E'_{affin}	2.1	3.0
$\Delta\varphi$	1.1	1.8
φ'_{photo}	1.0	1.2
	2.1	2.0

The data for Na_3Sb are taken from V. F. Bibik, who works at the same laboratory as the authors. E_{affin} is the energy of the electron affinity of the initial surfaces, E'_{affin} that of surfaces with a work function reduced by $\Delta\varphi$, ΔE is the forbidden-band width. A. F. Mal'nev and M. P. Yesel'son are mentioned. There are 6 figures, 1 table, and 13 references: 10 Soviet-bloc and 3 non-Soviet-bloc. The references to English-language

Card 3/4

Optical properties and photoelectron...

publications read as follows: T. S. Moss. Proc. Phys. Soc. 63, 982, 1950; P. Görlich. Recent Advances in Photoemission. "Advances in Electronics and Electron Physics", Acad. Press, No. 4, 1959. W. E. Spicer. Phys. Rev. 112, 114, 1958.

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

SUBMITTED: October 28, 1960(initially) and January 9, 1961(after revision)

Card 4/4

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)

9.4177 (1035,1051)
26.2421

33371
S/181/62/004/001/049/052
B112/B138

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

TITLE: A new type of alternating photoconductivity in cadmium selenide crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 296 - 297

TEXT: Alternating photoconductivity was observed on CdS crystals with resistivity of 10^6 ohm·cm, which were provided with indium contacts and placed in a high vacuum. This photoconductivity was essentially different from that observed by Harnik and Weisz. The spectral characteristic illustrated by curve $\Delta I/W = f(\lambda)$ clearly shows the change in sign of photoconductivity, which occurs at 520 - 530 mμ. Harnik and Weisz observed such a change at $\lambda > 850$ mμ. $\Delta I/W$ denotes the illumination-induced increase of current related to equal values of luminous energy. The course of the volt-ampere characteristics also reveals this alternation in photoconductivity, which is always positive at weak fields, becoming negative at fields of the order of 10^2 v/cm. Harnik and Weisz found negative photoconductivity at weak and medium fields, with the change to positive at $E > 10^4$ v/cm. The

Card 1/2

A new type of alternating ...

authors succeeded in producing a crystal in which the change in sign could also be observed in dependence on the illuminated part of the crystal. One part displayed this alternating photoconductivity, and the other only positive photoconductivity, independent of λ or voltage applied. The lux-ampere characteristic of the latter is normal, that of the negative photo-conductivity shows a rapid increase up to $-15 \cdot 10^{-7}$a, then it remains constant. Its mechanism may be explained on the assumption of photoexcitation of minority carriers from local levels, which recombine with majority carriers. Applied to the change in photoconductivity, however, this model is complicated by the voltamperage characteristics, which indicate that field not only determines its level, but also the sign. There are 2 figures and 3 non-Soviet references. The two references to English-language publications read as follows: E. Harnik, S. Z. Weisz. Proc. intern. confer. on semicond. phys., Prague, p. 1053, 1960; R. Frerichs. Phys. Rev. 72, 594, 1947.

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

SUBMITTED: August 14, 1961

Card 2/2

43106
S/181/62/004/011/001/049
B102/B104

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

Card 1/4

Emission of non-equilibrium ...

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

Card 2/4

Emission of non-equilibrium ...

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

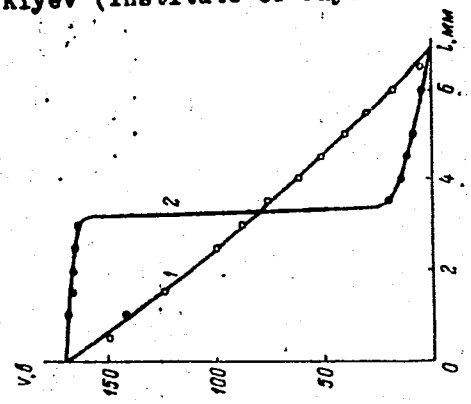

Fig. 1. Potential distribution along the crystal before (1) and after (2) "forming"

Card 3/4

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S/058/62/000/008/088/134
A062/A101

24.2600,

AUTHOR: Borzyak, P. G.

TITLE: Phenomenon accompanying the photo-emf effect in Cs_3Sb

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 31, abstract 8E226 (In collection: "Fotoelektr. i optich. yavleniya v poluprovodnikakh", Kiyev, AN USSR, 1959, 330 - 332)

TEXT: It is noted that the photo-emf, arising when the regions adjacent to the electrodes of a Cs_3Sb film are illuminated with a monochromatic luminous probe (the electrodes were obtained by incorporating Pt into glass, by heating) rapidly decreases after the light is switched off, as though a counter-emf gradually grown. The decay time of the direct and reverse current decreases with the increase of the film temperature. The dependence of the photoconductivity of the illuminated region nearby the electrode on the voltage applied to the film is determined. The Cs_3Sb film is not peculiar since the value of the activation energy $\Delta E = 0.76$ eV is in good agreement with the literature data (N. D. Morgulis, B. I. Dyatlovitskaya, "Dokl. AN USSR", 1939, no. 4, 33; "Zh. teor. fiz.",1940, 10, 657; S. Yu. Lukyanov

Card 1/2

S/058/62/000/008/088/134
A062/A101

Phenomenon accompanying the photo-emf effect in Cs_3Sb

and I. S. Mazover, "Zh. eksper. i teor. fiz.", 1939, 9, 1459). It is difficult to interpret the observed phenomenon only by electron processes without having recourse to a hypothesis on photochemical processes.

O. Shustova

[Abstracter's note: Complete translation]

Card 2/2

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)

L 18848-65 EWT(m)/EWP(t)/EWP(b) IJP(c)/AFWL/AS(mp)-2/ASD(a)-5/AEDC(a)/SSD/
ACCESSION NR: AP4043337 ESD(t) JD S/0181/64/006/008/2249/2255

AUTHORS: Borzyak, P. G.; Sarbey, O. G.; Fedorovich, R. S. 8

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

Card 1/4

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206610009-7"

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,

Card 2/4

L 18848-65
ACCESSION NR: AP4043337

AN UkrSSR)

SUBMITTED: 25Dec63 ENCL: 01

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

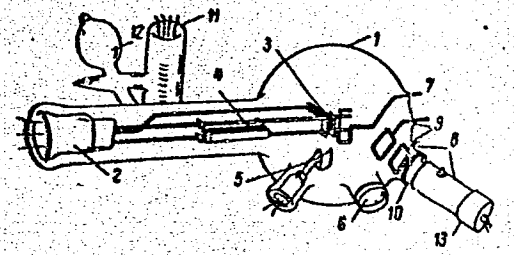
Card 3/4

L 18848-65

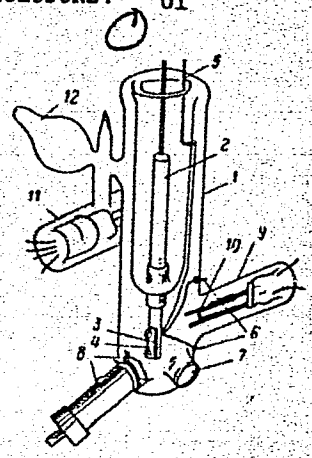
ACCESSION NR: AP4043337

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

BORZYAK P. G.

L 20044-65 EEC(b)-2/EPA(w)-2/EWG(k)/EWT(l)/EEC(t)/T Pz-6/Pab-10 IJP(c)/SSD(c)/AFWL/ASD(a)-5/AS(mp)-2/ESD(dp)/ESD(t) GG/AT

ACCESSION NR: AP5000464 S/0109/64/009/012/2194/2194

AUTHOR: none

TITLE: From the USSR State Committee on Inventions and Discoveries

SOURCE: Radiotekhnika i elektronika, v.9, no. 12, 1964, 2194

TOPIC TAGS: electron, electron emission, patch effect, thin film, surface effect

ABSTRACT: On 21 July 1964, The State Committee for Inventions and Discoveries registered the following discovery made by P. G. Borzyak, O. G. Sarbeyev, and R. D. Fedorovich: If a current passes through thin metallic films with a patchy structure a few dozen angstroms thick (40 to 80 for gold) an emission current arises. This emission current is caused by the fact that a part of the electrons which transport the charge between the metallic patches in the filament have a velocity component normal to the film's surface. The priority date of the discovery was established as 20 June 1963.

ASSOCIATION: none

Card 1/2

L 20044-65
ACCESSION NR: AP5000464

SUBMITTED: 00 ENCL: 00 SUB CODE: EM

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3161

Card 2/2

L 32964-65 EWT(1)/EWT(m)/EWP(t)/T/EWP(b)/EWA(h) Pad/Peb IJP(c) JD/HW/AT

ACCESSION NR: AP5007396 S/0286/65/000/004/0047/0047

AUTHOR: Borzyak, P. G.; Yatsenko, A. F.; Miroshnichenko, L. S.

TITLE: An autophotocathode. Class 21, No. 168371

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 47

TOPIC TAGS: photocathode

ABSTRACT: This Author's Certificate introduces an autophotocathode made from a photosensitive semiconductor material. The range of spectral sensitivity is broadened and the quantum output is increased by making the cathode from germanium alloyed with nickel.

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

SUBMITTED: 11Dec63 ENCL: 00 SUB CODE: EC

NO REF SOV: 000 OTHER: 000

Card 1/1

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

Effect of light on surface conduction of germanium in the case of a clean surface. Fiz. tver. tela 7 no.9:2803-2808 S '65.
(MIRA 18:10)

1. Institut fiziki AN UkrSSR, Kiyev.

BERLOVSKIY, V.M., inzh.; BORZYAK, Yu.G., inzh.; SHTEPA, Ye.P., inzh.; MINEVICH, A.B., inzh.

Automated electric driving of mine hoisting machines with a revolving stator. Gor. zhur. no. 12:49-52 D '65. (MIRA 18:12)

1. Khar'kovskiy elektromekhanicheskiy zavod.

BORZYCH, Danuta; FALICKI, Zdzislaw

Homicides from the psychiatric point of view. Neurol., neurochir., psychiat. Pol. 14 no.4:589-592 Jl-Ag '64

1. Z Kliniki Chorob Psychicznych Akademii Medycznej w Gdansku (Kierownik: prof. dr. med. T. Bilikiewicz).

BORZYCH, Danuta; GALUSZKO, Pawel

Clinical observations on the action of tindal in psychiatric treatment. Neurol., neurochir., psychiat. Pol. 14 no.4 683-686 Jl-Ag '64

1. Z Kliniki Chorob Psychicznych Akademii Medycznej w Gdansku (Kierownik: prof. dr. med. [illegible] T.Bilikiewicz).

Borzyk, Z.

4061 677.151.011.012 : 677.11.052.642

Borzyk Z. **Wet-Spinning of Ramie by a Uniform Carding Method.**

„Przędzenie ramii na mokro systemem zgrzebnym — jednolitym". (Prace Inst. Włókien. No. 14), Warszawa, 1954, WPLiS, 7 pp., 8 figs., 9 tabs.

The wet spinning process in the production of carded yarn from ramiefibres is discussed. The technological process consists in a uniform processing of the total amount of raw-material without differentiation as to combing- or carding-technology. Chemically degummed, emulsified, mechanically softened, and twice carded, the fibres are further processed by methods used in the production of carded yarn. The yarn thus obtained shows better quality indexes than carded linen yarn but is inferior, as regards uniformity, to worsted (combed) linen yarn.

HT

BORZYK, Z.; DABROWSKI, W.

Remarks on the English flax spinning mill. p. 219.

(PRZEMYSL WLOKIENNICZY. Vol. 11, No. 5, May 1957. Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 10, October 1957. Uncl.

BORZYKH, A.F.

Calculation of dynamic loads in mine car coupling devices. Vop. bezop.v ugol'.shakh. 4:265-270 '64. (MIRA 18:1)

BORZYKH, A.F.; DOLGANOV, V.A.

Conditions for the operation and life of cars in Kuznetsk Basin mines. Vop.bezop.v ugol'.shakh. 4:270-282 '64.
(MIRA 18:1)

BORZYKH, P. L.

"Characteristic Course of Pneumonia Under Sulfanilamide and Penicillin Therapy." Cand Med Sci, Khar'kov State Medical Inst, Kharkov, 1953. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

BORZYKH, P.L.

MATSIYEVSKIY, V.A., dots.; BORZYKH, P.L., kand.med.nauk

Treatment of dysentery with furacillin. Sov.med. 21 no.11:71-74 N '57. (MIRA 11:3)

1. Iz kafedry infektsionnykh bolezney (zav.-dotsent V.A. Matsiyevskiy) Stanislavskogo meditsinskogo instituta (dir.-dotsent G.A.Babenko).

BORZYKH, P.L., kand.med.nauk

Use of oxygen in infectious hapatitis. Vrach. delo no.5:94-95 My '61. (MIRA 14:9)

1. Kafedra infektsionnykh bolezney (zav. - dotsent V.A.Matsiyevskiy) Stanislavskogo meditsinskogo instituta.
(HEPATITIS, INFECTIOUS) (OXYGEN—THERAPEUTIC USE)

BORZYKH, P.L.

Rectoromanoscopic and kymographic examinations in dysentery. Vrach.delo no.3:145-146 Mr '63. (MIRA 16:4)

1. Kafedra infektsionnykh bolezney (zav. - dotsent V.A. Matsiyevskiy) Ivano-Frankovskogo meditsinskogo instituta.
(DYSENTERY)

MATSIYEVSKIY, V.A.; BORZYKH, P.L. (Stanislav)

Efficacy of the combined treatment of protracted and chronic dysentery with antibiotics and immunogen; abstract. V.A. Matskievskii, P.L. Borzykh. Kaz.med. zhur. no.1:117-118 Ja-F'61 (MIRA 16-11)

BORZYKH, P.S. (stantsiya Chelkar); NATALINOV, I.N. (stantsiya Chelkar).

Introducing advanced technology in car repair in the Chelkar shop. Shel. dor. transp. 39 no.12:73-74 D '57. (MIRA 11:1)

1. Nachal'nik tekhnicheskogo byuro Chelkarskogo otdeleniya dorogi (for Borzykh). 2. Zamestitel' nachal'nika Chelkarskogo vagonnogo uchastka (for Natalinov).
(Chelkar--Railroads--Cars--Maintenance and repair)

BORZYKH, V., Geroy Sotsialisticheskogo Truda

Unselfish work. Mast. ugl. 7 no.8:6 Ag '58. (MIRA 11:9)

1.Nachal'nik uchastka shakhty No.5-7 tresta Krasnoluchugol'.
(Coal mines and mining)

ACCESSION NR: AT4031125 S/2648/63/000/010/0184/0193

AUTHOR: Borsy*kh, Ye. A.

TITLE: Proposals on the determination of the lower boundary of upper-level clouds

SOURCE: Tashkent. Srednеaziatskiy nauchno-issledovatel'skiy gidrometeorologi-cheskiy institut. Trudy*, no. 10(25), 1963. Voprosy* aviatsionnoy meteorologii (Problems in aviation meteorology), 184-193

TOPIC TAGS: meteorology, cloud, cloud boundary, radiosonde, atmospheric humidity, emagram, vapor trail

ABSTRACT: The author proposes two methods for the determination of the lower boundary of upper-level clouds. One method is based on the use of radiosonde data and the second on the general patterns of distribution of humidity in the free atmosphere. The methods were developed on the basis of data from a large number of cases, but the effectiveness of the methods has not been checked under various synoptic conditions. It is shown that by plotting on an emagram the points corresponding to the height of the lower boundary and points for temperature or specific humidity the points will be grouped along well-defined isograms. By obtaining the averaged values of specific humidity at the lower boundary of cirrus clouds for warm and cold seasons and data for surface conditions with $e_{surf} \leq 6.1$ mb

Card 1/3

ACCESSION NR: AT4031125

it is possible to determine the height of the lower cloud boundary by use of a curve of vertical temperature distribution. Stratification can be taken into account using radiosonde data. The proposed method also can be used for determination of the height of the lower boundary of the layer with conditions favorable for formation of vapor trails. The error in this method does not exceed 8-10%. The described method is unsuitable when the radiosonde station is over 150-200 km distant or when the radiosonde data is over 9 hours old. In such cases it is possible to use three formulas derived by the author which give the same results with an error of 15-20%. Thus, on the basis of the results the first method is more successful. The editor has commented on the article, noting it is not without value but is based on certain dubious and debatable premises. No distinction is made between different types of cirrus clouds, synoptic processes are not taken into account and vertical movements are ignored. The emphasis on use of surface data makes the claimed accuracy very surprising. The value of specific humidity (to the third decimal place) cited by the author is deemed unjustified. The assumption that the conditions for formation of vapor trails and cirrus clouds are identical is unwarranted. Orig. art. has: 21 formulas, 2 figures and 2 tables.

Card 2/3

ACCESSION NR: AT4031125

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut, Tashkent (Central Asian Hydrometeorological Scientific Research Institute)

SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: ES NO REF SOV: 003 OTHER: 000

Card 3/3

BORZYMOWSKI, Andrzej

Limit property of a tangential derivative of the potential of a double layer relative to a conductibility equation. Matematyka Warszawa Pol no.2 99-112 '64

1. Department of Mathematics "A", Technical University, Warsaw.

L 32080-66 T/EWP(1) IJP(c) WW

ACC NR: AT5026390 SOURCE CODE: PO/2543/65/000/004/0143/0156

AUTHOR: Adamczyk, Henryk; Borzymowski, Andrzej

ORG: Department of Mathematics "A"

TITLE: The tangential discontinuous boundary problem for the generalized equation of heat conduction (the method of successive approximations)

SOURCE: Warsaw. Politechnika. Zeszyty naukowe, no. 106, 1965. Matematyka, no. 4, 143-156

TOPIC TAGS: tangential boundary problem, heat conduction equation, successive approximation method

ABSTRACT: By applying the method of successive approximations, the authors investigate the problem of determining a function $u(A, t)$ which satisfies the initial condition

$$\lim_{t \to 0} u(A,t) = 0 \qquad (1)$$

and the boundary condition in which symbols $u_1(P,t)$, ..., $u_{r\beta}(P,t)$ denote the tangential derivatives of u and $\frac{du(A,t)}{dT_P}$, the transversal derivative of the function

Card 1/2

L 32080-66

ACC NR: AT5026390

0

$u(A,t)$ (2),

$$\lim_{A \to P} \frac{\partial u(A,t)}{\partial \ell_p} =$$

$$= \sigma_{p,\beta}(P,t)u(P,t) + \theta_{p,\beta}\left[P,t,u(P,t),u_1(P,t),\ldots,u_{r_{p,\beta}}(P,t)\right] \quad (2)$$

and is a solution of the equation

$$\sum_{\alpha,\beta=1}^{n} a_{\alpha\beta} \frac{\partial^2 u}{\partial x_\alpha \partial x_\beta} - \frac{\partial u}{\partial t} = 0 \quad (3)$$

at each point of the region $\Delta X (0, T)$, where Δ is the difference of the space E^n ($n \geq 3$) and the sum of $(n-1)$-dimensional disjoint Lapunov surfaces D_υ ($\upsilon = 1, \ldots p$) as well as the regions bounded by those of the closed surfaced D_υ. The functions which appear in the condition (2) are given on the surfaces D_υ, except all points of the finite system of $(n-2)$-dimensional disjoint closed surfaces $S_\upsilon^{(k)}$ which are placed on the surfaces D_υ. Orig. art. has: 47 formulas. [Based on author's abstract] [AM]

SUB CODE: 12,20/ SUBM DATE: 18May64/ ORIG REF: 007

Card 2/2 BLG

BORZYMOWSKI, A. (Warszawa)

Properties of tangential derivatives of a certain solution of a parabolic equation in a noncylindrical domain and their application. Prace matem Krakow 8 no.2:193-215 '64.

BORZYNSKA, Bozena; JONCZYK, Barbara; SYROWATKA, Tadeusz; WYSOCKI, Eugeniusz

Preliminary evaluation of antibacterial properties of arydil soaps. Przegl. epidem. 15 no.3:325-329 '61.

1. Z Laboratorium Technologicznego Dezynfekcji, Dezynsekcji, Deratyzacji Ministerstwa Zdrowia i Opieki Spolecznej Kierownik: dr Konrad Zembrzuski.
(ANTISEPTICS) (SOAPS)

RUSSU, Aurel, prof.; BOS, Nicolae; KISS, Arpad, asist.; MADARAS, Ioan, asist; VATASAN, Nina, asist.

Regarding the size of the atmospheric refraction coefficient K and the precision of the trigonometric leveling at great distances. Rev. geodezie 8 no.4:28-41 '64.

CZECHOSLOVAKIA

BOS, P.; Pediatric Hospital for Psychiatry (Detska Psychiatricka Lecebna), Dubi v Krusnych Horach.

"Play Therapy Contribution to Child Psychotherapy."

Prague, Ceskoslovenska Psychiatrie, Vol 62, No 4, Aug 66, pp 247 - 253

Abstract [Author's English summary modified]: Play is a characteristic and dominant spontaneous activity of childhood; psychopathological dynamism is also found in childhood. Toys divided into functional groups are used by the author to establish communicational, projective and expressive means to establish a permissive therapeutic relationship; the purpose is to eliminate pathological interpersonal stereotypes and reactions. Empirical rating scales of the treatment are presented. The dynamic orientation of this approach is stressed. 8 Western, 4 Czech references. (Manuscript received 14 Aug 65).
1/1

BOSACEK, V.; POLAK, R.; KUCERA, E.; DANES, V.

Surface and structural properties of aluminum oxide after its treatment by halogens and aluminumtetrafluoborate. Coll Cz Chem 27 no.11:2575-2585 N '62.

1. Institut fur physikalische Chemie, Tschechoslowakische Akademie der Wissenschaften, Prag.

BOSACEK, Vladimir; POLAK, Rudolf

Simple calorimeter for determining the wetting heat of powder adsorbents. Chem listy 57 no. 5: 514-518 My '63.

1. Ustav fysikalni chemie, Ceskoslovenska akademie ved, Praha.

Author

3

BOSÁČEK, V; POLÁK, R; KUČERA, E; DANEŠ, V.

Czechoslovakia

Institute for Physical Chemistry, Czechoslovak Academy of Sciences -- Prague - (for all)

Prague, Collection of Czechoslovak Chemical Communications, No 11, 1962, pp 2575-2584

"Superficial and Structural Properties of Aluminiumoxyde Treated with Halogens and Aluminiumtetrafluoborate."

BOSACEK, V.

Gas chromatographic separation and adsorption of noble gases, oxygen and nitrogen on modified zeolites of type X. Coll Cz chem 29 no.8:1797-1802 Ag '64.

1. Institute of Physical Chemistry, Czechoslovak Academy of Sciences, Prague.

BOSACKI, K.

"Hammering Machines with Double Action." Tr. from the Polish. p. 109 (Strojirenstvi, Vol. 3, no. 2, Feb. 1953, Praha)

SO: Monthly List of East European Accessions, Vol. 3, no. 2, Library of Congress, Feb. 1954, Uncl.

CZECHOSLOVAKIA

BOSACKOVA, E., Slovak Institute of Memorial Protection and Nature Conservation (Slovensky ustav pamiatkove starostlivosti a ochrany prirody), Bratislava -Castle.

"New Finds of Chrysopogon Gryllus Trin. in Southern Slovakia."

Bratislava, Biologia, Vol. 18, No. 3, 63, pp 230.

Abstract: The author found a new occurrence of the plant near the river Danube at Svatojursky Chlm.
No references.

1/1

USSR / Cultivated Plants. Fruit Trees. Small Fruit Trees. M-7

Abs Jour: Ref Zhur-Biol., 1958, No 16, 73163.

Author : Bosak, D. Ye.
Inst : Not given.
Title : Influence of Leaf Apparatus on Ability of Gooseberry Shoots to Take Root.

Orig Pub: Sad i ogorod, 1957, No 8, 46-47.

Abstract: During hilling of the lateral gooseberry shoots and of the bottom branches of the shoots, filling up the leaves and shoots with earth leads to a decrease in quantity and quality of planting material. The more the leaves remained above the soil at the ends of the hilled shoots, the better they grew and took root. -- V. V. Yastrebova.

Card 1/1

L 60288-65 EWT(d) IJP(c)
ACCESSION NR: AP5021200 CZ/0045/64/000/004/0289/0296

AUTHOR: Bosak, Juraj (Bosak, Yurai)(Bratislava)

TITLE: Subsemigroups of semigroups

SOURCE: Matematicko-fyzikalny casopis, no. 4, 1964, 289-296

TOPIC TAGS: group theory, graph theory

Abstract (Author's Russian summary, modified): The article establishes the possibility of a set of all subsemigroups of the cyclic semigroup with an arbitrary number of generators. In the article, all cyclic semigroups with less than six subsemigroups are found and a characterization is given of the semigroup, the system of subsemigroups of which is closed relative to certain set-theoretical operations. An indication is given of the results which can be obtained from a previous article with the help of the theory of graphs. The results obtained are compared with the results of other authors. Orig. art. has 1 table.

Card 1/2

L 60288-65

ACCESSION NR: AP5021200

ASSOCIATION: CSAV, Kabinet matematiky Slovenskej akademie vied, Bratislava (CSAV, Department of Mathematics, Slovak Academy of Sciences)

SUBMITTED: 15Aug63	ENCL: 00	SUB CODE: MA
NO REF SOV: 005	OTHER: 008	JPRS

Card 2/2

L 30997-66 EWT(m)/EWP(v)/T/EWP(t)/EWP(k) IJP(c) JD/HM

ACC NR: AP6007719 (N) SOURCE CODE: UR/0413/66/000/003/0119/0119

INVENTOR: Gurevich, S. M.; Bosak, L. K.

ORG: none

TITLE: Flux for welding light metals and alloys. Class 49, No. 178660 [announced by the Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 119

TOPIC TAGS: titanium, titanium welding, submerged arc welding, welding flux

ABSTRACT: This Author Certificate introduces a flux containing CaF_2 and NaF_2 for welding light metals and alloys. For welding titanium and titanium alloys, 7% of $SrF_2 \cdot SrCl_2$ is added to a flux containing 92% CaF_2 and 1% NaF_2. [AZ]

SUB CODE: 13/ SUBM DATE: 27Nov64/ ATD PRESS: 4214

Card 1/1

GUREVICH, S.M., doktor tekhn. nauk; BOSAK, L.K., inzh.

Effect of calcium flouride on the technological properties of AN-T fluxes. Avtom. svar. 17 no.11:47-50 N '64 (MIRA 18:1)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.

KUTA,I.; EISELT, E., MUDr.; BOJANOVSKY, I.; BOSAK,V.

Sport efficiency and strength in the aged. Cas. lek. cesk. 104 no.13:351-356 2 Ap '65

1. Vyzkumny ustav telovychovny v Praze (reditel: MUDr. E.Eiselt).

BOSACKOVA, J.

The effect of medium composition on the metabolism of isolated rabbit kidney cells. Physiol. Bohemoslov. 11 no.1:39-45 '62.

1. Laboratory for Cellular Metabolism, Institute of Biology, Czechoslovak Academy of Sciences, Prague.

(KIDNEYS metab) (TRYPSINS pharmacol)

BOSACKOVA, J.

Electrolyte distribution and volume changes of isolated kidney cortex cells at 0°C. Physiol. Bohemoslov. 11 no.4:294-299 '62.

1. Laboratory for Cellular Metabolism, Microbiological Institute, Czechoslovak Academy of Sciences, Prague.

(POTASSIUM) (CALCIUM) (KIDNEYS) (TEMPERATURE)
(DIURETICS MERCURAL)

2

1-F\W

Bosák, J. **Generalization of the method of complete induction.** Acta Fac. Nat. Univ. Comenian. Math. 2 (1958), 255–256. (Czech)

The author gives five statements in connexion with the principles of induction in sets of real numbers and, more generally, in linearly ordered sets. Only O. Perron [Jber. Deutsch. Math. Verein 35 (1926), 194–203] is cited. All the results are contained in the reviewer's thesis: Ensembles ordonnés et ramifiés, Paris 1935; in particular, pp. 21–25 [also published in Publ. Math. Univ. Belgrad 4 (1935), 1–138]. Cf. the reviewer's results with respect to partially ordered sets [Acad. Serbe Sci. Publ. Inst. Math. 8 (1955), 1–12; C. R. Acad. Sci. Paris 242 (1956), 2202–2203; MR 17, 1065]. *Đ. Kurepa* (Zagreb)

BOSAK, Juraj (Bratislava, ulica Obrancov mieru 41)

On certain class of oriented graphs. Mat fyz cas SAV 12 no.2:81-84 '62.

1. Kabinet matematiky Slovenskej akademie vied, Bratislava.

BOSAK, Juraj

B-semigroups. Mat fys cas SAV 11 no.1:32-44 '61.

1. Kabinet matematiky, Slovenska akademia vied, Bratislava, ulica Obrancov mieru 41.

BOSAK, Juraj

General powers in semigroups. Mat fyz cas SAV 13 no.2: 137-146 '63.

1. Ceskoslovenska akademie ved, Kabinet matematiky Slovenskej akademie vied, Bratislava, ul. Obrancov mieru 41.

BOSAK, Juraj

On subsemigroups of semigroups. Mat fyz cas SAV 14 no.4 289-296 '64.

1. Cabinet of Mathematics of the Slovak Academy of Sciences, Bratislava, ul. Obrancov mieru 41.

GOLBA, Jan; BOSAK, Teodor; OGONSKA, Aniela; SZALAJKO, Maria

Hairdresser and barber shops as a possible link in the epidemiological chain of infectious diseases. Roczn panstw zakl hig 14 no.5:407-414 '63.

1. Epidemiological Section of the Voivodeship Station for Sanitation and Epidemiology, Szczecin.

BOSAK, V.D., inzh.

The problem of saving bronze. Stroi. i dor. mash. 7 no.8:39 Ag '62. (MIRA 15:9)
(Bronze)

BOSAK, Yuray [Bosak, Juraj]

On radicals of semigroups. Mat fyz cas 12 no.3:230-234 '62.

1. Kabinet matematiky, Slovenska akademia vied, ul. Obrancov mieru 41, Bratislava.

L 00673-67 EWT(d)/EWT(m)/EWP(c)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(l) IJP(c)

ACC NR: AP6015251 (N) SOURCE CODE: UR/0125/66/000/005/0070/0071

JD/HM

20
19
B

AUTHOR: Bosak, L. K.; Gurevich, S. M.

ORG: Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: Nonhygroscopic flux for welding titanium and its alloys

SOURCE: Avtomaticheskaya svarka, no. 5, 1966, 70-71

TOPIC TAGS: titanium alloy, welding flux, welding, titanium, arc welding, strontium compound, chlorine compound/AN-T11 welding flux, VT1 titanium

ABSTRACT: The fluxes used in the automatic and semiautomatic arc welding of Ti and its alloys are more or less hygroscopic, since they contain chlorides of alkali and alkali-earth metals. This harbors the danger of the contamination of the Ti and Ti-alloy weld metal with oxygen and hydrogen. Hence, the author has experimentally developed a nonhygroscopic welding flux on investigating 10 different compounds. Findings: the minimum (virtually nil) hygroscopicity is displayed by $BaF_2 \cdot BaCl_2$ and $SrF_2 \cdot SrCl_2$ compounds. Since the salts of Ba absorb x-rays and thus complicate radiographic inspection of slag inclusions in weld metal, the nonhygroscopic flux was developed on the basis of the compound $SrF_2 \cdot SrCl_2$. The compound was melted on using

UDC: 621.791.04:669.295

Card 1/2

L 00673-67

ACC NR: AP6015251

44.5 wt.% SrF_2 and 55.5 wt.% $SrCl_2$ and the flux base, on using 99 wt.% CaF_2 and 1 wt.% NaF. After this both the compound and the flux base were granulated to the required size by crushing and sieve-screening and automatically mixed in mutual proportions of 7 and 93% by weight, respectively, thus assuring a 4 wt.% content of $SrCl_2$ in accordance with the stoichiometric composition of $SrF_2 \cdot SrCl_2$. The flux obtained by this method produces satisfactory welds in the presence of welding currents of up to 600-700 a. The weld surface is lustrous, silvery, which demonstrates that the slag provides adequate protection for not only the weld pool but also the solidifying weld. This is of great significance to multi-layer welding, since it dispenses with the need to clean the surface by mechanical means every time before the next layer is deposited. This newly developed welding flux has been named AN-T11. The insignificant hygroscopicity it displays is chiefly due to the absorption of moisture at grain boundaries. When exposed to air, this flux virtually does not absorb any moisture. Tests of mechanical properties of the 10-mm thick joints of VT1 technical titanium welded with the aid of this flux produced satisfactory results. Orig. art. has: 2 figures and 1 table.

SUB CODE: 11,13,07/ SUBM DATE: 24Sep65/ ORIG REF: 002

Card 2/2 vlr

SAMSONOV, G.V.; BOSAK, L.L.

Substitution of cations in benzylpenicillin on ionites. Med.prom. 16 no.7:32-34 Jl '62. (MIRA:9)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(PENICILLIN) (ION EXCHANGE RESINS)

BOSAK, Ul.

Vitebsk silk factory. Rab.i sial. 32 no.12:11 D '56. (MLRA 9:12)
(Vitebsk--Silk manufacture)

BOSAK, Teodor; DWORAK, Zbigniew; GOLBA, Jan; OGONSKA, Aniela

Control of mosquitoes in populated settlements and adjacent open areas of the island Karsiborz. Przegl. epidem. 15 no.1:59-66 '61.

1. Z Wojewodzkiej Stacji Sanitarno-Epidemiologicznej w Szczecinie. Dyrektor: lek. med. Z.Dworak.
(MOSQUITO CONTROL)

EISELT, E.; BOJANOVSKY, I.; BOSAK, Vl.

Blood picture in aged males. Cas.lek.cesk 100 no.22:686-689 2 Je '61.

1. Vyzkumny ustav telovychovny, Praha, reditel MUDr. E. Eiselt.

(BLOOD CELLS) (SEX) (AGING)

L 33404-66 EWT(1) IJP(c) AT

ACC NR: AP6015319 (A,N) SOURCE CODE: UR/0057/66/036/005/0958/0960

AUTHOR: Bosamykin, V. S.; Pavlovskiy, A. I.

ORG: none

TITLE: On the possibility of compensating the space charge of pulsed electron beams

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 5, 1966, 958-960

TOPIC TAGS: electron beam, space charge, positive ion, gas ionization, gas pressure

ABSTRACT: The effect of residual gas pressure on the passage of a pulsed electron beam through a metallic tube has been investigated with the apparatus diagrammed in the figure. The electron gun was activated with a 300 kV pulse with a short rise time and an approximately exponential decay with a half time of 12 μsec. The beam was collimated with the system of several 5 mm diameter apertures. At the output of the collimator the current density was 5 A/cm^2 and the angular spread of the beam was 5°. The internal diameter of the 50 cm long metal tube 3 was 5 mm. The current to the collector 5 was recorded with an oscilloscope and was investigated as a function of the residual gas pressure (varied from 2 x 10^{-5} to 2 x 10^{-2} mm Hg) and the potential on the grid 2. When the foil 4

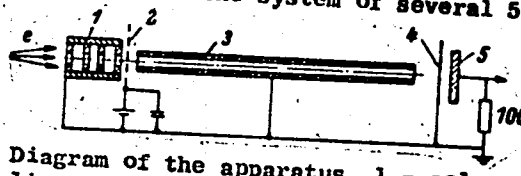


Diagram of the apparatus. 1 - collimator; 2 - grid; 3 - metallic tube; 4 - foil; 5 - collector.

Card 1/2

L 33404-66

ACC NR: AP6015319

was absent and the grid was at ground potential the current to the collector was small and independent of the residual gas pressure. When a positive potential was applied to the grid the collector current increased with increasing residual gas pressure. When the grid was 200 V positive the collector current was 10 times greater at a residual gas pressure of 2×10^{-2} mm Hg than at high vacuum or with the grid grounded. Similar behavior was observed when the 10 micron aluminum foil 4 was in place. The observed effects are ascribed to compensation of the space charge of the beam by positive ions of the residual gas. It is suggested that the effect of the positively charged grid 2 is to prevent escape of positive ions from the interior of the metallic tube 3. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 29Jul65/ ORIG REF: 001/ OTH REF: 004

Card 2/2 JS

BOSANAC, B.

Yugoslavia (430)

History and Description - Serials

The significance of "purges" in Rumania. p. 11.
REVIEW OF INTERNATIONAL AFFAIRS. (Federation
of Yugoslav Journalists) Beograd. (Fortnightly
journal on international problems. Published also
in Serbo-Croatian as Medunarodna Politika, and in

East European Accessions List, Library of
Congress, Vol. 1, no. 13, November 1952.
UNCLASSIFIED "Card 1 of 2"

BOSANAC, B.

Yugoslavia (430)

History and Description - Serials

Ways and means in the subversive activity against Yugoslavia. p. 13. Russification of the Bulgarian language. p. 15. REVIEW OF INTERNATIONAL AFFAIRS. (Federation of Yugoslav Journalists) Beograd. (Fortnightly

East European Accessions List. Library of Congress, Vol. 1, no. 13, November 1952.
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journal on international problems. Published also in Serbo-Croatian as Medjunarodna Politika, and in French as Revue de la Politique Mondiale), Vol. 3, no. 12, June 16, 1952.

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French as Revue de la Politique Mondiale),
Vol. 3, no. 16, August 16, 1952.

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UNCLASSIFIED "Card 2 of 2"

PHASE I BOOK EXPLOITATION YUG/5527

Bosanac, Tomo

Nuklearna propulzija (Nuclear Propulsion) [Belgrade, Export press, n. d.] No. of copies printed not given.

Sponsoring Agency: Savezna Komisija za Nuklearnu Energiju.

Reviewers: Vojislav Babić, Engineer, Ljubomir Barbarić, Engineer, and Salom Suica, Engineer. Ed.: Aleksandar Spasić. Tech. Ed.: Živorad Atanacković.

PURPOSE : This booklet is intended for general readers interested in the utilization of nuclear energy as a means of propulsion.

COVERAGE: The author outlines the present state and prospects of utilizing nuclear energy for propulsion of ships, aircraft, rockets, and land vehicles. Concise information on fundamentals of nuclear physics and generation of nuclear energy is given. Various types of nuclear reactors are described and schematic representations of nuclear propulsion systems are

Card 1/4

given. Progress made in the USA, the Soviet Union, and some European countries in the field of nuclear energy utilization is reviewed. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

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International Conference on the Peaceful Use of Atomic Energy. P.335
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8, no. 6, Nov./Dec. 1955.

SOURCE: East European Accessions List, (EEAL), Library of Congress, Vol. 5
no. 12, December 1956

BOSANCIC, M.; COCKOVIC, H.; VARICAK, M.

Measuring the specific heat of solids in the dependency of temperatures. Obz mat fiz 7 no.2:82-87 '60. (EEAI 9:12)

1. Fizicki institut Prirodoslovno-matematickog fakulteta u Zagrebu.
(Specific heat)
(Calorimeters and calorimetry)
(Solids)