The identification of authentic objects ...

Since the Moon, at the moment of photographing, was almost in its full phase, a larger part of the observed formations is distinguished from the surrounding area by its albedo. Therefore, the map-chart of the Moon's far side should be regarded as a chart of areas with different reflectivity and not as a relief map. Kh. I. Potter and T. A. Polozhentseva are thanked for assistance in calculating coordinate data. There are 2 figures, 3 tables and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The English-language reference is: H. P. Wilkins, P. Moore, The Moon, L., 1955.

SUBMITTED: January 21, 1961

Card 3/3

S/081/61/000/022/053/076
B101/B147

AUTHORS: Breydo, I. I., Markelova, A. A.

TITLE: Hypersensitization of infrachromatic plates

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 380, abstract 22L334 (Zh. nauchn. i prikl. fotogr. i kinematogr., v. 6, no. 1, 1961, 19 - 26)

TEXT: The hypersensitizing treatment of non-sensitized and optically sensitized photographic plates by means of water and ammonia solutions under different conditions was studied. It was found that the hypersensitization by means of water is not only due to the washing out of the bromine ions from the layer but also to the action of the water or of an aqueous ammonia solution on the sensitizing dye. It is assumed that in this connection oxidation products of the dyes having a desensitizing effect are washed out. [Abstracter's note: Complete translation.]

Card 1/1

37929

S/035/62/000/005/019/098
A055/A101

3,1230

AUTHORS: Breydo, I. I., Markelova, A. A.

TITLE: Increasing the photosensitivity of photographic materials by means of their preliminary illumination

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 17, abstract 5A151 ("Izv. Gl. astron. observ. v Pulkove", 1961, 22, no. 4, 195 - 205, English summary)

TEXT: To investigate the effect of a short preliminary illumination on the light-sensitvity and on the contrast-coefficient γ of several photographic materials used in astrophotography, the "stepped wedge" of a ФСР -4 (FSR-4) sensitometer was exposed on them, with the exposure varying from 0.05 to 3,000 sec. The supplementary illumination of the photographic material before or after the main one was uniform with 0.05 sec exposure. It was shown that, for some of the photographic materials, the short preliminary illumination up to a background-density 0.3 - 0.5 causes a considerable (2 to 3 times) increase of the light-sensitivity, especially at main exposures of long duration. At the same time,

Card 1/2

S/035/62/000/005/019/098
A055/A101

Increasing the...

the initial section of the characteristic curve extends and the γ of the photographic material decreases. Therefore, such a method for increasing the sensitivity is particularly interesting in the cases when it is necessary to detect a detail having a low brightness. This fact is illustrated by neon-lamp spectrum photographs obtained, respectively, on preliminary illuminated and nonilluminated Agfa Spektral rot rapid plates. Investigation was made of the dependence of the sensitivity increase effect upon the background-density up to which the photographic material was preliminarily illuminated, upon the duration of the main illumination, upon the duration of the dark pause between the preliminary and main illuminations and upon the wavelength of the acting light. For three of the eleven investigated photographic materials, the preliminary illumination did not increase the light-sensitivity or caused only a slight increase of it. There are 17 references.

I. Breydo

[Abstracter's note: Complete translation]

Card 2/2

S/035/62/000/005/020/098
A055/A101

3.1230

AUTHOR: Breydo, I. I.

TITLE: Investigation of the Eberhardt development-effect

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 18, abstract 5A154 ("Izv. Gl. astron. observ. v Pulkove", 1961, 22, no. 4, 206 - 214, English summary)

TEXT: The Eberhardt development-effect was investigated by microphotometry of contact prints of lines of various width and of images of a stepped platinum attenuator placed before the input slit of the spectrograph. It was shown that the development-effect for narrow lines (i.e. the exaggerated density of narrow lines in comparison with the wide ones) is more pronounced than the Eberhardt "edge-effect". The Eberhardt effect is considerable for highly sensitive coarse-grained materials; it is small for low-sensitivity fine-grained materials. The magnitude of the Eberhardt development-effect depends to a great extent on the developer mixing conditions and on the sharpness of the edge of the image. In practice, the Eberhardt effect can lead to considerable errors in the photometry

Card 1/2

S/035/62/000/005/020/098
A055/A101

Investigation of the Eberhardt development-effect of fine details of images with a sharp edge, or of narrow emission spectral lines.

I. Breydo

[Abstracter's note: Complete translation]

Card 2/2

BREYDO, I.I.; FIRAGO, B.A.

Intensification of faint satellite tracks by subsequent illumination of the negative. Biul.sta.opt.nabl.isk.sput.Zem. no.25:3-5 '62. (MIRA 15:7)

1. Glavnaya astronomicheskaya (Pulkovskaya) observatoriya AN SSSR.
(Astronomical photography)

BREYDO, I.I.; GAVRILOV, G.A.; GUREVICH, S.B.

Measuring the "Signal-to-noise" ratio in photography. Zhur.nauch.i prikl.fot. i kin. 7 no.3:221-223 My-Je '62. (MIRA 15:6)

1. Glavnaya astronomicheskaya observatoriya AN SSSR i Fiziko-tekhnicheskiy institut AN SSSR imeni A.F.Ioffe.
(Photographic sensitometry)

GUREVICH, S.B.; BREYDO, I.I.; GAVRILOV, G.A.

Dependence of photographic noises on the relative amount of developed grains. Zhur.nauch.i prikl.fot.i kin. 7 no.4:306-308 Jl-Ag '62. (MIRA 15:8)

1. Fiziko-tekhnicheskiy institut AN SSSR i Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR.
(Photometry) (Photographic emulsions)

L 10312-63 BDS--JXT(DE)

ACCESSION NR: AP3001455 S/0187/63/000/005/0001/0008

51
49

AUTHOR: Gurevich, S. B.; Breydo, I. I.; Gavrilov, G. A.

TITLE: Signal-to-noise ratio measurement and gradation vs. frequency characteristic of photographic materials

SOURCE: Tekhnika kino i televideniya, no. 5, 1963, 1-8

TOPIC TAGS: photomaterial characteristics, Mikrat, Kinopositiv, AM-1 Kinonegativ, R-30 Ferrania Kinonegativ, Panchrom, Agfa Dispositiv, Agfa Isochrom, Agfa Gelb rapid, Agfa Astro, Ilford ordinary

ABSTRACT: Data on photonoise (granularity) and on signal-to-noise ratio for various photomaterials were practically nonexistent in the Soviet literature. The article offers a description of the apparatus used in experiments and the photonoise and signal-to-noise-ratio data for a number of Soviet and German films (Mikrat, Kinopositiv, Kinonegativ, Panchrom) and plates (Agfa, Ilford ordinary). Numbers of gradtions discernible on 100- and 2,500-sq.-micron areas are given. Table 2 (see Enclosure) compares characteristics of Soviet, German, and American photomaterials. From the experimental gradation-frequency curves, it was found that the panchromatic fine-grain film, Agfa Diapositiv plates, and MZ cinema positive film have the highest resolution, while the P-10 film and Agfa Astro plates,

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L 10312-63
ACCESSION NR: AP3001455

2

the lowest. It is claimed that the error associated with the method of noise measurement is 4-8 per cent. Orig. art. has: 11 formulas, 8 figures, and 2 tables.

ASSOCIATION: Fiziko-tekhnicheskiy institut imeni A. F. Ioffe AN SSSR, Glavnaya astronomicheskaya observatoriya AN SSSR (Physicotechnical Institute, AN SSSR, Main Astronomical Observatory)

SUBMITTED: 00 DATE ACQD: 17Jun63 ENCL: 01

SUB CODE: PG NO REF SOV: 001 OTHER: 002

Card 2/3

ACCESSION NR: AP3003607 S/0077/63/008/004/0284/0292

AUTHORS: Breydo, I. I.; Gavrilov, G. A.; Gurevich, S. B.; Markelova, A. A.

TITLE: Photographic noise and the signal/noise ratio of various photographic materials

SOURCE: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, v. 8, no. 4, 1963, 284-292

TOPIC TAGS: photography, noise, photographic noise, signal/noise ratio, photographic material, MF 4 microphotometer, KMVL 1 quadratic millivoltmeter, M 95 microamperemeter, Agfa photo plate, Ilford photo plate, photographic film, Mikrat film, Mikrat 200 film, Mikrat 300 film

ABSTRACT: This work was carried out in order to measure the intensity of noise and the signal/noise ratio of various photographic materials. It was assumed that noise intensity was related to the granularity of material, i.e., the number of the exposed grains in a uniformly illuminated section of the film. The experimental assembly consisted of a modernized MF-4 microphotometer, a KMVL-1 quadratic millivoltmeter, and a M-95 microamperometer. Agfa plates and Ilford plates used

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ACCESSION NR: AP3003607

in astronomy and spectroscopy, and various types of films(including Mikrat films) were studied. It was established that: 1) the noise intensity showed a 3- to 4-fold variation during the transition from fine- to coarse-grained materials; 2) the strongest noise variation was observed in the negative materials; 3) noise intensity of fine-grained negative materials differed little from that of positive materials; 4) the signal/noise ratio at a given film-blackening density depended strongly on the intensity of the fog. For this reason some materials of equal granularity had different signal/noise ratios. Orig. art. has: 3 tables and 6 figures.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya AN SSSR (Main Astronomic Observatory AN SSSR); Fiziko-tekhnicheskiy institut AN SSSR (Institute of Physics and Technology AN SSSR)

SUBMITTED: 23Jul62 DATE ACQ: 02Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 006 OTHER: 008

Card 2/2

ACCESSION NR: AT4012208 S/2797/63/023/002/0167/0174

AUTHOR: Breydo, I. I.; Markelova A. A.; Firago, B. A.

TITLE: Increase in the sensitivity of photographic film by post-exposure for use in photographing artificial earth satellites.

SOURCE: Pulkovo. Astron. observ. Izvestiya, v. 23, no. 2(173), 1963, 167-174.

TOPIC TAGS: artificial earth satellite, satellite photography, photography, panchromatic film, post-exposure, film sensitivity, photographic image

ABSTRACT: Three highly sensitive panchromatic films were investigated in a study of the effectiveness of prolonged additional post-exposure following an initial exposure of about 0.01-0.05 second. The objective was to enhance the sensitivity of film used in photographing artificial earth satellites. The subcenters of the latent image formed during the brief initial exposure, that is, the particles of metallic silver too small for direct development, will increase to the critical size of latent image centers under the influence of the light of additional post-exposure. Additional uniform post-exposure of negatives by weak scattered light for 3 to 5 minutes yields an appreciable increase in the photographic effect. The effect is particularly great when the film is not developed to maximum γ.

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ACCESSION NR: AT4012208

However, even satellite observation film developed almost to γ max is enhanced in sensitivity by 60-80%. The corresponding increase in maximum stellar magnitude of the observed satellite of $0^m.5$-$0^m.6$ is in many cases of great importance. The density of the background caused by the additional post-exposure should not exceed 0.1, and the contrast coefficient γ remains virtually unchanged. Orig. art. has: 2 figures and 9 tables.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya, Pulkovo (Main Astronomical Observatory)

SUBMITTED: 00 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: AS NO REF SOV: 005 OTHER: 001

Card 2/2

ACCESSION NR: AP4026822 S/0077/64/009/002/0155/0156

AUTHOR: Breydo, I. I.

TITLE: Symposium on the structural properties of photographic emulsion and their informational value

SOURCE: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, v. 9, no. 2, 1964, 155-156

TOPIC TAGS: photography, photographic emulsion, photographic emulsion structure

ABSTRACT: The symposium was held on September 30, 1963 in Kazan. It was organized by the committee on scientific photography and cinematography of the Academy of Sciences, SSSR, in association with the Kazanskiy filial NIKFI i khimicheskiy zavod im. V. V. Kuyby*sheva (Kazan Branch, NIKFI Chemical Plant). Professor Yu. N. Gorokhovskiy emphasized in his introductory address the importance of a manifold evaluation of the structural properties of photographic materials on which depend the quality of the photographic image. Gorokhovskiy, Yu. K. Vifanskiy, G. M. Sinyayeva, and L. M. Zharkova (OOI and LIKI) reported on various

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ACCESSION NR: AP4026822

ways of expressing the density-contrast functions of photographic materials. I. G. Abidina (NIKFI) gave a simplified method for obtaining diffusionometric characteristics of photographic materials. L. Kh. Pruss and Gorokhovskiy (GOI) reported that there is no close interrelationship between resolving power and coarse-granular structure of an emulsion. G. G. Gribakin and G. A. Istomin (NIKFI) proposed a new formula for the resolving power of an emulsion--it depends mainly on the constant K_1 and is little affected by either the contrast coefficient or granular structure. The paper by G. I. Belinskaya and M. S. Gus'kova was a report on the effect of the length of exposure on the sharpness of the image. I. I. Breydo and K. P. Yermoshina presented their studies on the relationship between the granularity of photographic materials and the conditions under which development occurs. Z. L. Petrushkina and I. G. Abidina (NIKFI) correlated the granularity and diffusion characteristics of cinematographic under various conditions of developing with the visual perception of low-contrast details. P. Kh. Pruss (GOI) compared theoretical and experimental data relating to the state of illumination in the emulsion layer. Z. S. Shcherbakovskiy (GOI) presented the results of his microsensitometric investigation of multilayered color films. K. K. Vendrovskiy (NIKFI) proposed a method for the measurement of reflected halo. Lively discussions followed the presentation of the papers.

Card 2/3 2

BREYDO, I.I.; YERMOSHINA, K.P.

Effect of development conditions on the microphotometric graininess of photographic materials. Zhur.nauch. i prikl.fot. i kin. 9 no.6:425-435 N-D '64. (MIRA 18:1)

1. Glavnaya Astronomicheskaya observatoriya AN SSSR.

GUREVICH, S.B.; BREYDO, I.I.; GAVRILOV, G.A.

Methodology for the measurement of the signal-noise ratio in photography. Usp.nauch.fot. 10:163-170 '64. (MIRA 17:10)

Function of the distribution of the number of developed grains and dependence of photographic noises on the optical density of blackening. Ibid.:171-174

BREYDO, I.I.

Properties of infrared photographic films. Izv. GAO 24 no.1:165-170 '64.

Photographic noise, signal-to-noise ratio, and the number of gradations reproduced by photographic materials. Ibid.:171-179 (MIRA 18:3)

L 36817-66 EWT(1)/T IJP(c)

ACC NR: AP6016939 (A) SOURCE CODE: UR/0077/66/011/001/0059/0060

55
B

AUTHOR: Breydo, I. I.

ORG: Main Astronomical Observatory, AN SSSR (Glavnaya astronomicheskaya observatoriya AN SSSR)

TITLE: Resolution and microphotometric graininess of infrared film

SOURCE: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, v. 11, no. 1, 1966, 59-60

TOPIC TAGS: IR photography, IR film, film grain, grain size, optic resolution, optic transmission

ABSTRACT: Data are given on the graininess and resolution of I-810, I-920, I-1030 and I-1070 infrared film developed by the Kazan Affiliate of NIKFI. The resolution was determined by exposure in the VNIIM resolvometer with an OS-16 apochromatic lens. The light source was an incandescent lamp with a red KS-14 light filter, an ultraviolet light filter (maximum transmission about 450 mμ) or without any filter (conventional white light). The results show that the resolution of these films in ultraviolet light is more than double the resolution in infrared light. A second series of measurements was made by the contact method to eliminate the effect of the objective lens. Although a blue filter with a somewhat wider transmission range was substituted for the ultra-

UDC: 771.537.61:771.537.32

Card 1/2

ACC NR: AP7001648 SOURCE CODE: UR/0033/66/043/004/0891/0893

AUTHOR: Broydo, I. I.

ORG: Main Astronomical Observatory, AN SSSR (Glavnaya astronomicheskaya observatoriya AN SSSR)

TITLE: New ORWO astronomical photographic plates

SOURCE: Astronomicheskiy zhurnal, v. 43, no. 4, 1966, 891-893

TOPIC TAGS: photographic material, astronomy

ABSTRACT: In 1965 the ORWO firm in the German Democratic Republic produced a new type of panchromatic photo plates for astronomy: ORWO Astro Spezial ZP-3. These are advertised as being four times more sensitive than the Astro ZP-1 plates produced by this firm. A detailed laboratory investigation of these new plates has been made at the Main Astronomical Observatory, where their light sensitivity and dependence of light sensitivity on exposure, spectral sensitivity, resolution and granularity were determined. The results are compared with ORWO Astro ZP-1 and Kodak 103aE. It was found that their sensitivity at low levels of illumination and with long exposures (50 minutes) is four times greater than ORWO ZP-1 plates and close to the sensitivity of Kodak 103aE plates. The new plates therefore are suitable for photographing faint celestial objects with

Card 1/2

UDC: 522.617.2

ACC NR: AP7001648

long exposures. However, their storage qualities are not particularly good. The spectral sensitivity of ZP-3 plates is maximum at λ = 675 mμ; they are good for photographic observations in red light, particularly in the H_α line and for spectral investigations in the red part of the spectrum and can replace Kodak 103aE plates. They are unsuitable for work in green light. The resolution is 70-75 lin/mm, that is, approximately the same as for other highly sensitive photo plates. Its granularity is less than the microphotometric granularity of Kodak 103aE plates. Orig. art. has: 1 figure and 1 table. [JPRS: 38,230]

SUB CODE: 14, 03 / SUBM DATE: 11Dec65 / ORIG REF: 003 / OTH REF: 001

Card 2/2 mc

BREYDO, I. S.

36420. K istorii razvitiya antiseptiki (1868-1880 GG). sov. vracheb. sbornik, vyp. 16, 1949, s 32-36

SO: Letopis' Zhurnal'nykh Statey, No. 49, 1949

BREYDO, I. S.

History of aseptic surgery in Russia (1888-1900). Vest. Khir. Grekova 70 no.4:53-59 1950. (CLML 20:1)

1. Of the Clinic of General Surgery, Leningrad Medical Institute imeni Academician Pavlov (Director -- A. M. Zabludovskiy).

BREYDO, I.S.

Ovarian rupture andacute appendicitis
Vest. khir. 72, no.4, 1952

BREYDO, I.S., kandidat meditsinskikh nauk

Chest surgery in foreign countries; survey of the "Journal of Thoracic Surgery" vols. 27 and 28, 1954. Vest.khir.75 no.9: 129-141 O '55. (MLRA 9:1)
(CHEST--SURGERY)

BREYDO, I.S., kandidat meditsinskikh nauk

Surgery schools of the Military Medical Academy. Vest. khir. 76 no.8:137-144 S '55. (MLRA 8:11)

1. Iz kafedry obshchey khirurgii (zav.--prof. V.I.Kolesov) 1-go Leningradskogo meditsinskogo instituta im. I.P.Pavlova, Leningrad, 7-ya Sovetskaya, d.7, kv.7.
(SCHOOLS, MEDICAL, hist.
schools of surg. in Russia)

BRUYDO, Isaak Samuilovich; MIKHAYLOV, S.S., redaktor; KHARASH, G.A., tekhnicheskiy redaktor

[History of antisepsis and asepsis in Russia] Istoriia antiseptiki i aseptiki v Rossii. [Leningrad] Gos. izd-vo med. lit-ry, Leningradskoe otd-nie, 1956. 194 p. (MLRA 9:11)
(SURGERY, ASEPTIC AND ANTISEPTIC)

BREYDO, I.S., kandidat meditsinskikh nauk (Leningrad, 7-ya Sovetskaya ul., d.7, kv.7); TSIVIN, S.S.

Acute appendicitis and extrauterine pregnancy; differential diagnosis. Vest.khir. 77 no.8:90-95 Ag '56. (MIRA 9:10)

1. Iz kliniki obshchey khirurgii (zav. - prof. V.I.Kolesov) 1-go Leningradskogo meditsinskogo instituta im. I.P.Pavlova (na baze bol'nitsy im. K.Marksa)

(APPENDICITIS, differ. diag.
extrauterine pregn.)
(PREGNANCY, ECTOPIC, differ. diag.
appendicitis)

BREYDO, I.S., kandidat meditsinskikh nauk

Surgery of the heart and large vessels in "The Journal of Thoracic Surgery" in 1955. Vest.khir. 77 no.11:141-150 N '56. (MLRA 10:1)
(CARDIOVASCULAR SYSTEM--SURGERY)

BREYDO, I.S.; SVISTUNOV, N.I.

High obliteration of the abdominal aorta. Zdrav. Bel. 5 no.5:58 My '59 (MIRA 12:8)

1. Iz khirurgicheskogo otdeleniya (zaveduyushchiy - P. A. Klindukhov) Leningradskoy bol'nitsy imeni S. Perovskoy (glavnyy vrach K. A. Shelomentseva).
(ABDOMINAL AORTA--DISEASES)

BREYDO, I.S.

Localized retroperitoneal lymphogranulomatosis. Vop. onk. 6 no.7: 94-96 Je '60. (MIRA 14:4)
(HODGKIN'S DISEASE) (RETROPERITONEAL SPACE--TUMORS)

BREYDO, I. S. (Leningrad)

Tuberculosis of the thyroid gland in combination with toxic goiter. Probl. endok. i gorm. 8 no.3:98-99 My-Je '62. (MIRA 15:6)

(THYROID GLAND—TUBERCULOSIS) (GOITER)

DRACHINSKAYA, Yelizaveta Semenovna; BREYDO, Isaak Samuilovich; GRIGOR'YEV, M.S., red.; LEBEDEVA, Z.V., tekhn. red.

[Surgery of the thyroid gland] Khirurgiia shchitovidnoi zhelezy. Leningrad, Medgiz, 1963. 233 p. (MIRA 16:4)
(THYROID GLAND--SURGERY)

PETROV, Yuriy Viktorovich; BREYDO, I.S., red.

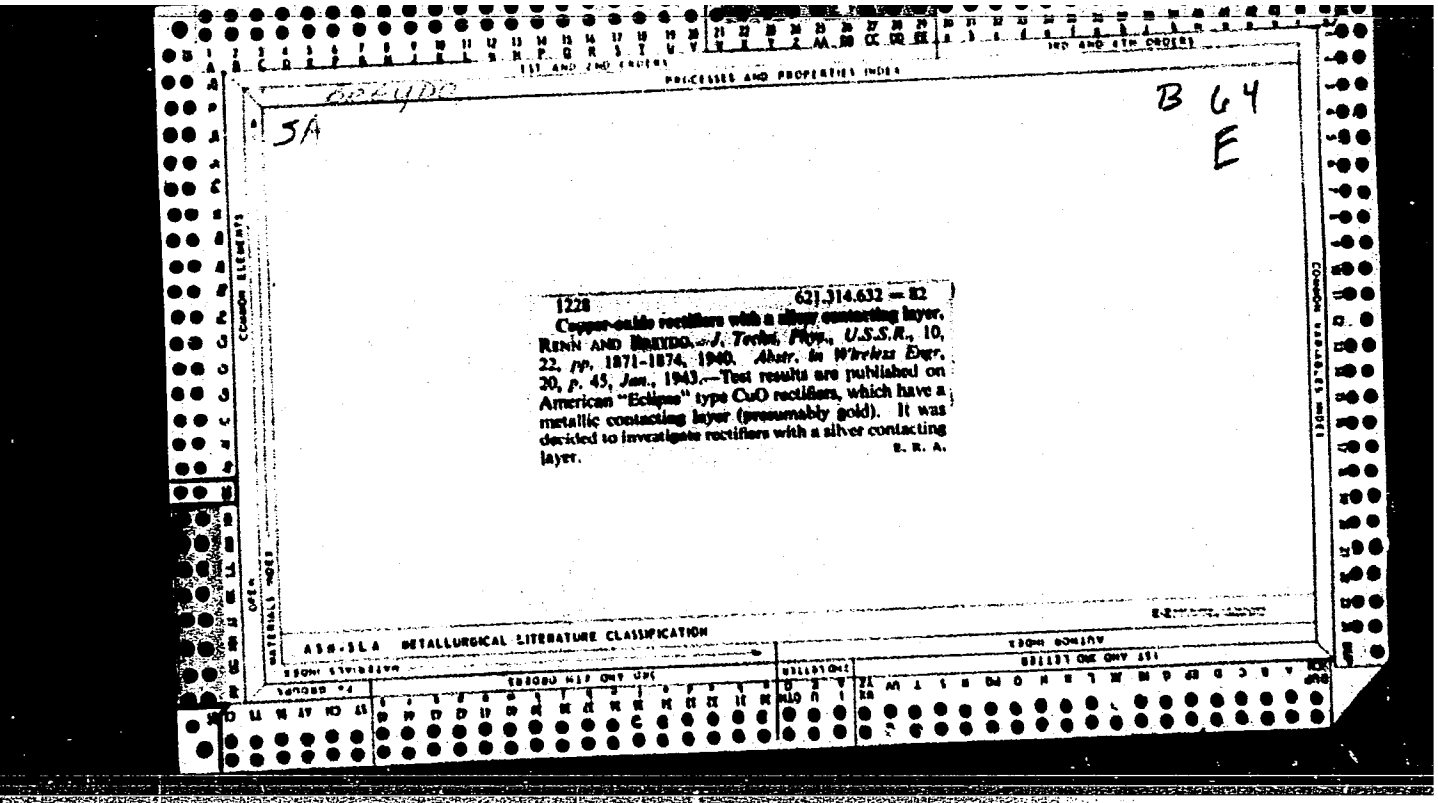
[Cancer of the breast; its diagnosis, clinical aspects and treatment] Rak molochnoi zhelezy; diagnostika, klinika, lechenie. Leningra , Meditsina, 1964. 207 p.

(MIRA 17:5)

BREYDO, I.S.

Amyloid goiter. Probl. endok. i gorm. 11 no.5:59-62 S-O '65.
(MIRA 19:1)

1. Khirurgicheskoye otdeleniye bol'nitsy zavoda "Bol'shevik" (glavnyy vrach V.N. Medved), Leningrad. Submitted May 13, 1964.



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1228 621.314.632 — 82

Copper-oxide rectifiers with a silver contacting layer. RENN AND BRAYDO. — *J. Techn. Phys., U.S.S.R.*, 10, 22, *pp.* 1871–1874, 1940. *Abstr. in Wireless Engr.*, 20, *p.* 45, *Jan.*, 1943.—Test results are published on American "Eclipse" type Cu_2O rectifiers, which have a metallic contacting layer (presumably gold). It was decided to investigate rectifiers with a silver contacting layer. E. R. A.

PA 19T105

BREYDO, I. Ya.

USSR/Amplifiers, Audio Frequency Dec 1946

"New Amplifiers," I. Ya. Breydo, Designer at Factory No 696, 4 pp

"Vestnik Svyazi - Elektro Svyaz'" No 12 (81)

Discusses two new type audio-amplifiers, type U-50 and type U-300-M, constructed by designers at Factory No 696 of the Electro-Acoustical Laboratory. Schematic diagrams and operating graphs are included. Both are Class 2 amplifiers, and are similar in operating and technical principles. There are three inputs, two microphone and one adapter. They operate on an alternating current of 50 cycles and 110, 127 and 220 volts.

19T105

BREYDO, I.

PA 51/49T85

USSR/Radio Jul 49
Public Address Unit

"The 'UK-50' Receiving-PA Unit," I. Breydo, Ye. Smetanina, 5 pp

"Radio" No 7

A factory of the Min of Communications Equipment Industries is producing the UK-50, a 50-watt receiving-PA unit, and the U-50, a low frequency amplifier. The UK-50 is designed to relay central radio broadcasts, transmit from the local studio, and reproduce phonograph records.

51/49T85

BREIDO, I.

155T94

USSR/Radio - Amplifiers

Jan 50

"Making Repairs on the U-50 (50-Watt) Amplifier," I. Breydo, 4 pp

"Radio" No 1

Gives most frequent causes of breakdowns and methods of repairing damaged or defective parts. Shows schematic diagrams of: (1) power unit and rectifier, and (2) amplification stages. Describes detailed procedure for assuring proper operation of all circuits of amplifiers.

[redacted]

155T94

BREYDO, I.

Radio tubes compute. Radio no.11:28-30 N '53. (MLRA 6:11)
(Electronic calculating machines)

BREYDO, I.

USSR/Electronics - Computers Dec 53

"Calculation with Vacuum Tubes, Part II," I. Breydo

Radio, No 12, pp 24-27

Discusses and gives circuit diagrams of decimal digital circuits such as decimal ring and binary-decimal types, special gas-filled multi-electrode tubes, circuits which carry out math operations. States computors make use of magnetic amplifiers, trigger elements with new ferromagnetics, crystal amplifiers, trigger circuits with three or more stable states, magnetostriction elements, and printed circuits. Part I is contained in Radio, No 11, 1953.

276T33

USSR/ Electronics - Tone control

Card 1/1 :Pub. 89 - 15/28

Authors :Breydo, I.

Title :Tone regulators

Periodical :Radio 1, 27-30, Jan 1954

Abstract :A few circuit-diagrams of tone controling devices are presented together with the frequency characteristics of the regulators. Diagrams; graphs.

Institution: .....

Submitted: .....

BREYDO, I.

USSR/Electronics - Triodes

Card 1/1

Author : Breydo, I.

Title : Application of Crystal Triodes

Periodical : Radio. 5, 42 - 46, May 1954

Abstract : Two main types of crystal triodes and their characteristics are described. One of these triodes is of a "point-contact" type, and the other of a "surface-layer contact" type. The article shows diagrams featuring the design of each of these types and describes their application in amplifier stages of receiver sets, and also their uses as generator-oscillators in feedback coupling systems, in multivibrators, and others. The article foresees the forthcoming mass production of the crystal triodes in the near future, in view of their advantages over the vacuum-tube type triodes. Eight diagrams in all are shown in this article.

Institution : ....

Submitted : ....

BREYDO, I.

New crystal triode. Radio no.8:20-22 Ag '54. (MLRA 7:8)
(Triodes)

USSR/ Electronics - Radio equipment

Card 1/1 Pub. 89 - 14/30

Authors : Breĭdo, I.

Title : Transistor generators

Periodical : Radio 3, 25 - 28, Mar 1955

Abstract : A technical description is given of the operation of oscillators or oscillation generators using transistors. The description covers the explanation of generators with resonance circuits, as well as those with inductive feedback and quartz stabilization, and RC generators, besides multivibrators and other technical features connected with the system. Diagrams.

Institution : .....

Submitted : .....

621.383.27(47) 2637

Commercial Types of Multistage Photomultipliers.—[illegible] Glukhovskoi [illegible] (Radiotekhnika i Elektronika, [illegible] 1956, Vol. 1, No. 10, pp. 1344–1356.) Description of Russian 'commercial' types with characteristic curves and tabulated data.

BRAYDO, I

Category : USSR/Electronics - Semiconductor Devices and Photoelements H-8

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4379

Author : Braydo, I.
Title : Photoelectronic Multipliers

Orig Pub : Radio, 1956, No 7, 26-29

Abstract : Popular article; basic data are given on photoelectronic multipliers produced by the Russian industry.

Card : 1/1

BREYDO, I.

Subject : USSR/Electronics AID P - 4922

Card 1/1 Pub. 89 - 6/17

Author : Breydo, I.

Title : Photoelectric multipliers

Periodical : Radio, 7, 26-29, Jl 1956

Abstract : The author describes multicascade photoelectric multipliers which were invented, as he writes, by L. A. Kubetskiy in 1930. He gives a theoretical explanation of the principles of operation and follows with two tables of specifications of some Soviet types. Eight diagrams and drawings.

Institution : None

Submitted : No date

Subject : USSR/Electronics AID P - 5024

Card 1/1 Pub. 89 - 9/14

Author : Breydo, I.

Title : Application of photoelectronic computers.

Periodical : Radio, #9, 42-45, S 1956

Abstract : The author enumerates and describes the various applications of photoelectronic computers. Seven drawings and diagrams.

Institution : None

Submitted : No date

BREYDO, I.Ya.

USSR/Nuclear Physics - Instruments and Installation
Methods of Measurement and Investigation. C-2

Abs Jour : Referat Zhur - Fizika, No 1, 1958, 301

Author : Leyteyzen, L.G., Glukhovskoy, B.M., Breydo, I.Ya.
Inst :
Title : Photomultiplier for Scintillation Gamma Spectrometers.

Orig Pub : Kirstallografiya, 1957, 2, No 2, 290-293

Abstract : Description of the results of plant tests of a large number of selected samples of FEU-29 photomultipliers. The choice was made with a count of the amplitude resolution, sensitivity of photocathode, and linearity. The amplitude resolution, measured for a photomultiplier paired with a NaI (Tl) crystal, when irradiated by a Cs^{137} compound, amounts on the average approximately to 9%, while measurements with the aid of a pulse gas-discharge illuminator give a resolution $\sim$ 5.3% and show that the crystal is responsible for a considerable portion of the spread of the

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USSR/Nuclear Physics - Instruments and Installations
Methods of Measurement and Investigation. C-2

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 301

amplitudes. The other parameters of the FEU-29 are as follows: integral sensitivity of the cathode, 40 microamperes per lumen; "blue" sensitivity of the cathode, 8 microamperes per lumen; gain (when operated as per specifications) 2×10^5; amplitude of noise pulses (in the energy expression relative to the NaI (Tl) crystal) ≤ 5 kev; linearity at $R_{heat} = 50$ kilohms and C_{wiring} ≤ 10 micromicrofarads -- up to 7 volts.

Card 2/2

BREYDO, I.Ya.; YANKIN, G.M.

Gas-discharge counting tubes. Radiotekhnika 12 no.2:65-70 F '57.
(MLRA 10:3)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im .A.S. Popova.
(Electron tubes) (Electronic calculating machines)

Breydo, I. Ya.

AUTHORS: Leyteyzen, L. G., Berkovskiy, A. G., Breydo, I. Ya., Glukhovskoy, B. M., Korol'kova, O. S., Tarasova, Ye. I. 48-12-15/15

TITLE: New Industrial Types of Photoelectron Multipliers (Novyye promyshlennyye tipy fotoelektronnykh umnozhiteley)

PERIODICAL: Izvestiya AN SSSR, Seriya Fizicheskaya, 1957, Vol. 21, Nr 12, pp. 1653 - 1659 (USSR)

ABSTRACT: At present the production and delivery of some new photoelectron-multipliers (FEV) worked out by the authors were begun on an industrial scale. They are shortly described here. 1.) The production of the special multiplier for the scintillation-spectrometers ФЭУ -29 was recently begun. It has a good amplitude-dissolving power which is guaranteed by the comparatively high sensitivity of the cathodes of the device. The integral sensitivity is higher than 30 μ A lm^{-1}, on the average 40 - 45 μ A lm^{-1}, the "blue" one is higher than 6 μ A ml^{-1} which corresponds to a quantum discharge of more than 9 % at $\lambda \approx$ 4000 Å. Besides the electron-optics at the entrance of the multiplier guarantees a good taking over of the electrons from the cathode to the dynode, as well as minimum losses in the first cascades. The amplitude of the noise, measured in relation to the photopeak of $Cs^{137} \rightarrow$ NaJ(Tl) on the 50

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impulse sec^{-1}-level, is not higher than 5 ÷ 8 keV. The light-characteristic is linear up to the amplitude of the initial impulse = 7 - 8 V at a load of about 50 kΩ and a parasitic capacity of $\leqslant$ 10pF, with the method of operation given in the pass filter of the device. The most important operation-parameter of any FEV is the stability. Most of the ФЭУ-29 under the usual conditions in the gamma-spectrometers work sufficiently stable. Experiments with dynodes of different alloys are now made for improving the stability. At the same time the influence of technological factors and the construction of dynodes upon the stability of the FEV is also experimentally investigated.

2.)FEV with enlarged cathode. According to the preliminary data these multipliers have the following average static parameters: integral sensitivity of the cathode 35 - 40 μ A lm^{-1}, the "blue" sensitivity - 7 μ A lm^{-1}. Amplification about $(2 \div 5).10^5$ at full voltage of 1400 - 1500 V. At much higher voltages it can attain 10^7. The density of the heat flow from the cathode on the average amounts to 5.10^{-15} Acm^{-2}.

3.) "Time"-FEV. Beside the "general" parameters the minimum scattering according to the time of passage of the "electron-parcel" through the multiplier in the case of a maximum steep front of the initial impulse is also demanded of it. After the modelling of

variants a system was found which guarantees good focusing of the electrons and minimum scattering of the time of flight. The calculations of the maximum time-of-flight gradient in this multiplier system with grid yielded a quantity of $4,4.10^{-10}$ sec (at a voltage of 100 V/cascade) which is 3 - 4 times less than in the multiplier-system H4646 (reference 3).

4.) The best ratio of the signal to the background in the wave-range of 5500 to 8000 Å is given by the bismuth-silver-cesium cathodes. The experimental samples of multipliers with such cathodes are produced in two sizes: that of the ФЭУ -29 and in a smaller size. The multipliers have 11 cascades. Their integral sensitivity of the cathodes on the average is 45 - 50 μ A lm^{-1}. The amplification is of the order of magnitude 10^5 - 10^6 at a full supply-voltage of 1400 - 1600 V. The smaller multiplier is distinguished by a great vibration-strength.

5.) The miniature-FEV. At present a construction was worked out for an eight-cascade-miniature-multiplier ФЭУ whose outside diameter is greater than 22,5 mm and whose height is 65 mm without peg. The flat, semi-transparent cathode of antimony-cesium has a working diameter of 18 mm. Its sensitivity is below 25 μ A lm^{-1}.

New Industrial Types of Photoelectron Multipliers 48-12-15/15

It guarantees an amplification up to 10^5 at a voltage of 900 - 100V. The dark currents are of the order of magnitude 10^{-8} A. There are 8 figures, and 3 references, 1 of which are Slavic.

AVAILABLE: Library of Congress

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BREYDO, I.

Useful beginning. Radio no.3:63 Mr '58.
(Radio--Study and teaching) (MIRA 11:3)

AUTHOR: Breydo, I.Ya.

107-58-6-43/58

TITLE: Decatron Scaler (Schëtnaya ustanovka na dekatronakh)

PERIODICAL: Radio, 1958, Nr 6, pp 48-51 (USSR)

ABSTRACT: The so-called "decatron", a special gas-discharge counter tube with a scaling factor of 10, is used in the decade scaler. This permits direct readings of the number of impulses. as compared to the binary scaler where the reading must be converted to the decimal system. The functioning of the decatrons was described in "Radio", 1953, Nr 12. Figure 1 g, shows the electrode system; an author's certificate was issued for this invention to G.M. Yankin and I.Ya. Breydo (Nr 101180, dated 17 July 1952). The decatron scaler described in this article uses decatrons produced by Soviet industry. Basically it is designed for the registration of ionizing radiation. It consists of a gas discharge counter block, "BGS2", 110x130x550 mm, and a scaling block, "PS-10^6", 420x300x320 mm. Figure 3 shows the circuit arrangement of these two blocks. Their weight is approximately 8 kg. Power consumption is 60 watts at 220 volts $\pm$ 10%. The device has a scaling factor of 10^6:1 and a counting capacity of 999,999 impulses. The resolving time

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Decatron Scaler

107-58-6-43/58

is around 20 microseconds. The maximum impulse counting speed is 50,000 impulses per second. The sencitivity (treshold) at the input of the gas-discharge tube block is about -0.5 volt. The sensitivity at the input of the scaling block is about +5 volts. For testihg, an impulse generator with 50 impulses per second is used. The minimum duration of countable impulses is two microseconds. The treshold depends to a certain degree on the impulse front. The decimal stage has a "YeG1" registering impulses at intervals of 120 microseconds, while, the remaining stages have "YeG2 tubes registering impulses at 300 microseconds intervals. There are 4 diagrams.

Card 2/2 1. Decatrons-Characteristics

AUTHORS: Breydo, I.Ya., Member of the Association
Yankin, G.M., Member of the Association

SOV/108-13-7-12/14

TITLE: Industrial Gas-Discharge Counting Tubes (Decatrons)
(Promyshlennyye gazorazryadnyye schëtnyye lampy (dekatrony))

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 7, pp. 80-86 (USSR)

ABSTRACT: The basic parameters and the constructional data of gas-discharge counting-tubes with cold cathode - the decatron, type YeG 1 and YeG 2 are described. The construction and technological factors are contradictory. Therefore, several varieties for the construction of the decatron and for its gas filling can be suggested. The construction described here was selected on the basis of considerations concerning production. In the process of transmission the short-termed increase of the positive potential at each subcathode at the expense of the current passing through its circuit after ignition plays an important part. This change of potential depends on the time-interval between the pulses and on the RC of the circuit. The conversion factor of the decatrons is, as the name implied, ten. The optimal regime of the decatron depends on the assumed circuit of the control system. A control system is

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Industrial Gas-Discharge Counting Tubes (Decatrons) SOV/108-13-7-12/14

described with the aid of which the velocity-limit of counting can be attained. The disadvantage of this device is its complicated feed circuit. A table shows the ratios of the counting velocity limits in the decatrons described here. The decatrons operate at a temperature of the surroundings of from -50° C to +60°C and at a relative moisture of 95-98% at +25°C ± 10°C. Decatrons are most in use in nuclear physics for various counting devices, among others also for multi-channel amplitude analyzers. There are 10 figures, 1 table, and 9 references, 2 of which are Soviet.

SUBMITTED: November 1, 1957

ASSOCIATION: Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (All-Union Scientific-technical Association for Radio Engineering and Electrical Communications im. A.S. Popov)

Card 2/2 1. Discharge tubes--Production 2. Gases--Applications 3. Discharge tubes--Circuits 4. Discharge tubes--Control systems

SOV/48-22-8-19/20

AUTHORS: Berkovskiy, A. G., ~~Breyde, I. Ya.~~, Glukhovskiy, B. M., Korol'kova, O. S., Leyteyzen, L. G., Tarasova, Ye. I.

TITLE: Data Concerning Industrial Photoelectronic Multipliers for Scintillation Spectrometers (Novyye dannyye o promyshlennykh tipakh fotoelektronnykh umnozhiteley dlya stsintillyatsionnykh spektrometrov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol.22, Nr 8, pp. 1005 - 1008 (USSR)

ABSTRACT: At the 7th All Union Conference on Nuclear Spectroscopy the basic features of new FEU (photoelectronic multiplier = FEM) types for spectrometry were communicated (Ref 1). In this paper the authors give new data on earlier developed FEM types, which are already in industrial production, and on new FEM's the development of which was terminated in 1957. In that year the mass production of the basic type of the spectrometers, the FEM-29 was started. As a result of the investigations, the types were arranged according to the voltages in the first cascades of the multipliers which guarantee a good amplitude

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resolution. As the problem arose whether it would be possible to produce spectrometers FEM with a better resolution, it was attempted to produce spectrometers FEM with multialkali cathodes (as, for example Sb-Na-K- or Sb-Na-K-Cs cathodes) (In figure 3 the characteristics of these cathodes are given). The FEM-24 went into series production in the last year (Ref 1). The authors carried out experiments with good prospects with a multiplying system with toroidal dynodes of Al-Mg-alloys. One of the new types of midget spectrometers FEM is described as follows: cathode diameter 25 mm, maximum socket diameter 34,5 mm, length 110 mm. For practical operation the multiplier is equipped with a high-resistance potentiometer. From the table can be seen that the resolution of these multipliers is of the same order as that of FEM-29. The basic features of the design of the FEM-31 are given in reference 3. The spectrometric resolution of the FEM-31 which was measured with a crystal with a diameter of 14 mm was within the limits of 8,5 - 11%. An FEM with a large cathode (diameter 300 mm) was developed for work with liquid synthetic scintillators. (Antimony-cesium cathode

Data Concerning Industrial Photoelectronic Multipliers for Scintillation Spectrometers

with a sensitivity better than 20μ A lm^{-1}, multiplier sensitivity at 2400 V better than 10 A lm^{-1}, teroidal dynodes of AMg K alloy). An FEM with a bismuth-silver-cesium cathode was described in reference 3. These multipliers give a good amplification. The amplitude resolution of 10 specimens of FEM with NaJ-(Tl)-crystal with a diameter of 20 mm and with Cs^{137} was within the limits of 12 - 14%.
There are 5 figures, 1 table, and 3 references which are Soviet.

25(1), 28(2) SOV/115-59-7-17/33

AUTHOR: Breydo, I.Ya.

TITLE: A Decatron Scaler With Preliminary Setting of the Counting Time or Pulse Number

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 7, pp 32-34 (USSR)

ABSTRACT: The author presents a brief description of a decatron scaler containing a unit for preliminary setting the counting time or a given number of pulses. The OG-5 decatrons used in this device are of Soviet series manufacture. The block diagram of the device is shown in fig.1. It will perform the following operations: 1) counting of pulses during an arbitrarily fixed time with manual start and stopping; 2) counting of pulses with automatic stopping after a given time has elapsed (pre-setting of time); 3) measuring of the duration of recording with automatic stopping when the given number of pulses has been stored (pre-setting of count). The principal operational circuit elements of the device are shown in fig.2. The upper part contains the six-decade counting unit; the counting capacity is 10^6-1. The lower circuits are used for presetting time and pulse number. The time setting unit has a range

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A Decatron Scaler With Preliminary Setting of the Counting Time or Pulse Number

of 1,000 seconds. The 50 cycle power network frequency is used for producing timing signals. Since the power frequency is kept constant in most industrial centers, it provides an adequate accuracy for most work to be conducted with devices of this kind. The author points out that a small systematic error is inevitable. It is caused at the output of each decatron by the pulse delay in regard to the last starting pulse entering the input. There are 1 block diagram, 1 circuit diagram and 10 references, 5 of which are Soviet and 5 English.

24(4), 24(2)

AUTHORS: Breydo, I.Ya., Tsirlin, Yu.A. and Shishova, L.N. SOV/51-7-1-13/27

TITLE: Determination of the Luminescence Energy Yield of Plastic Scintillators Subjected to γ-Rays (Opredeleniye energeticheskogo vykhoda lyuminestsentsii plastmassovykh stsintillyatorov pod deystviyem γ-luchey)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 1, pp 89-92 (USSR)

ABSTRACT: The luminescence energy yield, defined as the efficiency of transformation of the energy of recorded radiation into light energy, is perhaps the most important property of a scintillator. In practice the "technical" energy yield is measured; this is smaller than the true ("physical") energy yield due to absorption of scintillation light in the scintillator itself and in reflectors which are used to improve the light-collecting ability of the phosphor. The present paper described a determination of the energy yield of γ-luminescence of a plastic scintillator which was a solution of 2% terphenyl and 0.1% POPOP in polystyrene. The energy yield was measured for scintillations due to Compton electrons produced by γ-rays from Cs^{137}. To determine the energy yield the authors analysed pulses from a scintillation counter consisting of a photo-multiplier FEU-29 and a polished cylindrical scintillator of the above composition. The scintillator had a diameter of 30 mm and a height of 40 mm

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and it was attached to the photomultiplier cathode via a vaseline layer. The following equation was used to deduce the physical energy yield η from the height of pulses at the counter output:

$$V_{output} = (E_k \eta \alpha \bar{\varepsilon}_f M k / e c), \quad (1)$$

where E_k is the energy of Compton electrons, ε is the energy of the emitted photons (3.80 eV), α is the ratio of the technical to the physical light yield (α = 0.1-0.3), $\bar{\varepsilon}_f$ is the mean efficiency of the photomultiplier cathode in the scintillation spectrum (~0.125), M is the amplification factor of the photomultiplier (~7.9 x 10^6), e is the electron charge, c is the capacitance of the preamplifier input (of the photomultiplier anode) which was about 30 cm and k is the amplification factor of the main amplifier (400 ± 10). The value of

the physical energy yield η, determined from Eq (1), was found to be $(1.7 \pm 0.3) \times 10^{-2}$. Acknowledgment is made to A.P. Kilimov for supply of the scintillator samples and information on their optical properties. There are 2 figures and 15 references, 4 of which are Soviet, 1 translation from English into Russian, 9 English and 1 Swiss.

SUBMITTED: August 30, 1958

85863

9.6150 (3002, 3203)

S/048/59/023/012/008/009
B006/B060

AUTHORS: Berkovskiy, A. G., Breydo, I. Ya., Korol'kova, O. S., Leyteyzen, L. G.

TITLE: Some Characteristics of New Photoelectronic Multipliers

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol. 23, No. 12, pp. 1517 - 1519

TEXT: Two new types of photoelectronic multipliers ФЭУ-35 (FEU-35) and ФЭУ-29 (FEU-29), as applied to scintillation spectrometers, were worked out by the authors. Full particulars are given of FEU-35, less of FEU-29. The cathode diameter of FEU-35 is 25 and 34 mm for 108 mm length. To improve electron-optical properties of the input a focusing cylinder (cf. Fig.1) is applied. This cylinder permits better combination between the axial-symmetric inlet of the multiplier and the inevitably asymmetrical first cascade of the multiplier system. The new inlet system secures a good energy resolution. As much as 600 FEU-35 devices were checked for amplitude resolution (Fig.2) and for the amount of the energetic noise equivalent (Fig.3). Fig.4 illustrates the average

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Some Characteristics of New Photoelectronic Multipliers

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B006/B060

amplification and the sensitivity of the multiplier as well as the dependence of the dark current on the supply voltage. The linear dependence of the output signal amplitude on the γ-quantum energy is secured up to amplitudes of the magnitude 10 v for 50 kΩ and 10 pF. The sensitivity threshold is about $(6\text{-}8)\cdot10^{-12}$ lm for a resonance amplifier band width of 20 cycles and for a resonance frequency of 80 cycles. The second multiplier (FEU-29) suitable for γ-spectrometry has a cathode with the dimensions 38·48·190 mm. Its amplitude resolution is given with 7.5 - 10%. It exhibits an especially low noise level (1 - 2 kev) in the 50 imp/sec level. To test the stability of the photoelectronic multipliers under work conditions a special device was constructed, permitting measurement of the change with time of the Cs^{137} photopeak level by means of a NaJ(Tl)-crystal. This device consisting mainly of a one-channel analyzer is described. Fig. 5 presents the photo of one part of the record chart of the photopeak amplitude stability of Cs^{137} for 4 FEU-29 multipliers. The horizontal multiplying factor was 0.4% of the pulse amplitude, the vertical one was 30 minutes. Displacement with

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Some Characteristics of New Photoelectronic Multipliers

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B006/B060

time of the averaged photopeak amplitude as well as variations of the amount of amplitude through an average value may be recorded by this method. The last mentioned effect was between 0.3 and 1%. There are 5 figures.

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S/115/60/000/05/11/034
B007/B011

AUTHORS: Breydo, I. Ya., Ksenzhuk, N. K.

TITLE: Electronic Quick-operation Tachometer With Programing and Decatrons

PERIODICAL: Izmeritel'naya tekhnika, 1960, No. 5, pp. 17-20

TEXT: A description is given here of an electric pulse speedometer in which the recording of feeler pulses as well as the crystal frequency division occur with the aid of decatrons. The speedometer is provided with a programing system. It permits the automatic recording of pulses within a given period, and thereupon extinguishes the recording and begins a new recording period. It measures speeds of < 0.1 to $2 \cdot 10^4$ rpm with a maximum error of 10^{-2}%. The electronic block consists of the following assemblies shown in Fig. 1: input assembly, counter, timer, programing assembly, and feed assembly. The input assembly is shown in Fig. 2, the programing assembly in Fig. 4. The counter consists of decatrons. The circuits used in this system for the decatron starting had been described in the papers of Refs. 3, 4, 5. The counter consists

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Electronic Quick-operation Tachometer With Programing and Decatrons

S/115/60/000/05/11/034
B007/B011

of six cascades. The timer consists of a 10-kc quartz generator, a buffer stage, a multivibrator, and four frequency divider stages with decatrons. The mode of operation of the device is described and explained. The diagram of Fig. 5 shows the sequence of the control- and working pulses. It is pointed out that the speedometer described here can be utilized, apart from the rpm measurement, also for the frequency measurement up to 20-25 kilocycles, for counting the nonperiodic pulses (e.g., of a counter of nuclear particles) at $\tau \leq 50\mu$sec, as well as in production controls based on the count of the number of pieces. There are 5 figures and 5 references: 4 Soviet and 1 English.

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9.6150 (1nc/2705)
21.5301

21594
S/109/60/005/010/017/031
E033/E415

AUTHORS: Breydo, I.Ya., Glagolev, V.P., Glukhovskoy, B.M., Korol'kova, O.S. and Leyteyzen, L.G.

TITLE: Investigation of the Stability of Multi-Stage Photo-Electron Multipliers

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.10, pp.1698-1702

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

The stability of the output signal from a photo-electron multiplier depends on a number of factors: the voltage, the current, the time of operation and so on. The purpose of this article is to clarify the effects of these factors on multipliers with emitters of different materials. Since multipliers are widely used as scintillation counters, the multipliers were tested in a special set-up which approximated to operational conditions with crystals of NaJ(Tl) irradiated by Cs^{137} on the cathodes of the multipliers. Block diagrams of the test apparatus are given and the apparatus is described. The output current, which depends not only on the amplitude but also on the frequency of the

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Investigation of the Stability ...

pulses, i.e. on the intensity of irradiation of the crystal by γ-rays, was also monitored. The results show that there are two types of instability: 1) smooth change in the average value of the amplitude of the pulses over a period of time and 2) oscillation of the amplitude about a mean value, which shows as a scatter of the recorded points for a given curve. The deviation of the points is approximately 0.3 to 1% of the value of the output pulse. Early tests showed that the stability depended to a great extent on the previous history of the multiplier. The "settling-down" time is different for different specimens and for the same specimen the settling-down time on the first day can be very much longer than on following days. This "training effect" made investigation of individual specimens impossible and statistical tests on a number of multipliers were necessary. The results on 80 multipliers of the ФЭУ-35 (FEU-35) type with Sb-Cs cathodes and emitters are presented graphically by histograms of percentage change in pulse amplitude against numbers of multipliers for output currents of 0.1 to 2.5 microamps, 0.3 to 0.5 microamps and 0.55 to 6.0 microamps. The maxima of these distributions show

Investigation of the Stability ...

greater percentage change for larger currents. The results for 60 antimony-cesium cathode and emitter multipliers were similar. It is concluded that during the first hours of operation the stability is directly related to the output current and reduction in the current density improves the stability. The absolute maxima of the changes in the output current of the multipliers did not exceed published figures for multipliers with Al-Mg, silver-magnesium and antimony-cesium emitters. The settling-down time was found to be proportional to the output current. Tests on multipliers ФЭУ-24 (FEU-24) with aluminium-magnesium alloy emmiters showed that they also have appreciable settling-down time, but the output current has little effect on it, except that it is reduced with high currents. For example, a batch of multipliers with Al-Mg emitters and bismuth-silver-cesium cathodes had an average settling-down time of 10 to 20 min, after a rest-period of 12 hours with output currents of 20 to 30 microamps. To clarify the effect of activation by cesium on the stability of alloy emitters, a multiplier with a thermo-cathode was prepared. The stability of the emitter was checked directly in a vacuum with continuous pumping before and after cesiation. The relative

changes in the secondary emission coefficient for thermo-activation and for cesiation for one stage of a copper-beryllium alloy with 100 V and 0.3 mA output current are shown graphically. It is seen that the presence of cesium leads to an increase in both the settling-down time and also in the magnitude of the change in the secondary emission coefficient. There are 7 figures and 2 references: 1 Soviet and 1 non-Soviet.

SUBMITTED: December 21, 1959

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BREYDO, Isaak Yakovlevich; GRIBANOV, Yu.I., red.; BORUNOV, N.I., tekhn.red.

[Electron-tube d.c. signal amplifiers] Lampovye usiliteli signalov postoiannogo toka. Moskva, Gos.energ.izd-vo, 1961. 87 p. (Massovaia radiobiblioteka, no.384) (MIRA 14:6)
(Amplifiers (Electronics))

BREYDO, M., inzh.

Birth of an automatic machine. Tekh.mol. 28 no.9:5-7 '60.
(MIRA 13:10)

(Automatic control) (Household appliances)

BREYDO, M., inzh.

Fairy tale about five bears. Tekh.mol. 29 no.5:34-36 '61. (MIRA 14:5)

(Programming (Electronic computers)) (Stone cutting)

ACC NR: AP7003417 SOURCE CODE: UR/9040/66/000/012/0008/0009

AUTHOR: Breydo, M. (Inventor)

ORG: none

TITLE: Biocurrents and new machines

SOURCE: Izobretatel' i ratsionalizator, no. 12, 1966, 8-9

TOPIC TAGS: biocurrent, scientific research

ABSTRACT:

The author, designer of the first biomanipulator, describes prospects for the application of biocurrents in technology. He gives examples illustrating the possibilities of what he considers to be the prospective method. While acknowledging the great difficulties of creating universal machines, he writes that as bioelectric control is a Soviet creation, Soviet scientists should develop that progressive method. Orig. art. has: 1 figure.

SUB CODE: 06/ SUBM DATE: none/ ATD PRESS: 5112

Card 1/1 UDC: none

BREYDO, M.D.

The LP-5-3000 tape puncher for digital computers. Priborostroenie no. 3:4-5 Mr '61. (MIRA 14:3)
(Electronic digital computers)

L 8610-66 EWT(d)/EWP(1) IJP(c) BB/GG
ACC NR: AR5014365 SOURCE CODE: UR/0271/65/000/005/B057/B058

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika. Svodnyy tom, Abs. 5B422

AUTHOR: Breydo, M. D.; Goncharov, A. M.; Zheglova, N. V.; Zarnitsyn, G. D.; Kotel'nikov, I. V.; Moshkina, T. V.; Tarantovich, A. S.

TITLE: TEVM digital computer

CITED SOURCE: Tr. po vopr. primeneniya elektron. vychisl. mashin v nar. kh-va. Gor'kiy, 1964, 171-173

TOPIC TAGS: digital computer, industrial digital computer

TRANSLATION: The TEVM digital computer is intended for planning operation and route flowsheets on the basis of developed algorithms and for other functions connected with processing. The necessity of storing the characteristics of the product is a special feature of the machine; the volume of this information is rather large. The TEVM machine has three addresses and operates on a fixed-

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UDC: 681.142.343

L 8610-66
ACC NR: AR5014365

after-18-digit-point system. There are 48 digits in a word (one number or one instruction). An operation code takes 6 digits. Special routine also takes 6 digits; the balance is divided among the three addresses. The computer has 4 types of storage: (1) an internal magnetic storage for 512 words with an access time of 6 microsec; (2) an intermediate magnetic-drum storage for 1024 words with an average access time of 10 millisec; (3) a nonvolatile magnetic-drum storage for information readout with a capacity of 2048 words and an average access time of 10 millisec; (4) a magnetic tape of 100 000-word capacity. The working frequency of the computer is 25 kc; the synchronization depends on the magnetic drum. A total of 39 instructions can be carried out, and the average speed is 1500 operations per sec. The adder is of the trigger-register type with a high-speed carry, no shift. Data photo input reads from a telegraph tape; manual keyboard input is also provided. A 20-number-per-sec output uses a printer. The computer comprises 4000 transistors and takes 3 kw. It occupies an area of 15 m^2. Bib. 7, fig. 1.

SUB CODE: 09

Card 2/2 jrn

L 8249-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AR5014361 SOURCE CODE: UR/0271/65/000/005/B044/B044

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika. Svodnyy tom, Abs. 5B328

AUTHOR: Breydo, M. D.

TITLE: External devices of an industrial computer

CITED SOURCE: Tr. po vopr. primeneniya elektron. vychisl. mashin v nar. kh-ve. Gor'kiy, 1964, 182-186

TOPIC TAGS: computer, digital computer, industrial computer / TEVM computer

TRANSLATION: A 5-position telegraph-type punch tape is used as a principal carrier of information in a specialized industrial ("technological") digital computer; the tape can also be used as an external storage device. The output device set includes a printer (25 lines per second), an LP-5-3000 high-speed tape puncher, a device for automatic printing the information from the punch tape onto a document form and for transferring data from the tape onto standard punch cards. The printer control differs from the conventional in that it has no parallel static register; 10 internal-storage double-control cells are used instead. The industrial computer is suitable for joint operation with other computers and with analytical machines. Data transmission from the computer to a telegraph line

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UDC: 681.142.62

L 8249-66

ACC NR: AR5014361

is envisaged. Bib. 6, figs. 2.

SUB CODE: 09/ SUBM DATE: 00

Card 2/2

L 6305-66 EWT(d)/EWP(1) IJP(c) GG/BB

ACC NR: AP5026720 SOURCE CODE: UR/0141/65/008/005/1036/1039

AUTHOR: Breydo, M. D.

ORG: Scientific Research Physicotechnical Institute, Gorkiy University (Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut pri Gor'kovskom universitete)

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B

TITLE: Classification of objects by the generalized image method

SOURCE: IVUZ. Radiofizika, v. 8, no. 5, 1965, 1036-1039

TOPIC TAGS: recognition process, automaton

ABSTRACT: The problem of teaching automatons to recognize classes of objects is discussed. In a mathematical formulation, the classification problem consists in constructing the surfaces separating the given regions (classes) of an n-dimensional space from one another; the construction of such surfaces (separating functions) is possible only in the case of nonintersecting classes. The objects are described by n discrete k-valued functions of state. Recognition is accomplished by means of the minimum distance in the generalized metric space. The weight coefficients corresponding to all the coordinates are determined by statistical analysis of successive

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Card 1/2

UDC: 62-50

0901 1890

L 6305-66

ACC NR: AP5026720

input situations. To determine the teaching sequence, a certain function of the parameters and input situations is introduced.

SUB CODE: DP,MA/ SUBM DATE: 04Jan65/ ORIG REF: 003/ OTH REF: 000

Card 2/2 Rdl

BREYDO, M.G.; KOBRINSKIY, A.Ye.; BESSTRASHNOV, V.K.

Program control systems used in milling machines. Stan.i instr. 27 no.12:9-12 D '56. (MLRA 10:2)
(Milling machines--Numerical control)

BREYDO, M. G.

AUTHORS: Kobrinskiy, A. Ye., Breydo, M. G., Gurfinkel', V.S., Sysin, A. Ya., Tseytlin, M. L., Yakobson, Ya. S., 20-1-20/42

TITLE: A Bioelectric Control System (Bioelektricheskaya sistema upravleniya)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 1, pp. 78-8o (USSR)

ABSTRACT: At first something on the general situation of this problem is said. The authors of the present papers wanted to work out a bioelectric system, which according to a certain programme controls a mechanical servo drive. This programme was worked out in the form of oscillations of the bioelectric potential of the muscles. The possibility of realizing such a system is based on the results of different investigations in which the dependence of the oscillations of the bioelectric potential of a muscle on its functional condition was investigated. The results of these investigations briefly indicate the following: 1) The oscillations of the biopotential of a muscle are a constant and inalienable phenomenon of the stimulating process. 2) The penetration of the biocurrent always occurs before a shortening of the muscle. 3) There is an unequivocal relation between the amount of the biopotential and the tension developped by the muscle, this relation being approximately linear to the tension up to a certain

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A Bioelectric Control System.

20-1-20/42

level. An added diagram illustrates an oscillogram of the bio-currents which were deduced from different stretched finger-joint by applied electrodes. These deduced biocurrents develop by the total effect of the muscle fibres of a certain muscle and the numerous oscillations of the fibres of the adjacent muscles provide an additional noise-background. The first problem in the experiments with these complicated signals was the elimination of the informations on the orders from the central nervous system, which regulate the level of the tension of the muscle. As carrier of the useful information in the here discussed system only one parameter of the bioelectric system is used, that is efficiency. The authors hope for application of further parameters. The block scheme of the control system is illustrated by a graph and its function method briefly described. The system is constructed so that the biocurrents are deduced by two antagonal muscles at the same time. In the case of technical application it is well possible to connect a circuit with feed-black coupling into the wiring diagram of the control system, which circuit is based on the application of special, automatical transmitters. There are 2 figures, and 2 references, 1 of which is Slavic.

Card 2/3

A Bioelectric Control System.

20-1-20/42

ASSOCIATION: Institute of Mechanics of the AN USSR, Central Scientific Research Institute for the Construction of Artificial Limbs, Moscow State University imeni M.V.Lomonosov (Institut mashinovedeniya Akademii nauk SSSR. Tsentral'nyy nauchno-issledovatel'skiy institut protezirovaniya i protezostroyeniya, Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova)

PRESENTED: June 2o, 1957, by A.A.Blagonravov, Academician

SUBMITTED: June 19, 1957

AVAILABLE: Library of Congress

Card 3/3

. Breydo, M. G.

25(2) PHASE I BOOK EXPLOITATION SOV/2562

Akademiya nauk SSSR. Institut mashinovedeniya. Seminar po teorii mashin i mekhanizmov

Trudy, tom 17, vyp. 68 (Transactions of the Institute of Mechanical Engineering, Academy of Sciences, USSR. Seminar on the Theory of Machinery and Mechanisms, Vol 17 Nr. 68) Moscow, Izd-vo AN SSSR, 1958. 69 p. 3,000 copies printed.

Eds. of Publishing House: V.V. Pobedimskiy and M.M. Knoroz; Tech. Ed.: A.P. Guseva; Editorial Board: I. I. Artobolevskiy, Academician (Resp. Ed.); G.G. Baranov, Doctor of Technical Sciences, Professor; V.A. Zinov'yev, Doctor of Technical Sciences, Professor; A.Ye. Kobrinskiy, Doctor of Technical Sciences; V.T. Kostitsyn, Doctor of Technical Sciences, Professor (Deceased); N.I. Levitskiy, Doctor of Technical Sciences, Professor; N.P. Rayevskiy, Candidate of Technical Sciences; L. N. Reshetov, Doctor of Technical Sciences, Professor; and M.A. Skuridin, Doctor of Technical Sciences, Professor.

Card 1/5

PURPOSE: This collection of articles is intended for scientific research workers and engineers.

COVERAGE: This collection of articles deals with the following topics: balancing of rotors, the dynamics of a machine unit, program control of milling machines, vibration insulation for massive foundations, and electric drives with flywheels. No personalities are mentioned. References follow several of the articles.

TABLE OF CONTENTS:

The author presents methods in analytical and graphical form for exact determination of the magnitude and location of balancing weights in two planes. The methods are based on the assumed linear nature of vibrating systems. Mutually related vibrations of both supports are thus eliminated. These methods may be employed either with or without balancing machines.

means of this graph solutions for a unit of any power capacity can be obtained.

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