

SUSHKO, A.A. (Kiyev, Krasnoarmeyskaya ul., 90-a, kv. 53)

"Venous system of the human digestive tract" by F.P. Markizov.
Reviewed by A.A. Sushko. Arkh. anat. gist: i embr. 39 no. 12:108-
109 '60. (MIRA 14:2)

(ALIMENTARY CANAL—BLOOD SUPPLY)

(MARKIZOV, F.P.)

SUSHKO, A.A., dotsent

Functional anatomy of the lymphatic vessels of the normal and pathological liver. Vrach.delo no.11:84-91 N '62.

(MIRA 16:2)

1. Kafedra normal'noy anatomii (zav. - zasluzhennyi deyatel' nauki, prof. M.S. Spirov) Kiyevskogo meditsinskogo instituta.
(LYMPHATICS) (LIVER)

SUSHKO, Aleksandr Grigor'yevich; SHCHEGOLEVA, B. I., redaktor; KHOVANSKIY, I. P.,
tekhnicheskiiy redaktor

[Let us produce an abundance of agricultural products; a discussion
of books] Sozdadim obilie sel'skokhoziaistvennykh produktov; beseda
o knigakh. Moskva, Gos. biblioteka SSSR im. V. I. Lenina, 1956. 19 p.
(Bibliography--Agriculture) (MLRA 9:11)

SUSHKO, Aleksandr Grigor'yevich; SEMENOVA, V.A., redaktor; KHOVANSKIY, I.P..
tekhnicheskii redaktor

[Organizational and economic consolidation of collective farms, machine-tractor stations and state farms; a recommended reading list] Organizatsionno-khoziaistvennoe ukreplenie kolkhosov, MTS i sovkhosov; rekomendatel'nyi ukazatel' literatury. Moskva, Gos. biblioteka SSSR im. V.I.Lenina, 1956. 60 p. (MIRA 10:2)

(Bibliography--Collective farms)

(Bibliography--State farms)

(Bibliography--Machine-tractor stations)

VADIKOVSKAYA, Lyudmila Mikhaylovna; DONSKAYA, Galina Kupriyanovna;
OSLIKOVSKAYA, Ye.S., kand.ekon.nauk, nauchnyy red.; SEMENOVA,
V.A., red.; SUSEKO, A.G., red.; KHOVANSKIY, I.P., tekhn.red.

[Agriculture] Sel'skoe khoziaistvo. Moskva. (Biblioteka samo-
obrazovaniia) Vol.1. [The economics and organization of
socialist agriculture in the U.S.S.R.; a bibliography] Ekonomika
i organizatsiia sotsialisticheskogo sel'skogo khoziaistva v SSSR;
rekomendatel'nyi ukazatel' literatury. Nauchnaia red. E.S. Osl-
kovskoi. 1957. 102 p. (MIRA 12:4)

(Bibliography---Agriculture)

SUSHKOV, Akin Ivanovich; TROITSKIY, Ivan Alekseyevich

[Metallurgy of aluminum] Metallurgiya aluminia. Moskva, Metallurgiya, 1965. 518 p. (MIRA 184)

SUSHKO, A.M.; YEMEL'YANENKO, Z.A.

Mercurometric determination of table salt in food products.
Soob.Prim.otd.VKHO no.3:73-77 '57. (MIRA 13:6)

1. Kafedra khimii Dal'nevostochnogo tekhnicheskogo instituta
rybnoy promyshlennosti i khozyaystva.
(Salt) (Mercury nitrate) (Food--Analysis)

SUSHKO, A.M.; YEMEL'YANENKO, Z.A.

Tryptic activity of the sperm whale pancreas. Soob.Prin.
otd.VKHO no.3:135-144 '57. (MIRA 13:6)

1. Kafedra khimii Dal'nevostochnogo tekhnicheskogo instituta
rybnoy promyshlennosti i khozyaystva.
(Trypsin) (Pancreas) (Whales)

SUSHKO, A.Ye.

Selecting rated parameters in designing low-pressure axial-flow hydraulic turbines. Trudy Lab. gidr. mash. AN SSSR no. 11:116-128 164.
(MIRA 17:10)

SUSHKO, F.K.

Preventing loss of alcohol in wine industry.
Sushko (Champagne containing alcohol) ~~is~~
industrial process of wine the amount of alcohol (together
with CO₂) is as high as 0.4-1 vol. %. To prevent this loss
of alc. a special installation of industrial facilities has been
developed; its schematic representation and description are
given.
E. Witwicki

DRUGICHENKO, S.K., vrach (selo Chernече-Sloboda Sumskoy oblasti);
SUSHKO, G.A., fel'dsher (selo Chernече-Sloboda Sumskoy oblasti)

Remarks on rural health education work. Fel'd. i akush. 21 no.8:
51-52 Ag '56. (MIRA 9:10)
(HEALTH EDUCATION)

SUSHKO, G. V.

PA 195T56

USSR/Metals - Steel, Casting

May 51

"Concerning Selection of the Electric-Furnace Process in Melting Steel for Shaped Castings," I. R. Kryazin, G. V. Sushko, Engineers, ZENITMASH (Cen Sci Res Inst of Technol and Mach Bldg)

"Izleye Proizvod" No 5, pp 2-6

Analyzed data of 270 production heats and conducted 30 exptl melts in comparative investigation of basic and acid processes of melting carbon steel for shaped castings. Graphs and table show results. High fluidity of acid steel

195T56

USSR/Metals - Steel, Casting (Contd) May 51

permits production of thin-walled castings of intricate shape. General conclusion is that steel, made by acid process in elec-arc furnace, has considerable advantages over steel melted by basic process.

195T56

DEMIN, Anatoliy Ivanovich [D'omin, A.I.]; PILIPENKO, Yuriy Petrovich [Pylypenko, IU.P.]; KIREYEV, Vasiliy Petrovich [Kyr'ieiev, V.P.]; SUSHKO, I.S., red.; BERMAN, Z.G. [Berman, Z.H.], tekhn. red.

[Repair of tractors and automobiles; manual for secondary schools]
Remont traktoriv i avtomobiliv; pidruchnyk dlia seredn'oi shkoly.
Kyiv, Derzh. uchbovo-pedagog. vyd-vo "Radians'ka shkola," 1960. 291 p.
(MIRA 14:11)

(Motor vehicles—Maintenance and repair)

SUSHKO, I.S., aspirant

Comparative effectiveness of milking parlors. Mekh. sil'. hosp.
14 no.4:26-28 Ap 63. (MIRA 16:10)

1. Ukrainskaya sel'skokhozyaystvennaya akademiya.

KULIK, Nikolay Alekseyevich [Kulyk, M.O.]; MEL'NIKOV, Dmitriy Ivanovich;
RODNYANYI, Mikhail Ivanovich [Rodnianyi, M.I.]; SUSHKO, I.S., red.;
YEROSHENKO, T.G. [Eroshenko, T.H.], tekhn. red.

[Laboratory and practical work with tractors and motor vehicles]
Laboratorno-praktychni zaniattia z traktoriv i avtomobiliv. Kyiv,
Derzhsil'hospvydav URSR, 1961. 234 p. (MIRA 15:7)
(Tractors) (Motor vehicles)

TYULENEV, N.A., doktor sel'khoz. nauk, prof., otv. red.;
ALPAT'YEV, S.M., kand. sel'khoz. nauk, otv. red.;
LAPA, I.Z., kand. sel'khoz. nauk, red.; MOZHINSKIY,
K.P., kand. tekhn. nauk, red.; RUTKOVSKIY, B.I., kand.
tekhn. nauk, red.; SAMOKHVALENKO, S.K., kand. sel'khoz.
nauk, red.; ORLOVA, N.A., kand. tekhn. nauk, red.;
MOKLIYAK, V.I., kand. tekhn. nauk, red.; SUSHKO, I.S., red.

[Materials of the Joint Conference of Young Scientists in
the Field of Melioration and Hydraulic Engineering] Materialy
ob"edinennoi nauch. - tekhnicheskoi konferentsii molodykh na-
uchnykh rabotnikov v oblasti melioratsii i gidrotekhniki.
Kiev, Urezhai. Nos. 1 - 2. 1964. (MIRA 18:3)

1. Ob"yedinennaya konferentsiya molodykh nauchnykh rabotnikov
v oblasti melioratsii i gidrotekhniki, Kiev, 1963. 2. Chlen-
korrespondent AN Ukr.SSR (for Tyulenev).

AKIMOV, V.S.; SOBOLEV, B.A.; SUSHKO, L.G.

Redistribution of the feed of a solvent and recirculation
filtrate in the dewaxing of raffinate. Nefteper. i neftekhim.
no. 4:14-17 '64. (MIRA 17:5)

1. Ufimskiy neftepererabatyvayushchiy zavod im. XXII s"yezda
Kommunisticheskoy partii Sovetskogo Soyuza.

TILICHENKO, M.N.; ABRAMOVA, M.A.; YEGOROVA, M.Ye.; NOVOKRESHCHENOVA, N.S.;
SUSHKO, L.I.

New insecticides against fleas. Med.paras.i paraz.bol. no.5:614-
616 '61. (MIRA 14:10)

1. Iz laboratoriya organicheskoy khimii Saratovskogo gosudarstvennogo
universiteta imeni N.G. Chernyshevskogo, kafedry biokhimii Sara-
tovskogo meditsinskogo instituta i Nauchno-issledovatel'skogo insti-
tuta "Mikrob."

(INSECTICIDES)

(FLEAS)

(ACRIDINE)

SUSHKO, M.P., agronom-entomolog (Samarkand)

Biology and ecology of the weevil *Perieges bardus* Bohem. in the
dryfarming area. Zashch.rast.ot vred.i bol. 4 no.3:35-36
My-Je '59. (MIRA 13:4)
(Soviet Central Asia--Grain--Diseases and pests)
(Weevils)

VOYEVODIN, A.V.; SUSHKO, M.P., agronom-entomolog; GIBEL', L.Ya., agronom
po zashchite rasteniy (g.Nal'chik)

Comments on our articles. Zashch. rast. ot vred. i bol. 6
no.5:12-13 My '61. (MIRA 15:6)

1. Vsesoyuznyy institut zashchity rasteniy (for Voyevodin).
(Plants, Protection of)

SUSHKO, M.T.

First achievements of a young collective. Elek. i tepl. tiaga
no.6:25-26 Je '57. (MLRA 10:8)

1. Nachal'nik 2-go uchastka energosnabzheniya Ufimskoy dorogi.
(Railroads--Maintenance and repair)

SUSHKO, N.

We put up electric lines in rural areas the year round. Sel'.
stroj. 16 no.9:20-21 S '61. (MIRA 14:9)

1. Glavnyy inzhener Kurskogo oblastnogo upravleniya Sel'elekt-
rostroya. Sel'. stroj. 16 no.9:20-21 S '61. (MIRA 14:9)
(Kursk Province--Rural electrification)

SUSHKO, N., general-mayor, kand. filosofskikh nauk

Marxist-Leninist philosophy, the spirit of Soviet military science
and practice. Komm. Vooruzh. Sil 46 no.16:9-17 Ag '65.

(MIRA 18:8)

SUSHKO, N.G.

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S/560/61/000/011/007/012
E027/E635

AUTHORS: Zhukov-Verezhnikov, N.N., Mayskiy, I.N.,
Yazdovskiy, V.I., Pekhov, A.P., Gyurdzhian, A.A.
Nefed'yeva, N.P., Kapichnikov, M.M., Podoplelov, I.I.,
Rybakov, N.I., Klemparskaya, N.N., Klimov, V.Yu.,
Novikov, S.N., Novikova, I.S., Petrov, R.V.,
Sushko, N.G., Ugryumov, Ye.P., Fedorova, G.I.,
Zakharov, A.F., Vinogradova, I.N., Chamova, K.G.
and Buyko, Ye.A.

✓

TITLE: The results of the first microbiological and
cytological experiments in Space in Earth satellites

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli.
no. 11. Moscow, 1961. Rezul'taty nauchnykh
issledovaniy, provedennykh vo vremya poletov vtorogo
i tret'yego kosmicheskikh korabley-sputnikov, 44 - 67

TEXT: The authors report the results of their investigations
of biological objects which had been exposed to space conditions
in satellite vehicles. The first part of the work was devoted
to a study of the survival of cells of differing levels of
organisation under the influence of radiation and other
Card 1/5

11

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EO27/E635

The results of the ---

unfavourable factors, in comparison with control materials which remained in the laboratory over the same period. In experiments with bacteria 2ml. samples of suspensions of Escherichia coli, Aerobacter aerogenes, Staphylococcus aureus and Clostridium butyricum containing 500 million organisms or spores per ml. were sealed in ampoules, and exposed to a space flight of unstated duration; the number of viable individuals after the exposure did not differ significantly from the values for the control samples. A similar experiment was carried out with the T2 phage of E. coli and the 1521 phage of A. aerogenes, which were sent in the second satellite; again, no significant reduction in the titre of the phage preparations could be detected after return from space. Similar results were obtained with preparations of phage sent into space in the fourth and fifth satellites. Two bottles and six tubes of HeLa cells, some of which were saturated with oxygen, were exposed to space flight

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E027/E635

The results of the . . .

conditions, after it had first been shown that vibration and acceleration did not detach the cells from the glass. The cultures without oxygen appeared normal on return, whereas in those exposed to oxygen most of the cells had degenerated. Subculture showed that 10% of the cells, whether detached from or remaining on the glass, were dead; however, two tubes gave good growth, and the cells which grew up showed no abnormalities of morphology. No antigenic differences could be detected in the cells in anaphylaxis and desensitization experiments in guinea-pigs. In subsequent space flights fibroblast and human amnion cell cultures were studied, with similar results. Pieces of human and rabbit skin were also used. On August 12th 1960 two pieces of skin 2.5 x 3.5 cm. in size and 0.5 mm. thick were taken from a human donor, placed in Hanks solution and sent into space in the second satellite. On recovery they were regrafted on the original site in the donor and became firmly attached after seven days.

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E027/E635

The results of the ---

Similar results were obtained with two other donors. An apparatus was devised for making a subculture in space, in order to study the ability of bacteria to multiply under space conditions. In experiments with *Glostridium butylicum* no deviations from the controls were observed. The second part of the work was devoted to a study of possible genetic effects brought about by exposure to space conditions, mainly by looking for the production of auxotrophic mutants and lysogeny in bacteria. The former were detected by inoculation on a layer of minimal medium which was then covered with an overlay of the same medium in order to fix the colonies. When the latter had grown up their position was noted and an overlay of complete medium was then put on, and the colonies which then grew up as a result of the diffusion of essential nutrients were selected as auxotrophic mutants. No such mutants could be found in suspensions of *Escherichia coli* recovered from the second satellite. The experiments on the induction of lysogenic bacteria were carried out on a strain of *E. coli* lysogenized by a λ phage which had been exposed to cosmic

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The results of the ---

S/560/61/000/011/007/012
E027/E635

radiation in the fifth satellite. Free phage particles were removed by adding phage antiserum; after the end of the latent period the action of the antiserum was cut short by diluting 1:100, streptomycin was added to inhibit the host organisms, and the mixture was plated out on the indicator strain in order to count the phage particles produced. The results obtained, considered in comparison with control experiments, provided no evidence of induction by cosmic radiation during a space flight of ninety minutes. No difference was observed in the plaque morphology. No changes could be detected in the chemical and physical properties of calf thymus deoxyribonucleic acid recovered after a space flight. The results as a whole indicate that no damage was suffered by isolated cells during a brief exposure to space conditions. There are 6 figures and 10 tables.

SUBMITTED: May 23, 1961

Card 5/5

L-20125-65 ENG(J)/EWT(m) Pb-4 SSD/ANWL/AMD

S/0299/64/000/006/M022/M022

ACCESSION NR: AR4039383

SOURCE: Ref. zh. *Biologiya*, Abs. 8M132

AUTHOR: Kapichnikov, M. M.; Sushko, N. G.; Skryzhina, E. G.; Surova, N. G.

TITLE: Biological evaluation of preserved bone marrow viability in an experiment

CITED SOURCE: Sb. III Vses. konferentsiya po peresadke tkaney i organov, 1963. Yerevan, 1963, 202-203

TOPIC TAGS: rat, bone marrow, preserved bone marrow, viability, radiation exposure, radioprotective agent

TRANSLATION: Methods and results of investigating the viability and biological activity of bone marrow preserved at a temperature ranging from +3 to -50 are presented. With supravital staining and luminescent microscopy it was established that the number of live bone marrow cells preserved for periods of 5, 10, and 15 days corresponds to 73, 52, and 29% respectively. In rats irradiated with 600 r,

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L 20125-65

ACCESSION NR:~ AR1039383

70-75% of the cells survived with intravenous administration of
isologous bone marrow preserved for 1 week. 0

SUB CODE: LS

ENCL: 00

Card 2/2

SUSHKO, N.G.

Use of liquid media for the preservation of tissue. Biul.
eksp. biol. i med. 54 no.9:118-121 S '62. (MIRA 17:9)

1. Iz laboratorii po izucheniyu biologicheskoy nesovmestivosti
tkaney (zav. - kand. med. nauk M.M. Kapichnikov) Instituta
eksperimental'noy biologii (dir.- prof. I.N. Mayskiy) AMN SSSR.
Predstavlena deystvitel'nym chlenom AMN SSSR N.N. Zhukovym-
Verezhnikovym.

SUSHKO, N.G.; MEYERSON, Ye.M.; GAKEL', V.R.

Effect of deepfreezing on grafting and antigenic activity of skin
homotransplantates. Dokl. AN SSSR 162 no.5:1198-1200 Je '65.
(MIRA 18:7)

1. Institut eksperimental'noy biologii AMN SSSR; Tsentral'nyy in-
stitut travmatologii i ortopedii Ministerstva zdravookhraneniya SSSR
i Institut fizicheskikh problem AN SSSR. Submitted March 17, 1965.

L 39872-66 - GD-2

ACC NR: AP6018145

SOURCE CODE: UR/0020/65/162/005/1198/1200

AUTHOR: Sushko, N. G.; Meyerson, Ye. M.; Galkel', V. R. ^{10B}

ORG: Institute of Experimental Biology, AMN SSSR (Institut eksperimental'noy biologii AMN SSSR); Central Institute of Traumatology and Orthopedics, Ministry of Health SSSR (Tsentral'nyy institut travmatologii i ortopedii Ministerstva zdravookhraneniya SSSR); Institute of Physical Problems AN SSSR (Institut fizicheskikh problem AN SSSR)

TITLE: Influence of deep freezing on the grafting and antigenic activity of skin homotransplants ²²

SOURCE: AN SSSR. Doklady, v. 162, no. 5, 1965, 1198-1200

TOPIC TAGS: rabbit, skin physiology, blood circulation

ABSTRACT: The viability of rabbit skin, exposed for one day to a medium containing 15% glycerin or 10% dimethyl sulfoxide, then frozen in dry ice, liquid nitrogen, or liquid helium, was determined according to its survival after autotransplantation. The state of the homotransplants of frozen skin was determined according to the periods of restoration and the disturbance of blood circulation in them. The autotransplants treated by various methods proved viable and in most cases gave true and permanent grafts. However, homotransplants, subjected to freezing, as a rule, died on the ninth to 13th day. Repeated homotransplants from the

Card 1/2

SUSHKO, N.I.

Modernization of the equipment and mechanization of labor-consuming work at the Krasnoyarsk hydrolysis plant. Gidroliz i lesokhim. prom. 13 no.2:14-15 '60. (MIRA 13:6)

1. Krasnoyarskiy gidroliznyy zavod.
(Krasnoyarsk--Hydrolysis)
(Wood--Chemistry)

SUSHKO, N. YA.

Shilo, S.

I.V. Stalin's fight against the reactionary socio-political views of the anarchists
in 1906-1907 (in Ukrainian). S. Shilo. Reviewed by N.Ya. Sushko. Sov. kniga No. 3, '53.

Monthly List of Russian Acquisitions, Library of Congress
June 1953. UNCL.

SUSHKÓ, P.V.

Chemistry - Societies

The third anniversary of the school chemical society "Young Chemist." Khim. v shkole no. 2, 1952.

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

Синтез, V.

Halogens

Apparatus for obtaining halogens. Khim. v. shkole, no. 3, 1952

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

SUSHKO, P.V. (g. Sverdlovsk)

Excursions to chemical plants. Khim. v shkole 9 no.3:40-43 My-Je '54.
(MIRA 7:6)
(Industrial tours) (School excursions)

SUSHKO, P.V. (Sverdlevsk)

Reference book for the teacher and the student ("Reader on chemistry"
Part 1. K.IA.Parmenov and L.M.Smorgenskii. Reviewed by P.V.Sushko).
Khim. v shkole 11 no.4:75-76 J1 '56. (MIRA 9:9)
(Chemistry--Study and teaching)(Parmenov, K.IA.)
(Smorgenskii, L.M.)

SUSHKO, S.I., mayor meditsinskoy sluzhby; GRESSEL', M.A., mayor meditsinskoy
sluzhby

Treatment of chronic gastritis and peptic ulcer with Saki mineral
water. Voen.-med. zhur. no.7:81 J1 '61. (MIRA 15:1)
(STOMACH DISEASES) (MINERAL WATERS)

LATSINIK, Ye.Ya., prof.; SUSHKO, S.R.; FILONOVSKAYA, M.G.; ISKOL'D, G.Z. (Odessa)

Diagnosis and clinical aspects of salmonellosis caused by
Heidelberg and London bacteria. Vrach.delo no.2:143-147
F '59. (MIRA 12:6)

1. Gorodskaya infektsionnaya bol'nitsa.
(SALMONELLA)

LATSINIK, Ye.Ya., prof.; SUSHKO, S.R. (Odessa)

Study of the effectiveness of compound and combined drug and antibiotic therapy in chronic dysentery. Vrach.delo no.3:267-271 Mr '59. (MIRA 12:6)

1. Gorodskaya infektsionnaya bol'nitsa.
(DYSENTERY) (ANTIBIOTICS) (PHTHALANILIC ACID)

IATSINIK, Ye.Ya., prof.; SHARAPOVA, O.K.; SUSHKO, S.R.; MAZUR, D.Ye.;
SOTNICHENKO, L.A.

Peculiarities in the clinical aspects of the pandemic influenza
of 1957. Vrach.delo no.3:287-289 Mr '60. (MIRA 13:6)

1. Gorodskaya infektsionnaya bol'nitsa, Odessa.
(ODESSA--INFLUENZA)

LATSINIK, Ye.Ya., prof.; SUSHKO, S.R.; SOTNICHENKO, L.A. (Odessa)

Some characteristics of the course of dysenterial peritonitis.
Klin.med. 39 no.3:62-65 Mr '61. (MIRA 14:3)

1. Iz Gorodskoy infektsionnoy bol'nitsy (glavnyy vrach L.T.
Zhidovlenko). (DYSENTERY) (PERITONITIS)

L-57125-65 EFP(c)/EPA(s)-2/EWT(n)/EWP(b)/EWP(t) Pr-4/Pt-7 IJP(c) JD/JG

ACCESSION NR: AP5014598

UR/0181/65/007/006/1877/1878
73
42
5AUTHOR: Sidorov, V. I.; Shul'man, A. Ya.; Sushko, T. Ye.TITLE: The influence of the electric field on the longwave edge of impurity photoconductivity of germanium alloyed with zinc and mercury 21

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1877-1878

TOPIC TAGS: impurity photoconductivity, germanium impurity photoconductivity, impurity center, photoconductivity

ABSTRACT: The impurity photoconductivity of Ge:Zn:Sb p-type (level 0.09 ev, $N_{Zn} \sim 10^{15} \text{ cm}^{-3}$) and Ge:Hg (level 0.087 ev, $N_{Hg} \sim 10^{14} \text{ cm}^{-3}$) specimens was measured at the temperatures of liquid helium and solid nitrogen for different electric field intensities. The position and shape of the longwave edge of impurity photoconductivity were found to depend on the applied electric field. An increased electric field caused a shift in the longwave boundary to the side of smaller energies and changed the shape of the curve. The shift of the boundary was linked with the lowering of the potential barrier of the impurity center resulting from the application of the electric field. Experimental data show that in a range of fields from 2 to 100 v/cm the boundary shift, taken along the 0.5 level, can be expressed as

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I 57125-65

ACCESSION NR: AP5014598

$$\Delta \epsilon_{\text{ph}} = -A^2 \sqrt{\frac{Ze^3}{\chi}} E.$$

where the constant $A \approx 3$, Z is the charge number of the impurity center, χ is the dielectric constant, E is the intensity of applied field, and e is the electron charge. In addition to the shift of the longwave boundary in the Ge:Zn:Sb specimen at helium temperature, a photosensitivity peak appeared at energies of 0.075—0.078 eV. It is assumed that this peak is associated with the excited states of Zn^- . Orig. art. has: 2 figures. [JA]

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR, Moscow (Institute of Radiotechnology and Electronics, AN SSSR)

SUBMITTED: 13Jan64

ENCL: 00

SUB CODE: EM, SS

NO REF SOV: 001

OTHER: 002

ATD PRESS: 4036

Card 2/2

L 04668-67	EWT(1)/EWT(m)/T/EWT(t)/EWT	IJI(c)	JD
ACC NR: AP6024459	SOURCE CODE: UR/0181/66/008/007/2022/2024		
AUTHOR: <u>Sidorov, V. I.; Sushko, T. Ye.; Shul'man, A. Ya.</u> 50 48 B			
ORG: <u>Institute of Radio Engineering and Electronics, AN SSSR, Moscow (Institut radio-tehniki i elektroniki AN SSSR)</u>			
TITLE: Investigation of <u>optic absorption in germanium doped with zinc</u> and compensated with <u>antimony</u> 21 21			
SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2022-2024			
TOPIC TAGS: optic absorption, germanium semiconductor, impurity center, excited state, ionization			
ABSTRACT: This a continuation of earlier work (FIT v. 6, 3294, 1964 and preceding) where it was shown that the electrophysical photoelectric characteristics of germanium doped with zinc and compensated with antimony (Ge:Zn:Sb) depends strongly on the concentration of the Zn ⁻ centers. The present investigation was aimed at determining the influence of the impurity concentration on the optical properties of Ge:Zn:Sb. The Zn ⁻ concentration was varied from 1.4×10^{14} to $3 \times 10^{16} \text{ cm}^{-3}$. The investigation of the absorption was in an optical helium cryostat. The impurity optical absorption was measured by first passing monochromatic light through the investigated sample onto an infrared receiver, and then applying the light to the receiver without the sample. The results showed an appreciable growth of the coefficient of impurity absorption at $h\nu > .75 \text{ Mev}$, with two maxima on the curves, corresponding to the transition of the			
Card 1/2			

SUSHKO, V.; SIMONOVA, L.

Urgent descent of the Il-18 airplane. Grazhd. av. 20 no.10:
18-19 0 '63. (MIRA 16:12)

L 24002-66 EWT(1)/EWA(h)

ACC NR: AP6009849

SOURCE CODE: UR/0413/66/000/004/0040/0040

AUTHOR: Sushko, V. A.

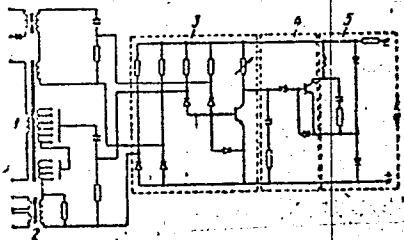
ORG: none

TITLE: A directional pulse relay of the resistance type. Class 21, No. 178889

SOURCE: izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 40

TOPIC TAGS: electric relay, coincidence circuit, electric resistance

ABSTRACT: This Author's Certificate introduces a directional pulse relay of the resistance type which contains a voltage transformer, current transformers, coincidence gate, integrator, and output unit. Provision is made for tuning out aperiodic current and voltage components by connecting a differentiating RC circuit between the coincidence gate and the current and voltage transformers.



1--voltage transformer; 2--current transformer; 3--coincidence gate; 4--integrator; 5--output unit

SUB CODE: 09/

SUBM DATE: 12Oct62/

ORIG REF: 000/

OTH REF: 000

UDC: 621.316.925.451

Card 1/1 *ala*

SUSHKO, V.N.

Need for a monthly inspection of the working conditions. Put' i
put.khoz. 6 no.5:15 '62. (MIRA 15:4)

1. Zamestitel' nachalnika Popasnyanskoy distantzii Donetskoy
dorogi.

(Railroads--Track)

L 58hh9-65 ENT(m)/T/ETA(m)-2
ACCESSION NR: AP5013888

UR/0056/65/048/005/1293/1306

AUTHOR: Berezin, F. A.; Sushko, V. N.

TITLE: Relativistic two-dimensional model of a self-interacting fermion field with nonvanishing rest mass

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 5, 1965, 1293-1306

TOPIC TAGS: fermion field, self interacting field, rest mass, energy operator, scattering operator, elastic scattering

ABSTRACT: A relativistic two-dimensional (one spatial and one temporal coordinate) model of a self-interacting fermion field with non zero rest mass is investigated. This model is more general than Thirring's model, where the fermion field has zero rest mass. The eigenfunctions of the energy operator and the scattering operator are determined in the unphysical space of the pseudo-particles, using essentially the same method as proposed by Thirring. By carrying out a canonical transformation, the authors then obtain the operator for elastic scattering of physical par-

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L 58149-65

ACCESSION NR: AP5013888

titles. An advantage claimed for this method is that each of the stages in which the problem is broken up is much simpler than the initial problem as a whole. "The authors thank V. M. Finkel'berg and Ye. S. Fradkin for useful discussions." Orig. art. has: 36 formulas.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: 25Sep64

ENCL: 00

SUB CODE: NP

NR REF SOV: 004

OTHER: 00}

281
Card 2/2

SUSHKO, Ye. P., Candidate Med Sci (diss) -- "Cobalt and nickel in the blood of children in Botkin's disease". Minsk, 1959. 20 pp (Minsk State Med Inst, Chair of Children's Diseases), (KL, No 22, 1959, 122)

POKOTILENKO, A.K., kand. med. nauk; SUSHKO, Yu.A.

Fibrous osteodysplasia of the temporal bone. Zhur. ush., nos.
i gor. bol. 24 no.1:83-85 Ja-F '64. (MIRA 18:3)

1. Iz Nauchno-issledovatel'skogo instituta otorinolaringologii
Ministerstva zdravookhraneniya UkrSSR (dir.- zasluzhennyi deyatel'
nauki prof. A.I. Kolomychenko).

SUSHKO, Z. N.

~~Alkanesulfonic acids. XV. Chlorination of alkanesulfonic acids. A. G. Kostova, M. M. Kopyeva and Z. N. Sushko (Sedie Univ., Voronezh). *Zhur. Obshchest. Khim.* 1970, 47, 1095; *ibid.* C. A. 51, 4840g. — Passage of Cl₂ 25 hrs. at 0° into 5 g. EtSO₃NHPh suspended in CCl₄ with 2.2 g. ZnO gave after standing 1 day 85.1% 2,4-Cl₂C₆H₃NHSO₃Et, m. 67°, sol. in alkalis and pptd. by acids; a smaller amt. of ZnO in the mixt. reduces the yield considerably. Similarly, BuSO₃NHPh chlorinated in 7.15% NaOH gives the same product m. 68-7°, as above; *N*-Ac deriv., m. 123-7°; with Na under Et₂O it evolves H₂ and forms a colorless amorphous Na salt, which is readily hydrolyzed by H₂O. BuSO₃NHCH₂Cl forms a similar Na salt. Refluxing 1 g. 1,1-Cl₂C₆H₄NH₂SO₃Et (I) with 0.5 ml. Ac₂O 4 hrs. and evapn. the residual Ac₂O-AcOH gave the *N*-Ac deriv., m. 118-7°; AcCl is ineffective. The Ac deriv. also forms from AcCl and the Na salt described above, but the yield is only 60%. Similarly was prepd. 2,4-Cl₂C₆H₃NH₂SO₃Bu; *N*-Ac deriv., m. 77-8°. I is unattacked by alkali but is slowly hydrolyzed by hot 1:1 H₂SO₄ giving in 8 hrs. 66% 2,4-Cl₂C₆H₃NH₂. The Bu analog requires 18-20 hrs. for similar hydrolysis.~~

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G. M. Kosolapoff

MT

SUSHKOV, A.

Millin-machine feeder. Stroitel' 2 no.10:19 0 '56.
(Milling machines--Attachments)

(MIRA 10:1)

SOV/58-59-8-18514

Translated from: Referativnyy Zhurnal Fizika, 1959, Nr 8, p 211 (USSR)

AUTHOR: Sushkov, A.D.

TITLE: On the Effect of the Diameter of the Electron Beam and the Metallic Screen on the Grouping of Electrons

PERIODICAL: Izv. Leningr. elektrotekhn. in-ta, 1958, Vol 36, pp 27-43

ABSTRACT: An analysis is made of studies devoted to the calculation of the grouped current of an electron beam in a drift tube with allowance for the sub-grouping caused by the action of the variable component of the space charge and by the effect of the final diameter of the beam. Studies devoted to the effect of the metallic screen are also analyzed. It is shown that the limits of applicability of the correlations in the theory of an infinitely wide beam are determined not only by the latter's dimensions but also by the current density in the beam. This theory can be used for an approximate computation of the beam's fundamental harmonic provided the following conditions are satisfied: $\gamma b > 2$, $\alpha \xi < \pi/2$, where $\gamma = \omega/v_0$ (ω is the cyclic frequency of oscillation, v_0 is the constant velocity of the electrons),

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SOV/109-59-4-2-13/27

AUTHOR: Sushkov, A.D.

TITLE: Three-Resonator Klystron Frequency Multipliers
(Trehrezonatornyye klystronnyye umnozhiteli chastoty)

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 2,
pp 246-252 (USSR)

ABSTRACT: The author investigated the properties of 3-resonator and 2-resonator klystron multipliers in his candidate's dissertation (Ref 3). The results of this work are reported in this paper. It is assumed that the basic formula for the p-th harmonic of the current in the gap of the output resonator of a 3-resonator klystron multiplier is given by:

$$I_p = 2I_0 e^{-ip(\xi_I + \xi_{II} - \psi)} \left\{ J_p(pX) + \sum_{n=1}^{\infty} J_n(nX_{12}) X \right. \\ \left. X [e^{in\psi} J_{(p+n)}(pX) + e^{-in\psi} J_{(p-n)}(pX)] \right\} \quad (1)$$

Card 1/4 The parameter X_{12} in Eq (1) denotes the bunching action

SOV/109-59-4-2-13/27

Three-Resonator Klystron Frequency Multipliers

resonators. The klystron was investigated as a frequency tripling under the following conditions: accelerating potential $U_0 = 800$ V; beam current $I_0 = 30$ mA; input wavelength $\lambda_1 = 31$ cm and output wavelength $\lambda_2 = 10.33$ cm. First the tube was investigated as a 2-resonator multiplier. Curves of output power against input power are shown in Fig 2; the solid curve was calculated by employing Eq (1), while the dashed curve was taken experimentally. The dependence of the output power on the beam current is illustrated by the curves of Fig 3. From the curves it is seen that the maximum gain of a 2-resonator klystron is of the order of 0.4. The output power and the gain of a 3-resonator klystron as a function of the input power is illustrated by the curves of Fig 4. From these it is seen that a gain as high as 4 can easily be obtained. The output versus input power curves of a 3-resonator klystron operating as a frequency "quintupler", are shown in Fig 5. From

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SOV/109-59-4-2-13/27

Three-Resonator Klystron Frequency Multipliers

this it is seen that the gain of the system is less than unity. There are 5 figures and 3 references of which 1 is Soviet, 1 French and 1 German.

SUBMITTED: 12th June 1957

Card 4/4

21036

S/058/61/000/005/044/050
A001/A101

9.4220 (also 2204, 1052)

AUTHOR: Sushkov, A.D.

TITLE: On simulating the process of grouping in a klystron by means of positive ions

PERIODICAL: Referativnyy zhurnal. Fizika, no 5, 1961, 369-370, abstract 5Zh380 ("Izv. Leningr. elektrotekh. in-ta", 1959, v 39, 112 - 125)

TEXT: The process of grouping of an electron beam in a klystron was experimentally studied on models in which heavy positive ions were used instead of electrons. The substitution of electrons by heavy ions permitted a reduction of frequency of modulating voltage and studying the process by means of comparatively low-frequency equipment, without distorting the qualitative pattern of the grouping. The model of a klystron filled up with mercury vapors was the object of study; a gas-discharge diode of magnetron type was used as a source of ions. The application of such a source makes it possible to obtain the density of ion current sufficient for measurements at mercury vapor pressure not higher than 10^{-4} mm Hg. The ion beam was modulated in the interaction space by an electric

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21650

S/109/61/006/003/005/018
E032/E314

26.2531 (also 1137, 1143, 1151)

AUTHORS: Molokovskiy, S.I. and Sushkov, A.D.

TITLE: A Study of the Electrical Field Due to a Dense
Bunch of Charged Particles

PERIODICAL: Radiotekhnika i elektronika, 1961, Vol. 6, No. 3,
pp. 375 - 380

TEXT: The study of the electrical field of a dense particle bunch, taking into account the effect of a conducting screen, is said to be of great importance to the solution of the general problem of charged-particle bunching. The present paper is concerned with the analysis of the electric field of a bunch with uniform distribution of the space charge and surrounded by a metallic screen. General expressions are given for the field distribution and these are said to be capable of extension to the case of a nonuniform axially symmetric charge distribution. The calculation of the electric field due to an axially symmetric space charge surrounded by a metal screen is obtained from the Poisson equation: X

Card 1/11 X

A Study of

$$\frac{1}{r} \frac{\partial}{\partial r} \left(r \frac{\partial U}{\partial r} \right) + \frac{\partial^2 U}{\partial z^2} = - \frac{4\pi \rho}{\epsilon} .$$

This equation is solved using the Hankel integral transformation with finite limits. By multiplying both sides of the Poisson equation by

$$r J_0 \left(\lambda_i \frac{r}{a} \right)$$

where J_0 is the zero-order Bessel function, λ_i is the i -th root of this function and a is the radius of the screen, the potential function is found to be of the form

$$U_J = \int_0^a U J_0 \left(\lambda_i \frac{r}{a} \right) r dr .$$

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S/109/61/006/003/005/018
EC32/E314

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S/109/61/006/003/005/018
E032/E314

A Study of

This function satisfies the differential equation

$$\frac{d^2 U_J}{dz^2} - \left(\frac{\lambda_i}{a}\right)^2 U_J = -\lambda_i J_1(\lambda_i) U(a) - \frac{4\pi}{\epsilon} \rho_J \quad (1)$$

where J_1 is the first-order Bessel function and ρ_J is the transformed space-charge density function given by

$$\rho_J = \int_0^a \rho J_0\left(\lambda_i \frac{r}{a}\right) r dr .$$

In order to obtain the required solution of the Poisson equation, it is then sufficient to determine the transformed potential function from Eq. (1) and substitute it into the formula

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E032/E314

$$U = \frac{2}{a^2} \sum_i U_J \frac{J_0\left(\lambda_i \frac{r}{a}\right)}{[J_1(\lambda_i)]^2} .$$

In this expression, the summation is carried out over positive values of λ_i . Without loss of generality it can then be assumed that the potential of the surrounding screen is zero, i.e. $U(a) = 0$. In that case, Eq. (1) is simplified to read

$$\frac{d^2 U_J}{dz^2} - \left(\frac{\lambda_i}{a}\right)^2 U_J = f(z)$$

where

$$f(z) = - \frac{4\pi}{\epsilon} \rho_J \quad (2) .$$

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E032/E314

A Study of

The solution of this equation can be found in the form

$$U_J = \int_{-\infty}^{+\infty} \Gamma(z, \zeta) f(\zeta) d\zeta \quad (3)$$

where

$$\Gamma(z, \zeta) = - \frac{a}{2\lambda_i} e^{-\frac{\lambda_i}{a} |z-\zeta|} \quad (4)$$

Substituting Eqs. (2) and (4) into Eq. (3), it is found that

$$U_J = \frac{4\pi a}{2e\lambda_i} \int_{\zeta} p_{\zeta} e^{-\frac{\lambda_i}{a} |z-\zeta|} d\zeta,$$

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S/109/61/006/003/005/018
E032/E314

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in which the integration extends over those values of ζ for which ρ_j differs from zero. Substituting this equation into the expression for U it is finally found that

$$U = \frac{4\pi}{ea} \sum_i \frac{J_0\left(\lambda_i \frac{r}{a}\right)}{\lambda_i [J_1(\lambda_i)]^2} \int_{\zeta} \rho_j e^{-\frac{\lambda_i}{a} |z-z'|} d\zeta. \quad (5)$$

This expression determines the general form of the potential due to an axially symmetric space charge. In the special case of the single charged-particle bunch inside a metal screen and with $\rho = \text{const.}$ (Fig. 1), the expression for U is of the form

$$U = \frac{8\pi b a \rho}{e} \sum_i \frac{J_0\left(\lambda_i \frac{r}{b}\right) J_1(\lambda_i p)}{\lambda_i^2 [J_1(\lambda_i)]^2} \varphi(\lambda_i, z), \quad (6)$$

Card 6/11

S/109/61/006/0^U3/005/018
E032/E314

A Study of

where $p = b/a$ and

$$\varphi(\lambda_i, z) = \begin{cases} 1 - e^{-\lambda_i \frac{l}{2b} p} \operatorname{ch} \lambda_i \frac{z}{b} p, & |z| \leq \frac{l}{2}, \\ e^{-\lambda_i \frac{|z|}{b} p} \operatorname{sh} \lambda_i \frac{l}{2b} p, & |z| \geq \frac{l}{2}, \end{cases} \quad (7)$$

Hence the transverse and longitudinal components of the electric field are found to be

$$E_r = \frac{8\pi b p}{\epsilon} \sum_i \frac{J_1\left(\lambda_i \frac{r}{b} p\right) J_1(\lambda_i p)}{\lambda_i^3 [J_1(\lambda_i)]^2} \varphi(\lambda_i, z), \quad (8)$$

$$E_z = \frac{8\pi b p}{\epsilon} \sum_i \frac{J_0\left(\lambda_i \frac{r}{b} p\right) J_1(\lambda_i p)}{\lambda_i^3 [J_1(\lambda_i)]^2} \varphi(\lambda_i, z), \quad (9)$$

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A Study of

$$\psi(\lambda_1, z) = \begin{cases} e^{-\lambda_1 \frac{l}{2b} p} \operatorname{sh} \lambda_1 \frac{z}{b} p, & |z| \leq \frac{l}{2}, \\ \frac{z}{|z|} e^{-\lambda_1 \frac{|z|}{b} p} \operatorname{sh} \lambda_1 \frac{l}{2b} p, & |z| \geq \frac{l}{2}. \end{cases} \quad (10)$$

where in the case of Eq. (8) $\varphi(\lambda_1, z)$ is given by

Eq. (10). Using the superposition principle, this expression can then be applied to the calculation of a periodic sequence. Fig. 2 shows the variation in the longitudinal component of the field at $z = 0.5 l$ as a function of the radial coordinate. Fig. 3 shows the variation in the maximum relative magnitudes of the axial and radial components as functions of the relative dimensions of the bunch. The paper is concluded with a detailed examination of these general formulae in special cases. Thus, for example, Fig. 4 shows the variation of the field along the axis of the bunch in the presence ($p = 1$) and the absence ($p = 0$) of the screen. Fig. 5 shows the variation in the axial component inside and outside the bunch. There are 5 figures and 3 Soviet references.

SUBMITTED: December 10, 1959
Card 8/11

SUSHKOV, A.D., kand. tekhn. nauk, dotsent

Multiplying klystrons with a traveling wave. Izv. LETI
no. 48:66-75 '63. (MIRA 17:12)

S/057/63/033/003/011/021
B104/B180

AUTHORS: Sushkov, A. D., and Melokovskiy, S. I.

TITLE: The electric field of charged particle packets

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 33, no. 3, 1965, 326-336.

TEXT: The electric field of axially-symmetrical disk-shaped packets of charged particles in a metal tube is investigated. The fields are calculated for different charge-density distributions along the axis of the packet, special attention being paid to non-uniform ones similar to those obtained in bunching devices. The problem of finding U the potential function and E_r and E_z the radial and longitudinal components of the electric field, is reduced to that of finding a function ψ_i and its first derivative for different charge distribution functions. If the density is uniformly distributed ($\rho = \rho_0$):

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The electric field of charged ...

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B104/B180

$$\varphi_i = \begin{cases} 2 \frac{a}{\lambda_i} \left(1 - e^{-\frac{\lambda_i}{a} \frac{l}{2}} \operatorname{ch} \lambda_i \frac{z}{a} \right) & |z| \leq \frac{l}{2} \\ 2 \frac{a}{\lambda_i} e^{-\frac{\lambda_i}{a} |z|} \operatorname{sh} \frac{\lambda_i l}{a} & |z| \geq \frac{l}{2} \end{cases} \quad (10)$$

if the density is described by $\rho = \int_0^1 \exp(-\alpha |z|/l)$:

$$\varphi_i = \begin{cases} \frac{2}{\left(\frac{\lambda_i}{a}\right)^2 - \left(\frac{\alpha}{l}\right)^2} \left[\frac{\lambda_i}{a} e^{-\frac{\alpha}{l} |z|} - \frac{\alpha}{l} e^{-\frac{\lambda_i}{a} |z|} - \left(\frac{\lambda_i}{a} - \frac{\alpha}{l}\right) e^{-\left(\frac{\alpha}{2} + \frac{\lambda_i l}{2}\right) \operatorname{ch} \frac{\lambda_i}{a} z} \right] & |z| \leq \frac{l}{2} \\ \frac{2}{\left(\frac{\lambda_i}{a}\right)^2 - \left(\frac{\alpha}{l}\right)^2} e^{-\frac{\alpha}{l} |z|} \left[e^{-\frac{\alpha}{2} \left(\frac{\alpha}{l} \operatorname{ch} \frac{\lambda_i l}{a} \frac{l}{2} + \frac{\lambda_i}{a} \operatorname{sh} \frac{\lambda_i l}{a} \frac{l}{2}\right) - \frac{\alpha}{l}} \right] & |z| \geq \frac{l}{2} \end{cases} \quad (11)$$

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The electric field of charged ...

if $\rho = \int_0^a \text{ch} \alpha z / l$:

$$\varphi_i = \frac{2}{\left(\frac{\lambda_i}{a}\right)^2 - \left(\frac{a}{l}\right)^2} \left[\frac{\lambda_i}{a} \text{ch} \frac{\alpha}{l} z - e^{-\frac{\lambda_i}{a} \frac{l}{2}} \text{ch} \frac{\lambda_i}{a} z \times \right. \\ \left. \times \left(\frac{\lambda_i}{a} \text{ch} \frac{a}{2} - \frac{a}{l} \text{sh} \frac{a}{2} \right) \right] \quad |z| \leq \frac{l}{2}, \quad (12)$$

$$e^{-\frac{\lambda_i}{a} |z|} \left[\frac{\text{sh} \frac{l}{2} \left(\frac{\lambda_i}{a} - \frac{a}{l} \right)}{\frac{\lambda_i}{a} - \frac{a}{l}} - \frac{\text{sh} \frac{l}{2} \left(\frac{\lambda_i}{a} + \frac{a}{l} \right)}{\frac{\lambda_i}{a} + \frac{a}{l}} \right] \quad |z| \geq \frac{l}{2}$$

φ_i characterizes the potential distribution for different charge density distributions in the bunch and in the surrounding space. Fields of bunches with different charge distributions are compared. There are 7 figures.

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The electric field of charged ...

S/057/63/033/003/011/021
B104/B180

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I.
Ul'yanova (Lenina)
(Leningrad Electrotechnical Institute imeni V. I.
Ul'yanov (Lenin))

SUBMITTED: March 5, 1962

Card 4/4

L 60166-65 EEC(b)-2/EWA(h)/EWT(1)
ACCESSION NR: AT5012820

P1-l/Pj-l/Pm-l/Pn-l/Pac-l/Peb JM
UR/3074/63/000/048/0066/0075

38
37
BFI

AUTHOR: Sushkov, A. D. (Candidate of technical sciences, Docent)

TITLE: Concerning multiplier klystrons with traveling wave

SOURCE: Leningrad. Elektrotekhnicheskii institut. Izvestiya, no. 48, 1963, 66-75

TOPIC TAGS: klystron, traveling wave klystron, multiplex klystron, multiple beam klystron

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ABSTRACT: The operating principle of the described klystrons is based on the interactions between an electron beam and traveling electromagnetic waves in waveguides. This interaction makes possible velocity modulation of the electron beam and the extraction of high-frequency power from the system. The simplest waveguide multiplier klystron and its operation are illustrated in Fig. 1 of the Enclosure. Such a klystron has the advantage over ordinary klystrons in that its bandwidth is considerably greater. The frequency can be tuned either by varying the phase velocity of the exciting current wave or by varying the phase velocity of a given mode of the electric field. Equations are derived for the output power and the efficiency of such a klystron and it is shown that by using periodic loading it is possible to raise the efficiency from 35 to 50%. A modification of the double-waveguide klystron, namely a klystron with with annular waveguides, such as shown

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L 60166-65

ACCESSION NR: AT5012820

in Fig. 2 of the Enclosure, is also discussed. Such a klystron has the same efficiency as an ordinary klystron, but since the frequency and oscillation mode are independent of the diameter of the annular waveguides employed, the klystron can be made up of large waveguides and accommodate more powerful electron beams. Orig. art. has: 4 figures and 13 formulas.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut (Leningrad Electrotechnical Institute)

SUBMITTED: 00Mar61

ENCL: 02

SUB CODE: EC

NR REF SOV: 000

OTHER: 002

Card 2/4

L 60166-65

ACCESSION NR: AT5012820

ENCLOSURE: 01

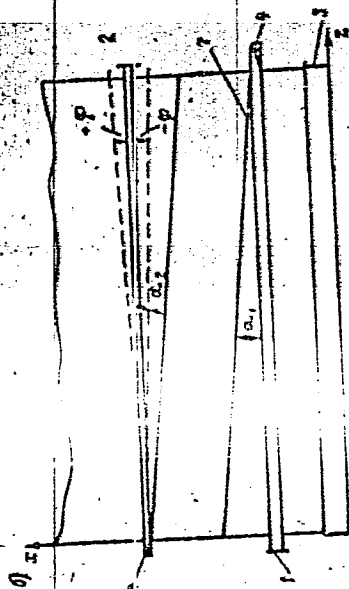
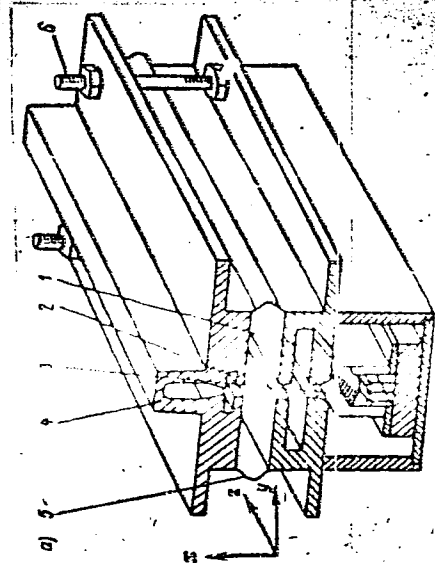


Fig. 1. Waveguide multiplier klystron (a) with adjustment of the frequency multiplication ratio, and its schematic representation (b).

- 1, 2 - Waveguides
- 3 - cathode
- 4 - collector
- 5 - bellows
- 6 - tuning screws

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L 60166-65

ACCESSION NR: AT5012820

ENCLOSURE: 02

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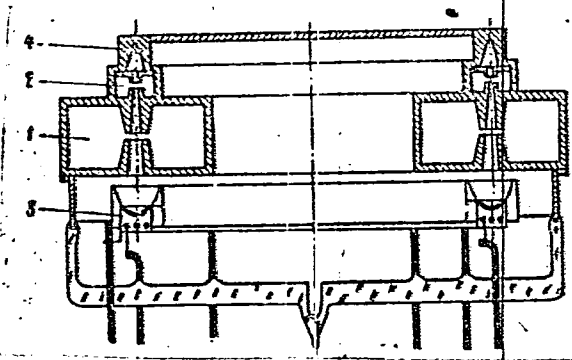


Fig. 2. Waveguide klystron with annular waveguides

- 1 - Waveguide
- 2 - waveguide
- 3 - cathode
- 4 - collector

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ACCESSION NR: AR4008437

S/0275/63/000/012/A033/A033

SOURCE: RZh. Elektronika i yeye primeneniye, Abs. 12A164

AUTHOR: Sushkov, A. D., Bobrovskiy, Yu. L.

TITLE: Electron bunching in klystron at high modulating voltages

CITED SOURCE: Izv. Leningr. elektrotekhn. in-ta, vy*p. 48, 1963,
110-123

TOPIC TAGS: klystron, electron bunching, klystron electron bunching,
multiplying klystron, multicavity klystron, multiplying multicavity
klystron

TRANSLATION: Nonlinear operation of a two-cavity klystron, occur-
ring at high and very high excitation voltages, is considered. So-
lutions are presented for the equations of motion of the electrons
in the alternating field, and for the bunching of the electrons in

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S/0057/64/034/007/1206/1209

ACCESSION NR: AP4041995

AUTHOR: Sushkov, A.D.; Meos, V.A.

TITLE: Generator of nanosecond pulses with a superhigh repetition rate

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.7, 1964, 1206-1209

TOPIC TAGS: pulse generator, klystron, nanosecond pulse generation

ABSTRACT: The authors describe in rather general terms a pulse generator of the klystron type capable of delivering 10-v pulses with a 0.4-nanosec rise time at a repetition rate of $3 \times 10^8 \text{ sec}^{-1}$, and weaker pulses at repetition rates of up to $6 \times 10^8 \text{ sec}^{-1}$. The pulse generator operates with a 350-v 50 mamp electron beam and 5 watts of RF excitation. The good performance of this instrument is due to the use of a high bunching voltage, of the order of the beam acceleration voltage; this permits a short drift tube to be employed and thus avoids a number of debunching effects encountered with longer drifts. The instrument is constructed in two parts. One part is of glass-Kovar construction and contains the following components in order: the electron gun; a Kovar collar; the drift tube, flanged for external connection; and the collector, which projects beyond the glass envelope. The other part is of metal

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ACCESSION NR: AP4041995

and consists of a tunable resonant cavity to develop the bunching voltage at the pulse repetition frequency and a broad band coupling device to transfer the pulses, generated at the output gap between the drift tube and the collector, to a coaxial cable. The glass generator tube presumably fits inside the resonance cavity, although the authors do not state this explicitly. Output oscillograms are reproduced in a figure. The pulse generator described in this paper has the following advantages over the somewhat similar device described by W.H.Cornetet and I.G.Josenhans (IRE Trans. on Electron Device, ED-8, No. 6, 1961); it is of simpler construction, has a higher pulse repetition rate, requires less RF excitation, employs a higher perveance electron beam, uses a lower accelerating potential, does not employ magnetic focusing, and does not require air-blast cooling. The pulse amplitude, however, is only half that of the Cornetet-Josenhans instrument. Orig.art.has: 3 figures.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im.V.I.Ul'yanova-Lenina (Leningrad Electrotechnical Institute)

SUBMITTED: 15Jul63

ATD PRESS: 3082

ENCL: 00

SUB CODE: EC

NR REF SOV: 002

OTHER: 003

Card 2/2

L 36669-65 ENT(L)/EMA(h) Rep

ACCESSION NR: AP5008160

S/0286/65/000/005/0038/0038

AUTHOR: Sushkov, A. D.; Meos, V. A.

TITLE: Nanosecond pulse oscillator. Class 21, No. 168755

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 38

TOPIC TAGS: pulse oscillator, klystron, nanosecond pulse

ABSTRACT: This Author Certificate introduces a nanosecond pulse oscillator consisting of a klystron with a control grid and a separate excitation circuit (see Fig. 1 of Enclosure). To reduce pulse duration, a section of a waveguide mounted perpendicularly to the electron flow and connected to the control grid by a feedback line serves as the output system. Orig. art. has: 1 figure. [JR]

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova
(Lenina) (Leningrad Electrotechnical Institute)

SUBMITTED: 21Oct63

ENCL: 01

SUB CODE: EC

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3224

Card 1/1

L 35668-65 EFT(1)/EWA(h) Feb

ACCESSION NR: AP5008161

S/0286/65/000/005/0038/0039

AUTHOR: Sushkov, A. D.

TITLE: Nanosecond pulse oscillator. Class 21, No. 168756

15
B

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 38-39

TOPIC TAGS: pulse oscillator, klystron, nanosecond pulse

ABSTRACT: The proposed oscillator uses a klystron (see Fig. 1 of Enclosure). It is designed to operate at reduced excitation power during separate excitation, achieve self-excitation, and decouple the output section from the oscillating system. Accordingly, the klystron is provided with three or more hf gaps, two of them connected to two identical resonators, which in turn are interconnected by a feedback line. The remaining gaps are connected to the output section. Orig. art. has: 1 figure. [JR]

ASSOCIATION: Leningradskiy elektrotekhnicheskii institut im. V. I. Ul'yanova (Lenina) (Leningrad Electrotechnical Institute)

Card 1/3

L 49244-65 EWT(1)/EPA(w)-2/EEC(t)/EWA(m)-2/EWA(n) Pz-6/Peb/Pi-4 IJP(c) AT

ACCESSION NR: AP50:0811

UR/0057/65/035/004/0723/0738

AUTHOR: Sushkov, A.D.; Meos, V.A.

42
41
B

TITLE: The klystron method for producing nanosecond and subnanosecond
videopulses. 1

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 4, 1965, 723-738

TOPIC TAGS: klystron, bunch formation, ²¹electron beam, pulse generator ₂₆

ABSTRACT: The authors are interested in developing the klystron method for producing short pulses at high repetition rates, suggested many years ago by J.B. Halstead (Proc. Phys. Soc., 60, 397, 1948) and others. In the present paper they report the results of theoretical investigations. The bunching of electrons in a one-dimensional beam by a uniform modulating field is discussed in detail with particular reference to the effects of large modulating fields. The effect of the nonuniform modulating field in the unscreened gap between two circular waveguides on the bunching of the two-dimensional (axially symmetric) beam is considered. Excitation by the bunched beam of both coaxial and strip lines is treated and the effect of the load impedance on the pulse shape is discussed. It is concluded

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L 49244-65

ACCESSION NR: AP5010811

that it should be possible to obtain pulses of duration of the order of 10^{-10} sec at repetition rates of hundreds of Mc/sec. Orig. art. has: 45 formulas, 8 figures, and 1 table.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut Im. V.I.Ul'yanova (Lenina) (Leningrad Electrotechnical Institute)

SUBMITTED: 05May64

ENCL: 00

SUB CODE: EC

NR REF SOV: 003

OTHER: 004

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2/2

MOLOKOVSKIY, Sergey Ivanovich; SUSHKOV, Aleksandr Danilovich;
ZARITSKIY, Ya.V., red.

[Electron-optical systems of superhigh frequency devices]
Elektronno-opticheskie sistemy priborov sverkhvysokikh
chastot. Moskva, Energiia, 1969. 231 p. (MIRA 18:8)

L 47382-65 EWT(1)/EWA(h) Pub
ACCESSION NR: AP5010812

UR/0057/65/035/004/0739/0747

AUTHOR: Sushkov, A. D.; Meos, V. A.

TITLE: Klystron method of generating nano- and subnanosecond video pulses. II.

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 4, 1965, 739-747

TOPIC TAGS: ¹⁵ klystron generator, ¹⁴ video pulse generator, nanosecond video pulse, subnanosecond video pulse, single stage klystron generator

ABSTRACT: Six different models of a single-stage low-voltage Klystron generator of ultrashort video pulses have been experimentally investigated. The generators of the GSKI series consist of a klystron with two hf gaps and an external armature (see Fig. 1 of Enclosure). The metal-glass klystron contains electron gun 1, accelerating electrode 2, drift space 3, and collector 4. The input (gridless) gap is formed between the plate and the drift space, and the output (grid) gap, between the drift space and the collector. Wideband resonator 5 is connected to the input gap, and coaxial line 6 with a standard waveguide resistance and plug 7 are connected to the output gap. Tests were made of both video-pulse and generator parameters, the latter including modulating voltage amplitude at the input, electron

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L 47382-65

ACCESSION NR: AP5010812

currents transmitted to the various electrodes, and the lumped capacitance at the output. The GSKL-4 model proved to be the most satisfactory generator; its parameters are given in Table 1. Orig. art. has: 5 figures and 1 table. [DW]

ASSOCIATION: Leningradskiy elektrotekhnicheskii institut im. V. I. Ul'yanova (Lenina) (Leningrad Electrotechnical Institute)

SUBMITTED: 09Jul64

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NO REF SOV: 002

OTHER: 002

ATD PRESS: 3251

Card 2/4

L 47382-65

ACCESSION NR: AP5010812

ENCLOSURE: 01

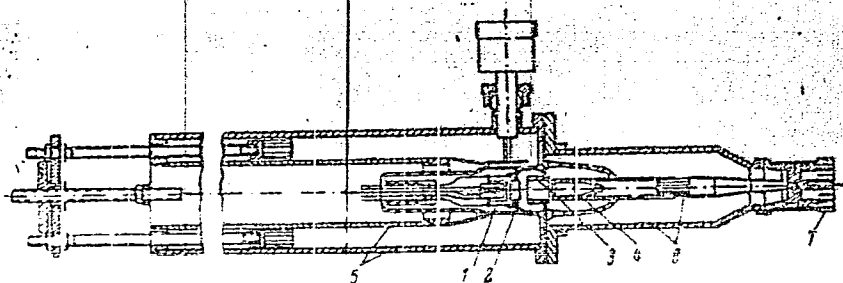


Fig. 1. Klystron generator of video pulses

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ACCESSION NR: AP5010812

ENCLOSURE: 02

Table 1. Basic parameters of the GSKI-4 klystron generator

Accelerating voltage, v	350
Beam current in drift space, mamp	60
Collector current, mamp	35
Modulating-voltage amplitude, v	300
Excitation power, w	5
Pulse duration, nsec	0.35
Rise time, nsec	0.2
Pulse amplitude, v	10
Repetition frequency, Mc	200
Output characteristic impedance, ohm	75
Collector cooling	Natural

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Card 4/4

L 60168-65 ERG(b)-2/EWA(h)/EAT(1) P1-1/Pj-1/Pn-1/Pn-1/Pac-1/Peb JM
ACCESSION NR: AT5012823 UR/3074/63/000/048/0110/0123 70

3739

AUTHOR: Sushkov, A. D. (Candidate of technical sciences, Docent); Fobrovskiy, Yu. L. (Engineer)

TITLE: Bunching of electrons in a klystron at large modulating voltages

SOURCE: Leningrad. Elektrotekhnicheskiy institut. Izvestiya, no. 48, 1963, 110-123

TOPIC TAGS: Klystron, reflex klystron, electron bunching, frequency multiplication

ABSTRACT: The authors analyze the bunching of electrons in a klystron cavity at velocities considerably lower than the velocity of light. It is pointed out that earlier investigations were either confined to the bunching of the electrons in the transit tube without account of their bunching in the high-frequency gap of the input cavity, or else to relativistic electrons. The present study deals with the bunching of electrons that have passed through the gap as well as those reflected from the gap. The electron motion is analyzed theoretically on the basis of rigorous kinematic theory. The results show that in the case of large modulating voltage, the electrons are effectively bunched in the gap. When operating in the current-cutoff mode, both the transmitted and the reflected electrons become effectively bunched, so that both groups of electrons can be effectively employed for frequency multiplication. In the case of relatively narrow gaps, effective bunch-

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ing can be obtained also at alternating voltages which are smaller than the accelerating voltage, but this reduces the number of particles in each bunch. The gap voltage affects noticeably the conductivity of the electron beam. The bunching of the electrons in the transit tube depends little on the length of the tube. This pertains equally well to the transmitted and to the reflected electrons. The current contains a large number of harmonics and this makes it possible to construct klystron frequency multipliers without the use of a transit tube. The calculations are valid for relatively small electron-beam densities. At larger densities the results may be affected by the presence of space charge. Orig. art. has: 13 figures and 9 formulas.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut (Leningrad Electrotechnical Institute)

SUBMITTED: COMay61

ENCL: 00

SUB CODE: EC

NR REF SOV: 000

OTHER: 005

Card ¹⁴2/2

L 25581-66 EWT(1)/EWA(h) IJP(c) AT

ACC NR: AM6004761

Monograph

UR/

45
B+1Molokovskiy, Sergey Ivanovich; Sushkov, Aleksandr Danilovich

Electron optical systems of super-high frequency devices (Elektronno-opticheskiye sistemy priborov sverkhvysokikh chastot) Moscow, Izd-vo "Energiya", 1965. 231 p. illus., biblio. 4,500 copies printed

TOPIC TAGS: electron beam, electron gun, electron optics, electron waveguide

PURPOSE AND COVERAGE: The book deals with electron-optical systems intended to obtain intense electron beams of varying configurations, used in microwave electronic devices. The book describes the physics of the phenomena occurring in electron beams with large space charge. The principles involved in the design of electron optical systems are described, together with the required calculations. Calculation procedures are given for almost all the principal shaping and transverse-limitation systems used in practice. The various expositions are illustrated with a large number of examples based on concrete constructions of electronic devices. Some general problems, knowledge of which is essential for the understanding of the physical processes and design procedures of electron-optical systems, are also included, such as space charge in electron beams in the presence and in the absence of positive ions, methods of stimulating of electrostatic fields in an electrolytic trough, methods of constructing electron trajectories with and without allowance for space charge. Authors thank A. A. Zhigarev for valuable remarks made during the review of the manuscript.

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UDC: 621.3.032 : 621.385.6 2

L 25581-66

ACC NR: AM6004761

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Ch. III. Modeling of electrostatic fields in an electrolytic trough and construction
of electron trajectories - - 65

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SUB CODE: 09/

SUBM DATE: 20Apr65/

ORIG REF: 027/

OTH REF: 036

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L 2455-66 ENT(1)/EIA(h)

ACCESSION NR: AP5024039

UR/0057/65/035/003/1610/1616
621.373.413

AUTHOR: Sushkov, A.D.; Vendik, I.B.

31
30
8

TITLE: Influence of a nonuniformity on the properties of a circular resonator

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 9, 1965, 1610-1616

TOPIC TAGS: resonator, waveguide, circular resonator, pulse generation, waveguide nonuniformity, transmission line 25

ABSTRACT: The authors employ the matrix methods of transmission line theory to discuss the effect of a localized nonuniformity on the resonant frequencies of a circular resonator. The calculations were undertaken because of the possible applications of circular resonators to the production of nanosecond pulses. The resonator is treated as a T section of a transmission line with two of the free ends joined together. The nonuniformity, which need not be small, is described by its reflection matrix and its distance from the junction of the feeder with the circular line. The reflection matrix at the input of the feeder is calculated and this is employed to calculate the resonant frequencies and the stored energy at resonance. The nonuniformity can either increase or decrease the stored energy,

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ACCESSION NR: AP5024039

and its influence depends on its position; a nonuniformity at a node, for example, has no effect. This behavior is contrasted with the effect of a nonuniformity on the propagation of a traveling wave, where the position makes no difference. The effect of partly closing a particular circular resonator with a rectangular diaphragm on its first three resonant frequencies was calculated and the results were compared with experimental values. The experimental resonator was bounded by two coaxial cylinders of radii 4.3 and 1.7 cm and by two planes normal to the axis of the cylinders and 0.6 cm apart; the resonant frequencies were 5953, 6605, and 7474 Mc/sec. Good agreement was found between the measured and calculated frequency shifts. Orig. art. has: 27 formulas and 4 figures. [15]

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut imeni V.I.Ul'yanova
 (Lenina) (Leningrad Electrotechnical Institute)

SUBMITTED: 20Jul64

ENCL: 00

SUB CODE: EC, EM

NR REF SOV: 004

OTHER: 004

ATD PRESS: 4/10/64

BVK.
Card 2/2

KPSHTEYN, Aleksandr Mikhaylovich; SUSHKOV, A.I., inzhener, retsenzent;
EL'KIND, L.M., redaktor izdatel'stva; EVENSON, I.M., tekhnicheskiy
redaktor

[The electrolysis worker of aluminum plants] Elektroliznik
aliuminievykh zavodov. Izd. 2-oe, ispr. i dop. Moskva, Gos. nauchno-
tekh. izd-vo lit-ry po cherno i svetnoi metallurgii, 1956. 235 p.
(Aluminum industry) (MIRA 9:9)

PHASE I BOOK EXPLOITATION

327

Sushkov, A.I.
Sushkov, Akim Ivanovich; Troitskiy, Ivan Alekseyevich; Eydenzon, Moisey Aronovich
Metallurgiya legkikh metallov (Metallurgy of Light Metals) Sverdlovsk,
Metallurgizdat, 1957. 510 p. 6,000 copies printed.

Eds.: Khodak, L.P., Candidate of Technical Sciences, Ivanov, A.I., Engineer,
Rempel', S.I., Doctor of Technical Sciences, Professor; Ed. of Publishing
House: Luchko, Yu.V.; Technical-Ed.: Zef, Ye.M.

PURPOSE: This is a textbook for technikum students taking courses in the metallurgy
of aluminum and magnesium; it may also be useful to production engineers.

COVERAGE: The book presents the theoretical and practical sides of the metallurgy
of aluminum and magnesium. Both electrolytic and thermal reduction
methods are treated. The authors also discuss the production of raw
materials used in the electrolytic method: alumina, anhydrous chlorides
and fluorides, and carbonaceous materials. Part I, with the exception
of Chapters II, III, and VI, was written by Sushkov, A.I.; Part II, by
Eydenzon, M.A.; and Chapters II, III, and VI, by Troitskiy, I.A. The
authors express their appreciation to the following personalities for
help in compiling the volume: Forsblom, G.V., Candidate of Technical

Card 1/13

KULAKOV, V.I.; POLYANSKIY, A.V.; SUSHKOV, A.I.; TSYKALO, S.B.

Quality of flat commercial aluminum ingots cast from
molten electrolytic baths. Alum. splavy no.3:390-396
'64. (MIRA 17:6)

Z/037/62/000/005-6/005/049
E140/E562

AUTHOR: Sushkov, A.L.

TITLE: Electric fields of bunches of charged particles

PERIODICAL: Československý časopis pro fyziku, no.5-6, 1962,
462-468

TEXT: The article is based on studies conducted by the author and S. I. Molokovskiy (Radiotech. i elektronika 6, 1961). The static problem of finding the electric field of bunches of charged particles with rotational symmetry when the charge distribution is nonuniform is solved. Formulas are given for the fields of cylindrical, annular and coaxial bunches in a metal tube. The longitudinal field component of the cylindrical bunch with a nonuniform charge distribution is analysed in detail and it is demonstrated that the variation in the longitudinal field component at the boundary and off the bunch can be expressed by an elementary function. There are 7 figures. ✓

ASSOCIATION: Katedra radiotechnické elektroniky, Leningradský elektrotechnický ústav, Leningrad
(Department of Radioengineering Electronics, Leningrad Electrotechnical Institute, Leningrad)

Card 1/1