

Begin

248

Korobochkin, I.V.

KOROBOCHKIN, I.V., kand. tekhn. nauk; BEL'SKIY, B.R., inzh.; MIKHAYLOV, Ye.A., inzh.; GUTENMAKHER, L.I., laureat Stalinskoy premii doktor tekhn. nauk, nauchnyy red.; SEVOST'YANOVA, M.V., doktor fiz.-mat. nauk, prof., nauchnyy red.; RUSEVICH, I.M., inzh., red.; OSTROVSKAYA, Ye.G., otv. za vypusk

[Catalog-manual of laboratory devices and equipment] Katalog-spravochnik laboratornykh priborov i oborudovaniia. Moskva, Mashgiz. No.21. [Calculating machines and devices] Schetno-vychislitel'nye pribory i apparaty. 1948. 22 p. No.27. [Microscopes and lenses] Mikroskopy i lupy. 1950. 87 p. (MIRA 16:4)

1. Moscow. Vsesoyuznaya vystavka otechestvennogo priborostroyeniya, 1948.

(Calculating machines--Catalogs)
(Microscopes--Catalogs) (Lenses--Catalogs)

KOROBOCHKIN, I.V., inzhener, kandidat tekhnicheskikh nauk.

[Oscillations in weighing instruments] Kolebania vesoizmeritel'-
nykh priborov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.
lit-ry, 1947. 74 p. (MLRA 7:2)

(Scales (Weighing instruments))

KAGANOV, M.A.; KOROBOCHKIN, I.V.; SHLIMOVICH, B.M.

Measuring instruments based on the utilization of semiconducting
thermistors. Priborostroenie no.8:10-12 Ag '56. (MLRA 9:10)

(Electric instruments) (Thermistors)

Korobochkin, I. V.

KOROBOCHKIN I.V., kand.tekhn.nauk

The RTTK-API tractor meter. Mekh.i elek.sots.sel'.khoz.
no.6:53-56 '57. (MIRA 10:12)

1. Agrofizicheskiy nauchno-issledovatel'skiy institut Vsesoyuznoy
akademii sel'skokhosyaystvennykh nauk im. V.I.Lenina.
(Tractors)

KOROBOCHKIN, I.V., kand. tekhn.nauk

Possibilities of studying soil moisture dynamics and soil compaction with gamma rays of various intensity. Dokl. akad. sel'khoz. 23 no.9: 19-23 '58. (MIRA 11:10)

1. Agrofizicheskiy institut Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni V.I. Lenina. Predstavlena akademikom A.P. Ioffe.

(Gamma rays) (Soil physics)

KOROBOCHKIN, I.

AGRICULTURE

PERIODICAL: SPOJNIK RADA MERCHANISACE E ELEKTRIFIKACE ZEMEDELSTVI
VOL. 31, no. 5/6, Dec, 1958

Korobochkin, I. Measuring average traction resistance in agricultural machines and implements by a RTTK-A FI mechanical measuring instrument. Tr. from Russian. p. 279.

Monthly List of East European Accessions (EEAI) LC, Vol. 2, no. 5,
May 1959, Unclass.

KOROBOCHKIN, I.V.; SHELENOVICH, B.M.

Equipment for automatic regulation of climatic conditions in
greenhouses. Biol. tekhn.-ekon. inform. no. 2:56-58 '61.

(MIRA 14:2)

(Greenhouse management)

KOROBOCHKIN, I.V., kand. tekhn. nauk; RAYKHLIN, Kh.M., inzh.

New method for automatic recording of the mechanical work of tractor engines. Mekh. i elek. sots. sel'khoz. 21 no.1:20-23 '63. (MIRA 16:7)

1. Agrofizicheskiy nauchno-issledovatel'skiy institut.
(Tractors-Engines)

KOROBOCHKIN, I.Yu., inzhener.

Improving the kinematics of mills for cold pipe rolling. Stal' 16
no.9:806-808 S '56. (MLRA 9:11)

1. Tushnotrubnyy metallurticheskiy zavod.
(Rolling mills) (Pipe, Steel)

TRUBCHENKO, P.A., inzhener; KOROBCHIKIN, I.Yu., inzhener; KIRVALIDZE,
H.S., inzhener.

Wider application of tube-beader mills. Stal' 16 no.1:41-43 '56.
(MLRA 9:5)

(Pipe, Steel) (Rolling mills)

KOROBOCHKIN, I.Yu., inzhener; GOSBIN, G.Ya., inzhener.

Thickness allowances for walls of steel pipes. Standartizatsia no.2:
70-72 Mr-Ap '57. (MIRA 10:6)

1. Yushnetrubnyy zavod.
(Pipe, Steel--Standards)

Korobochkin, I.Yu.

AUTHOR: None Given

28-5-22/30

TITLE: Answers to Published Articles and Letters (Otvety na opublikovannyye stat'i i pis'ma)

PERIODICAL: Standartizatsiya, 1957, # 5, p 81 (USSR)

ABSTRACT: This short note deals with three letters received by the editors.

1. Concerning the article by G.A. Narkevich, "Standartizatsiya" # 3, 1957, ("Production of Self-Aligning Rubber Seals"), the Deputy Chief of the Technical Administration of the Ministry of Chemical Industry of the USSR, Zakharchenko, writes that a special automated workshop for production of the aforementioned seals is under construction at the Kursk Rubber Plant (Kurskiy rezinovyy zavod). A project for a standard for the above-mentioned rubber seals will be developed later, when sufficient experience has been accumulated.

2. Concerning the article by I.S. Rusakova "Influence of Test Conditions on the Tear Characteristics of Fabrics", Chief of the Consumer Goods Department of the Committee of Standards, Measures and Measuring Devices, Malinkin, writes that it is planned to develop a new standard for methods of testing the strength of fabrics in 1958. Some of Rusakova's suggestions

Card 1/2

Answers to Published Articles and Letters

APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000824810001-7"

28-5-22/30

will be taken into consideration in the standard project.

3. Member of the Committee of Standards, Measures and Measuring Devices, Tkachenko, writes that the Committee plans the revision of basic standards for seamless steel pipes during 1957, and that the suggestions made by I.Yu. Korobochkin and G.Ya. Ostrin ("Standartizatsiya", # 2, 1957) in the article "Tolerance System for Wall Thickness of Steel Pipes" will be considered.

AVAILABLE: Library of Congress

Card 2/2

KOROBOCHKIN, I.Yu., inzh.; PROTSKIY, N.Ye., inzh.; PANYUSHKINA, Ye.G., inzh.

Increasing the strength of calibers used in pipe cold rolling mills
at the Nikopol' Southern Pipe Plant. Bul. TSNIIIGM no.1:20-24 '58.
(Nikopol'—Rolling mills) (MIRA 11:5)

SHEVCHENKO, A.A., doktor tekhn. nauk; GULYAYEV, G.I., kand. tekhn. nauk;
YURGENYAS, V.A., mladshiy nauchnyy sotrudnik; KITANENKO, V.P.,
inzh.; DERGACHE, A.Ya., inzh.; ZUYEV, I.I., inzh.; KOROBCHIKIN, I.Ya.,
inzh.

Reduction of stretched thin-walled pipes. Bul. TSNIGEM no.4:
31-33 '58. (MIRA 11:5)

(Pipe) (Rolling (Metalwork))

AUTHORS: Kirvalidze, N. S., Korobochkin, I. Yu. SOV/32-24-7-32/65

TITLE: A Simplified Method for the Testing of Metals on Their Boring Suitability (Uproshchennyy metod ispytaniya metalla na proshivayemost')

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 7, pp. 850 - 854 (USSR)

ABSTRACT: G.G.Pishchikov, V.S.Rudoy, D.V.Gladkikh and N.S.Yakimenko assisted in the tests carried out in the laboratory and the works. A number of determination methods for such investigations are already known. They are, however, inaccurate or too complicated, as for example the method of estimating the boring suitability according to the critical pressure at which a cavity is formed on the sample. With this method a greater number of test pieces is required in order to obtain accurate results. In order to remove this shortcoming a method was developed, using conical or step-shaped samples. The critical pressure is computed from a given equation. After the test the bore-hole is uncovered (by planing etc.). By this method values were

Card 1/2

A Simplified Method for the Testing of Metals on Their Boring Suitability SOV/32-24-7-32/65

obtained which correspond to the dimensions of the sample and of the bore-hole. In order to find the range of applicability and the accuracy of the method tests were made with a number of steel types. The samples were heated to 1200° for 20 minutes. The results obtained for the different steel types are given. It was found that values obtained from control samples of the step-like and the conical type are comparatively close to each other. However, the latter give more precise values than the first. Among other tests comparative determinations were carried out according to a method which was developed by the Institute for Electric Welding imeni Paton AS Ukraine SSR. The method was found to have a satisfactory accuracy. Hence it can be applied as a standard method for this type of determination with highly-alloyed and alloyed steels. There are 4 figures, 3 tables, and 6 references, 6 of which are Soviet.

ASSOCIATION: Nikopol'skiy Yuzhnotrubnyy metallurgicheskiy zavod (Nikopol'
South Metallurgical Tubeworks)

Card 2/2

SOV/133-59-1-15/23

AUTHORS: Rudoy, V.S., Alferova, N.S., Kononov, V.P., Nesterova, N.N.,
 Korobochkin, I.Yu, Kirvalidze, N.S., Dergach, A.Ya. and
 Yakimenko, N.S.

TITLE: The Technology of Production of Seamless Tubes from High-
 alloy Steels Alloyed with Boron (Tekhnologiya proizvodstva
 besshovnykh trub iz vysokolegirovannykh staley s borom)

PERIODICAL: Stal', 1959, Nr 1, pp 68 - 73 (USSR)

ABSTRACT: Efforts made in 1956 to produce seamless tubes from high-
 alloy steels containing boron EI769 and EI770 gave
 negative results but in 1957 after some changes in the
 technology of smelting the metal, satisfactory results
 were obtained although there were no substantial changes
 in the chemical composition of the metal (% , numerator -
 data for 1957, denominator - for 1956):

	C	Si	Mn	Cr	Ni	W	Ti	B
EI769(Kh13N16TR)	$\frac{0.08}{0.07}$	$\frac{0.55}{0.64}$	$\frac{1.65}{1.73}$	$\frac{13.7}{13.7}$	$\frac{15.7}{14.9}$	$\frac{-}{-}$	$\frac{0.81}{0.90}$	$\frac{0.009}{0.0037}$
EI770(Kh13N18V2TR)	$\frac{0.08}{0.08}$	$\frac{0.51}{0.56}$	$\frac{1.58}{1.90}$	$\frac{13.2}{14.2}$	$\frac{19.7}{19.4}$	$\frac{2.34}{2.10}$	$\frac{0.81}{0.69}$	$\frac{0.0023}{0.0026}$

Card1/5

SOV/133-59-1-15/23

The Technology of Production of Seamless Tubes from High-alloy Steels Alloyed with Boron

The main characteristics of the technology of smelting metal in 1956 and 1957 differed as follows: a) in 1956, smelting was carried out in a 20-ton arc furnace from a charge containing 40-47% of stainless scrap (the remaining-soft iron and fresh ferroalloys); oxygen was used during melting and oxidising period (500 - 700 m³ per heat); slag and metal were deoxidised before the addition of ferrochromium and with the addition of ferrotitanium onto the metal freed from slag 15-20 min before tapping; b) in 1957 smelting was carried out in a 4.5-ton arc furnace from a fresh charge containing from 55 to 78% armco iron and corresponding ferroalloys without utilisation of scrap and oxygen; refining under a white slag with the addition of ferrotitanium after the removal of slag 8-10 min before tapping. In both cases the metal was cast in 500-kg ingots. The quality of tube billets 85 mm in diameter in 1957 was higher than in 1956. The microstructure of metal in both cases consisted of austenite with fine intermetallic inclusions, stretched in the form of lines along the direction of rolling. Piercing ability of the steels was tested on conical specimens (Ref 3). The determination of

Card2/5

SOV/133-59-1-15/23

The Technology of Production of Seamless Tubes from High-alloy Steels Alloyed with Boron

plasticity and structure of steels was carried out within a temperature range 950 - 1300 °C. Both steels were found to possess a comparatively high plasticity in the temperature range 975 - 1075 °C (Figures 1 and 2), higher than for steel 1Kh18N9T. However, the plasticity of the latter steel increases with increasing temperature while for EI769 and 770 it sharply decreases. In hot torsion tests (Figures 3 and 4) the differences in the plasticity of the experimental steels was more pronounced. The resistance to deformation of both steels is similar (Figure 4) but at all temperatures is higher than for 1Kh18N9T steel. In hot torsion tests the loss of plasticity of the experimental steels was less pronounced than in piercing tests. In the first case, loss of plasticity was observed at 1300 °C and in the second case at 1250 °C. On the basis of the above investigation the following piercing practice for the industrial conditions was proposed: the temperature of billets before the mill 960-980 °C, piercing temperature 1100 - 1120 °C, in addition piercing at 1140 - 1150 ° and 1180 - 1200 °C was tested. Hot rolling of tubes

Card3/5

SOV/133-59-1-15/23

The Technology of Production of Seamless Tubes from High-alloy Steels Alloyed with Boron

under industrial conditions is described in some detail. The results obtained are given in Table 1. The inspection of tubes after pickling indicated that for steel EI769 the proposed piercing practice (temperature 1 100 - 1 120 °C) gave the best results. A large-scale rolling of tubes from this steel yielded 90% of good-quality products. Rolling of tubes from steel EI770 was tried at four different temperature ranges (temperature before piercing: 920-980; 980-1 000; 1 020-1 040 and 1 040-1 050 °C - Table 2). Optimum results were obtained at a temperature before piercing of 950 °C. 95% of good-quality tubes was obtained. Mechanical properties of hot-rolled tubes before and after hardening are given in Table 3. Hardening of tubes was carried out from 1 100 °C. The dependence of the consumption of energy, power and heating-up of the metal during piercing on the temperature of the metal before piercing is shown in Figure 6. It is concluded that:

- 1) boron-containing steels of austenitic class EI769 and EI770 possess a lowered temperature at the beginning of incipient melting of grain boundaries; their optimum plasticity is shifted towards lower temperatures; they

Card4/5

SOV/133-59-1-15/23
The Technology of Production of Seamless Tubes from High-alloy
Steels Alloyed with Boron

possess high resistance to deformation and heat up intensively during piercing. The resistance to deformation of these steels is higher than of 1Kh18N9T steel which makes their piercing more difficult, particularly that with increasing temperature their plasticity decreases (unlike 1Kh18N9T steel). The developed methods of rolling these steels give quality hot-rolled tubes from EI769 steel without repairs and from EI770 steel with repairs which are usually permitted for high-alloy tubes, providing the metal is produced from fresh charges by the improved (1957) technology. The results of measurements of power consumption and heating up can be utilised for an approximate evaluation of these parameters during piercing of other austenitic steels. There are 6 figures, 3 tables and 6 Soviet references.

Card5/5

AUTHORS: Plyatskovskiy, O.A., Candidate of Technical Sciences
and Korobochkin, I.Yu, Kirvalidze, N.S., Engineers

TITLE: Some New Techniques in the Production of High-alloy Tubes
(Novoye v tekhnologii proizvodstva vysokolegirovannykh trub)

PERIODICAL: Stal', 1959, Nr 5, pp 436 - 441 (USSR)

ABSTRACT: A considerable increase in the rate of production of medium- and large-diameter high-alloy tubes was obtained by increasing the degree of elongation to optimum values during the first and subsequent piercing operations. The new practice was based on the following considerations:

- 1) Cracks and other defects which are usually observed on the internal surface of pierced billets appear not only as a result of stresses acting on metal in the zone of the piercing cone, but also due to stresses in the cone of rolling (in the zone of deformation of metal between the rolls, mandrel and guides).
- 2) A decrease in the non-uniformity of deformation which is a characteristic feature of piercing, can be obtained by applying large coefficient of elongation during the first piercing in the

Card1/3

SOV/133-59-5-16/31

Some New Techniques in the Production of High-alloy Tubes

rolling section of rolls of the piercing mill. The optimum value of the degree of elongation should be determined for each type of steel and for each size of tube billets. 3) It is advantageous to concentrate the main deformation of the metal on a possibly smaller length of the zone contact of metal with rolls. 4) A decrease in the volume of the metal undergoing deformation with tensile stresses can be obtained by using a more closed pass by a maximum decrease in the ratio of the distance between guides to the distance between rolls, or by an appropriate shaping of the guides. 5) It is necessary to decrease the number of piercing operations and reheatings as these have a negative influence on the plastic properties of metal. The latter can be obtained by an increase in the degree of reduction (in comparison with that recommended in the literature) at the narrowing part of the rolls and in front of the mandrel. The influence of the degree of elongation on the quality of tubes from steel 1Kh18N9T is shown in Tables 1 and 2. The technology of production of high-alloy tubes on mills 140 and 400, based

Card2/3

SOV/133-59-5-16/31

Some New Techniques in the Production of High-alloy Tubes

on the above considerations was introduced at the Novotrubnyy Works. The comparative data on the old (nominator) and new (denominator) practices are given in Table 3. With the new rolling practice the output of the mill 140 on rolling high-alloy tubes was nearly doubled and of 400 increased by 10-20%. There are 3 tables, 4 figures and 9 Soviet references.

ASSOCIATIONS: UkrNITI and Yuzhnotrubby zavod (Yuzhnotrubby Works)

Card 3/3

Korobochkin, I. Yu.

3

9/131/E/1/60/003/013/069
AC05/A101

1.1500 *date* 1415, 1454

AUTHORS: Shevchenko, A.A., Oliyayev, O.I., Yurgalenas, V.A., Kiranenko, V. P., Dergach, A.Ya., Zuyev, I.I., Korobochkin, I.Yu.

TITLE: A technology of pipe reduction with tension

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no.3, 1961, 33, abstract 50266 ("Byul. nauchno-tekhn. inform. Ukr. n.-i. truda. in-U", no.6 - 7, 1959, 15 - 21)

TEXT: VNIIT together with the Yuzhnorutnyy Plant determined the parameters of pipe reduction with tension, in order to assist the pipe-rolling shop in assimilating the given technology. For the first time pipes of 57x2.75; 50x2.75; 38 x 2.75; and 38 x 2.5 mm with $\pm 10\%$ tolerance of wall thickness were obtained by hot rolling for the cold drawing shop. The authors investigated and recommended the grooving of rolls of the reduction mill with higher partial deformations.

K. U.

[Abstracter's note: Complete translation.]

Card 1/1

TRUBCHENKO, P.A., inzh.; KOROBOCHKIN, I.Yu.; KIRVALIDZE, N.S., inzh.;
SHVEDCHENKO, A.A., inzh.

Investigating the parameters of the second piercing of specially thin-walled shells. Stal' 20 no.10:922-928 O '60. (MIRA 13:9)

1. Yushnotrubnyy zavod.
(Rolling (Metalwork)) (Pipe mills)

KOROBCHKIN, I.Yu.; KIRVALIDZE, N.S.; GLADKIKH, D.V.; YESAULOV, A.T.;
ROMANYUK, I.Ye.; KUTSENKO, I.S.

Accelerating the heating of stainless steel ingots before
piercing. Biul.TSIICHM no.4:40-42 '61. (MIRA 14:10)

1. Nikopol'skiy Yuzhnotrubnyy zavod.
(Rolling (Metalwork)) (Steel, Stainless)

L 52327-65 EWP(c)/EWP(k)/EWP(z)/EWA(c)EWT(d)/EWT(m)/EWP(b)/T/EWA(d)/EWP(l)/
EWP(v)/EWP(t) PF-4 MJW/JD/HW

ACCESSION NR: A⁵015685

UR/0133/64/000/012/1117/1119

AUTHOR: Kirvalidze, N.S. (Engineer); Korobochkin, I.Yu. (Engineer); Kurilenko, V. Kh. (Engineer); Dergach, A.Ya. (Engineer); Onishchenko, M.P. (Engineer); Samoylenko, V.D. (Engineer)

TITLE: Increasing the productivity of an automatic installation for rolling
Kh18N10T tubing 4

31
30
8

SOURCE: Stal', no. 12, 1964, 1117-1119

TOPIC TAGS: pipe, steel, metal rolling

Abstract: The pierceability of Kh18N10T steel is sharply improved by increasing the mandrel slope up to 11° (critical reduction here reaches 13%, what a a slope angle of 9°--only around 10%).

Laboratory and industrial experiments showed that the mandrel rpm's (in the range of 70-140 rpm) have little effect on the pierceability of this steel. Increasing the number of rpm's of the mandrel made it possible to increase productivity by 15% for high-quality tubing. 14

Card 1/2

L 52327-65

ACCESSION NR: AP5015685

The main factor, affecting the internal surface quality of casings, for a change of rpm, is the degree of strengthening and weakening processes. At substantially high rates of deformation the processes of weakening do not have time to occur and, therefore, a change of rpm of the mandrel in the piercing of Kh18N10T billets does not affect pierceability. Orig. art. has 2 figures and 3 formulas.

ASSOCIATION: Nikopol'skiy yuzhnotrubby zavod (Nikopol' Yuzhnotrubby Plant)

SUBMITTED: 03

ENCL: 00

SUB CODE: MM, IE

NO REF SOV: 005

OTHER: 000

JPRS

Card 2/2 mb

L 12144-66 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) MJW/JD/HW

ACC NR: AP6000595

SOURCE CODE: UR/0133/65/000/012/1108/1110

AUTHOR: ^{4/4 55} Bernshteyn, M. L.; ^{4/11 55} Dregan, N.; ^{4/11 55} Korobochkin, I. Yu.; ^{4/11 55} Vil'yams, O. S.; ^{4/11 55} Kurilenko, V. Kh.; ^{4/11 55} Koval'chuk, T. M.

ORG:

5/1
B

TITLE: Possibilities and prospects for the combined hot and cold working of drilling-rig pipe

SOURCE: Stal', no. 12, 1965, 1108-1110

TOPIC TAGS: pipe, ^{steel} heat treatment, cold working, work hardening, carbon steel low alloy steel/ D steel, 36G2S steel

ABSTRACT: It is shown that the high-temperature thermomechanical treatment (combined cold and hot working) of pipe manufactured from D and 36G2S steels (0.44% C, 1.10% Mn, 0.32% Si, and 0.38% C, 1.65% Mn, 0.58% Si, respectively), as ^{4/4, 55} based on water quenching from 840-850°C immediately after rolling, followed by tempering, for 1 hr at temperatures of from 100 to 600°C, markedly increases the mechanical properties of the pipe (following low-temperature tempering, $\sigma_B = 220-240 \text{ kg/mm}^2$ at $\delta = 7-8\%$, and following high-temperature tempering $\sigma_B = 95-115 \text{ kg/mm}^2$ at $\delta = 11-14\%$) This effect is still further enhanced when the treatment is followed by tempering at 500°C for 1 hr, high-speed heating to 850°C for 3 min, water quenching, and final low-temperature temper-

Card 1/2

UIC: 621 774 658 562

L 12144-66

ACC ~~AP6000595~~ APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000824810001-7"

ing, which results in the work-hardening of the metal. Experiments with accelerated compressed-air cooling of the pipe immediately after rolling show that this magnifies even further the effect of preceding work hardening as compared with ordinary normalization, as was found by subjecting pipe rolled from D and 36G2S steels to cooling with high-pressure compressed air immediately after rolling, with subsequent tempering at from 400 to 600°C for 1.5 hr. This opens broad vistas for replacing alloy steels with carbon and low-alloy steels. Orig. art. has: 5 tables, 1 figure.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 000

HJW
Card 2/2

L 32760-66 EWT(m)/EWP(j)/T IJP(o) DS/WW/RM

ACC NR: AP6009896

SOURCE CODE: UR/0413/66/000/004/0087/0087

INVENTOR: Kogan, V. A.; Korobochkin, I. V.

17
B

ORG: none

TITLE: Humidity element for air and gas. Class 42, No. 179037^K [announced by Scientific Research Institute of Agricultural Physics, Academy of Agricultural Sciences im. V. I. Lenin (Agrofizicheskiy nauchno-issledovatel'skiy institut Akademii Sel'skokhozyaystvennykh nauk)]

SOURCE: Isobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 97

TOPIC TAGS: air moisture, gas moisture, humidity element

ABSTRACT: An Author Certificate has been issued for a humidity element for air and gas. It contains a nonconductive base with comb-like electrodes and a moisture-sensitive coating. To increase both the stability and sensitivity of the element, the moisture-sensitive coating is made of a heat-treated organic semiconductor such as polyacrylonitrile. ¹⁵ ¹⁵ ¹⁵ [LD]

SUB CODE: 13/ SUBM DATE: 11Jan65/

Card 1/1 *BLG*

UDC: 533.275.002.56

ANTONOV, N.G., gornyy inzh.; GRADOBIK, A.N., gornyy inzh.; KOROBOCHEIN, K.I.,
gornyy inzh.

Mastering the P-25 roller-boring machine at the Magnitogorsk mine.
Gor.zhur. no.3:39-41 Mr '65. (MIRA 18:5)

1. Gornoye upravleniye Magnitogorskogo metallurgicheskogo kombinata.

ATAYEV, S.S., kand.tekhn.nauk; ZALOGO, V.F., inzh.; KOROBOCHKIN, M.A.,
inzh.; PEVZNER, E.D., kand.tekhn.nauk; ROGOVIN, Ya.A., inzh.;
RAKUT', B.A., inzh.; RUBIN, V.I., inzh.; TIRKEL'TAUB, I.D.,
inzh.; FROLOV, N.P., kand.tekhn.nauk; YANKOVSKIY, I.P., inzh.;
MOROGOVSKIY, V.M., inzh., retsenzent; ZHIZHEL', I.M., inzh.,
red.; KAZACHEK, G.A., red.; GOLUBTSOVA, P., red.; STEPANOVA,
N., tekhn.red.

[Builder's handbook] Spravochnik мастера-stroitelia. Izd.4.,
perer. i dop. Minsk, Gos.izd-vo BSSR. Red.nauchno-tekhn.
lit-ry, 1959. 659 p. (MIRA 13:1)

1. White Russia. Ministerstvo gorodskogo i sel'skogo stroitel'-
stva.

(Building)

KOROBOCHKIN, M.I., student.

Using the multi-group method for adjusting large triangulation nets.
Trudy MIIGAIK no.21:57-83 '55. (MLRA 10:1)

1. Moskovskiy institut inzhenerov geodezii, Kafedra vysshey geodezii.
(Triangulation)

KUROBOCHKIN, M. L.

3(4)

PHASE I BOOK EXPLOITATION

SOV/2072

Moscow. Institut inzhenerov geodezii, aerofotos "yemki i karto-
grafii

Trudy, vyp. 30 (Transactions of the Moscow Institute of Geodetic,
Aerial Survey and Cartographic Engineers, № 30) Moscow, Geo-
dezizdat, 1958. 95p. Errata slip inserted. 1,200 copies print-
ed.

Editorial Board: A. I. Mazmishvili (Resp. Ed.), V. I. Avgeyevich
(Deputy Resp. Ed.), G. V. Bagratuni, N. Ya. Bobir, M. N.
Volkov, A. I. Durnev, S. V. Yeliseyev, P. S. Zakatov, G. P.
Levchuk, N. I. Modrinskiy, M. D. Solov'yev, B. V. Fefilov, and
P. F. Shokin.

PURPOSE: This collection of articles is intended for geodesists,
photogrammetrists and cartographers.

COVERAGE: This issue is devoted primarily to problems in geo-

Card 1/4

Transactions of the Moscow Institute (Cont.) SOV/2072

desy. Individual articles on photogrammetry and cartography are also included. The articles on geodesy treat: 1) the computation of coordinates from sides in primary triangulation, 2) continuous operation electric computers for adjustments, 3) solar eclipses as related to the figure of the Earth, 4) problems of the Earth's flattening, 5) surveys for construction work, and others. On the subject of photogrammetry there are articles on photo rectifier FTB and on the properties of silver bromide. In cartography, the matter of problematical islands in the Arctic is discussed. References accompany individual articles.

TABLE OF CONTENTS:

Osinskiy, B. Tables for Non-Logarithmic Computation of Geodetic Coordinates from Sides of First Order Triangulation	5
<u>Korobochkin, M.</u> The Question of Using Continuous Operation Electric Computers in Errors Compensation	13
Plakhov, Yu. Solar Eclipses and the Figure of the Earth.	

Card 2/4

Transaction of the Moscow Institute (Cont.)

SOV/2072

General Theory	23
Plakhov, Yu. Some Problems in the Theory of Determining the Polar Flattening of the Earth from Lunar Parallax	31
Feygel'man, A. Signal Lamps	35
Bronshteyn, G. Establishing Survey Nets for Construction Work by Professor A. I. Durnev's Method of Intersections	41
Nemtsov, V. Applying Elements of the Theory of Matrices to Some Problems of the Theory of Mathematical Processing of Observations	53
Kolobkova, L. Evaluation of the PTB (photo rectifier)	73

Card 3/4

KOROBOCHKIN, M. I. student

Use of continuous electronic computers in adjustment operations. Trudy
MIIGAIK no.30:13-22 '58. (MIRA 12:3)

1. Kafedra vysshey geodesii Moskovskogo instituta inzhenerov geode-
zii aerofotos"yemki i kartografii.
(Triangulation)
(Electronic calculating machines)

KOROBOCHKIN, M.I.

Determining the coefficient of the increase of the rated velocity
head of the wind for trihedral signals. Geod. i kart. no.1:16-22
Ja '62. (MIRA 15:1)

(Triangulation signal towers)

L 06551-67 EWT(1) GW

ACC NR: AP6017065

SOURCE CODE: UR/0154/65/000/005/0013/0020

34
13

AUTHOR: Korobochkin, M. I. (Candidate of technical sciences)

ORG: Moscow Institute of Earth Construction Engineers (Moskovskiy institut inzhenerov zemleustroystva)

TITLE: Planning a relief by the methods of mathematical programming

SOURCE: IVUZ. Geodeziya i aerofotos"yemka, no. 5, 1965, 13-20

TOPIC TAGS: computer programming, civil engineering, road

ABSTRACT: The article describes an analytical method developed by the author for designing permissible surfaces for a given project with the minimum amount of earth. Also given is a procedure for minimizing the amount of transportation required for the project. The first part of the article considers the surface of an object, on which vertical planning must be carried out, given by index labels H_j ($j=1,2,\dots,n$) of a series of points with plane coordinates X_j, Y_j . The problem is to determine the projective index labels Z_j of the points with the same plane coordinates which (i.e., labels) satisfy technical requirements and also minimize the total volume of earth works:

UDC: 528: 625: 726

Card 1/2

L 06551-67

ACC NR: AP6017065

$$V = a^2 \sum_{j=1}^n |Z_j - H_j|.$$

where parameter a is the side of the squares having centers with the given coordinates. (Konovalov, N. Ye., Gulenko, V. P., "Numerical model of a region for tracing with the aid of a digital computer," *Transportnoye stroitel'stvo*, 1963, No. 1). The optimality problem is stated by the author in a form suitable for computer solution, with the engineering restrictions represented by systems of linear inequalities. The second part of the article considers a variation of the usual problem of determining the most advantageous routes and volumes of loads transported by linear programming (Zukhovitskiy, S. I., Avdeyeva, L. I., *Lineynoye i vypukloye programmirovaniye M. iz-vo "Nauka"*, 1964). The problem can be solved in three minutes of machine time on the BESM-2 computer with a program involving a multiplicative algorithm of the simplex method. Orig. art. has: 2 figures, 3 tables.

SUB CODE: 13,09,08/

SUBM DATE: 17Feb65/

ORIG REF: 005

Card 2/2 *MLE*

KOROBOCHKIN, M.I., aspirant

Using masts to hoist targets in the construction of geodetic signals.
Izv.vys.ucheb.zav.; geod.i aerof. no.6:59-62 '61. (MIRA 15:3)

1. Moskovskiy institut inzhenerov zemleustroystva.
(Triangulation signal towers)

MIKHNEVICH, Grigoriy Vasil'yevich, dots.; RYAZANOV, Viktor Pavlovich, dots.; SIBIRYAKOVA, Aleksandra Dmitriyevna, dots. Prinimali uchastiye: BATRAKOV, Yu.G., dots.; VITMAN, A.I., dots.; YUNOSHEV, L.S., aspirant; KOROBOCHKIN, M.I., assistant; NEKHOROSHEV, M.Ye., retsenzent; BOGOLYUBOVA, N.S., retsenzent; NIKOLENKO, N.F., retsenzent; CHERNUKHIN, L.S., retsenzent; NESHCHADIMOV, L.S., retsenzent; LARCHENKO, Ye.G., prof., red.

[Surveying] Geodeziia. Moskva, Nedra. Pt.2., 1964. 338 p.
(MIRA 17:12)

1. Zamestitel' nachal'nika Upravleniya sel'skokhozyaystvennykh aerofotos'yemok (for Nekhoroshev). 2. Kafedra vysshey geodezii Omskogo sel'skokhozyaystvennogo instituta (for Bogolyubova, Nikolenko, Chernukhin, Neshchadimov).

L 42:93-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l) IJP(c) JD/WW/JG
ACC NR: AP6019828 (N) SOURCE CODE: UR/0370/66/000/001/0073/0079

AUTHOR: Korobochkin, Yu. M. (Moscow); Pautov, V. D. (Moscow);
Shiryayev, V. I. (Moscow)

43
41
B

GRG: none

TITLE: Some characteristics of electron beam zone refining of metals

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1966, 73-79

TOPIC TAGS: electron beam, metal zone refining

ABSTRACT: The basic units of the electric part of the apparatus were:
a Type FRS ferroresonance stabilizer, a high voltage transformer, a
Type RNO-250-2 regulating autotransformer, and two Typr TRI-6/15
thyratrons fed by heating transformers. A high voltage was applied to
the sample which formed the anode. The emission current could be
uniformly regulated from 0 to 300 ma. As a result of the evolution of
gases and the vaporization of impurities, the emission current varies
within wide limits and makes the melting process difficult, sometimes
even leading to an electrical discharge and to fracture of the sample.
The article gives a diagram of the electric circuit. The mechanical
part of the apparatus (illustrated) made possible movement of the

UDC: 669.054

Card 1/2

FINOSHIN, A.Ye.; KOROBOCHKINA, A.L.

Device for determining the moisture of the wood particle mass.
Der.prom. 10 no.5:21 My '61. (MIRA 14:5)
(Wood--Moisture)

KOROBOCHKINA, A.L.

FINOSHIN, A.Ye., inzh.; KOROBOCHKINA, A.L., inzh.

Use of laminated plastics for furniture facing. Der.prom. 10
no.2:21 F '61. (MIRA 14:3)

1. Moskovskiy mebel'no-sborochnyy kombinat No.2.
(Furniture) (Laminated plastics)

KOROBCHIKINA, T. V.

17

PHASE I BOOK EXPLOITATION SOV/5747

Vsesoyuznoye soveshchaniye po redkim shchelochnym elementam. 1st, Novosibirsk, 1958.

Redkiye shchelochnyye elementy; sbornik dokladov soveshchaniya po khimii, tekhnologii i analiticheskoy khimii redkikh shchelochnykh elementov, 27-31 yanvarya 1958 g. (Rare Alkali Elements; Collection of Reports of the Conference on the Chemistry, Technology, and Analytical Chemistry of Rare Alkali Elements, Held 27-31 January, 1958) Novosibirsk, Izd-vo Sibirakogo otd. AN SSSR, 1960. 99 p. 1000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Sibirskoye otdeleniye. Khimiko-metallurgicheskiy institut.

Resp. Ed.: T. V. Zabolotskiy, Candidate of Technical Sciences; Members of Editorial Board: A. S. Mikulinskiy, Professor, Doctor of Technical Sciences, A. T. Logvinenko, Candidate of Technical Sciences, F. F. Barkova, Candidate of Chemical Sciences; Ed.: V. M. Bushuyeva; Tech. Ed.: A. F. Mazurova.

Card ~~1/5~~

Rare Alkali Elements; Collection (Cont.)

SOV/5747

PURPOSE: This book is intended for chemical engineers and technicians working in metallurgical and mining operations and related enterprises.

COVERAGE: The collection contains reports which deal with the physical and analytical chemistry of rare alkali elements and their compounds and their reactions with mineral ores and salts. Methods of extraction and modern analytical techniques and equipment are also discussed. No personalities are mentioned. References accompany individual articles.

TABLE OF CONTENTS:

Urazov, G. G. [Deceased], V. V. Plyushchev, Yu. P. Simelov, and I. V. Shakhno [Moskovskiy institut tonkoy khimicheskoy tekhnologii im. (M.V.) Lomonosova - Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov]. High-Temperature Modification of Spodumene 5

Plyushchev, V. Ye. [Moscow Institute of Fine Chemical Technology

Card 2/5

Rare Alkali Elements; Collection (Cont.)

SOW/5747

Kozlov, A. S. [Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta - Chemistry Department of Moscow State University]. A New (Turbidimetric) Method of Determining Small Amounts of Cesium With the Aid of Cesium and Cadmium Ferrocyanides 79

Galkina, N. K., and H. M. Senyavin. [Institut geokhimi i analiticheskoy khimii AN SSSR - Institute of Geochemistry and Analytical Chemistry of the Academy of Sciences USSR] Chromatographic Separation of Mixtures of Alkali Metals 87

Zabrodin, N. I., A. A. Neehayeva, and T. V. Korobochkina. [Vsesoyuznyy nauchno-issledovatel'skiy institut galyurгии - All-Union Scientific Research Institute of Halurgy]. The Content of Rare Alkali Elements in Natural Salts of the Soviet Union and Prospects of Its Utilization in Industry 97

AVAILABLE: Library of Congress (QD 172.A4V8)

JA/rsm/jw
11-27-61

Card 5/5

S/137/62/000/001/016/237
AO60/A101

AUTHORS: Zabrodin, N. I., Nechayeva, A. A., Korobochkina, T. V.

TITLE: Content of rare alkali elements in the mineral salts of the Soviet Union and plans for their industrial extraction

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 5-6, abstract 1042 (V sb. "Redk. shchelochn. elementy". Novosibirsk, Sib. otd. AN SSSR, 1960, 97-100)

TEXT: The authors report on the results of a study of the content and distribution of rare alkaline elements in the mineral salts of the Soviet Union. The concentration of Cs and Tl in the mineral salts studied is not industrially worthwhile. The Sr content in some waters and salts attains up to 0.01 - 0.1%, and sometimes up to 1%, however, their processing is for the meanwhile inexpedient, in view of the large stores of Sr in ores. Slimes and clayey materials of salt rocks and lake-bottom deposits are always enriched with Rb and usually contain it in a ratio of $n \cdot 10^{-2}\%$. These products may be considered as a potential natural base with practically unlimited stores of Rb. Traces of Rb are noted in other salt rocks not containing potash salts. In the natural

Card 1/2

S/137/62/000/001/016/237
A060/A101.

Content of rare alkali elements ...

waters and brines of salt lakes the Rb content does not exceed $n \cdot 10^{-4}\%$. Only Solikamsk carnalites and the exhausted electrolyte obtained from their processing in magnesium plants are of practical importance as raw Rb sources at the present time. The electrolyte contains 0.03 - 0.04% Rb. A new method is worked out for extracting Rb from spent electrolytes by the use of ion-exchange. Li is also concentrated in slime and clayey materials, but, in contradistinction to Rb which then passes into the solid phase, Li together with B remain in eutonic solutions. Boron-bearing strata of salts and salt bosses contain up to 0.1% Li_2O . In the course of processing these products for potash manure and boron products, it will probably be possible to extract Li by the way. Another possible source of Li extraction may be the brines of salt lakes and underground waters containing $(1 - 2) \cdot 10^{-3}\%$ Li, in the course of their complex processing for soda, borax, Br, I.

S. Rossovskiy

[Abstracter's note: Complete translation]

Card 2/2

KOROBOCHKINA, Z.S.; PAVLOVSKIY, Ye.N., akademik.

Biology of the young white sturgeon in the river environmental stage. Dokl.
AN SSSR 93 no.4:733-736 D '53. (MLRA 6:11)

1. Akademiya nauk SSSR (for Pavlovskiy).

(Sturgeons)

KOROBOCHKINA, Z. S.

"The Biology of Young Sturgeon of the Lower Don." Cand Biol
Sci, Moscow Technological Inst of the Fish Industry and Economy
imeni A. I. Mikoyan, Moscow, 1955. (KL, No 8, Feb 55)

SO: Sum. No. 631, 26 Aug 55--Survey of Scientific and Technical
Dissertations Defended at USSR Higher Educational Institu-
tions (14)

KARPEVICH, A.F., doktor biolog.nauk; BOKOVA, Ye.N., kand.biolog. nauk.;
KOROBOCHKINA, Z.S., red.; FORMALINA, Ye.A., tekhn.red.

[Methods of transporting aquatic invertebrates and fish
larvae for acclimatization purposes] Metody perevozki vodnykh
bezpozvonochnykh i lichinok ryb v tseliakh ikh akklimatizatsii.
Moskva, 1960. 55 p.

(MIRA 14:5)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut
morskogo rybnogo khozyaystva i okeanografii. 2. Vsesoyuznyy
nauchnyy institut morskogo rybnogo khozyaystva i okeanografii
(for Karpevich, Bokova)
(Invertebrates--Transportation) (Fishes--Transportation)

STRAKHOV, Vladimir Arsen'yevich; NUSENBAUM, Lev Mikhaylovich; GYUL'BADAMOV, S.B., spets. red.; KOROBOCHKINA, Z.S., red.; FORMALINA, Ye.A., tekhn. red.

[Electric fish screen of the ERZU-1 type] Elektricheskiy zagraditel' dlia ryb tipa ERZU-1. Moskva, Gos.nauchno-issl. in-t ozernogo i rechnogo rybnogo khoz., 1959. 37 p. (MIRA 14:12)
(Fish culture)

KALANTAROVA, Margarita Valerianovna; KOROBOCHKINA, Z.S., red.;
TENYAKOV, A.I., spets. red.; FORMALINA, Ye.A., tekhn. red.

[Technological and chemical specifications for canned fish
products] Tekhno-khimicheskie pokazateli rybnykh konservov.
Moskva, Vses. nauchno-issled. in-t rybnogo khoz. i okeanogra-
fii, 1960. 18 p. (MIRA 14:5)

(Fish, Canned)

KOROBOCHKINA, Z.S.

Dynamics of fish populations. Zool. zhur. 39 no. 10:1588-
1589 0 '60. (MIRA 13:11)

(Fisheries--Congresses)

KOGAN, A.S., spetsial'nyy red.; KOROBOCHKINA, Z.S., red.; UKRAINTSEVA, D.V.,
tekh. red.

[New developments in the organization and techniques of ship
repairing] Novoe v organizatsii i tekhnike sudoremonta.
Moskva, Rybnoe khoziaistvo, 1960. 105 p. (MIRA 16:6)

1. Russia (1917- R.S.F.S.R.) Murmanskiy ekonomicheskii
administrativnyy rayon. Sovet narodnogo khozyaystva.
(Ships—Maintenance and repair)

KOROBOCHKINA, Z.S.

Main stages in the development of sturgeon fisheries in the
Caspian basin. Trudy VNIRO 52:59-86 '64. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut morskogo
rybnogo khozyaystva i okeanografii.

KOROBOCHKINA, Z.S.

Past, present and future development of sturgeon fisheries in the
Sea of Azov. Trudy VNIRO no.54:175-202 '64.

(MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut morskogo
rybnogo khozyaystva i okeanografii.

KOROBCHKO, YU. S.

KOROBCHKO, YU. S. -- "On the Mechanism of Getting Electrons into Electronic Accelerators." Min Higher Education USSR, Leningrad Polytechnical Institute imeni M. I. Kalinin, Leningrad, 1956. (Dissertation for the Degree of Candidate of Physicomathematical Sciences)

SO: Knizhnaya Letopis' No 44, October 1956, Moscow

the above requirements, is recommended.

KOROBOCHKO, Yu. S. Cand Phys-Math Sci -- (diss) "Study of the process of
capture of electrons ⁱⁿ into the ^{model} system of betatron acceleration." Len, 1957.
15 pp (Min of Higher Education USSR. Len Polytechnic Inst im M. I. Kalinin)
100 copies (KZ, 43-57, 86)

AUTHOR

KOROBOCHKO, YU.S.,

PA - 28e1

TITLE

Electron Capture in Betatron.

(O mekhanizme zakhvata elektronov v betatrone - Russian)

PERIODICAL

Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 4, pp 745-747, (U.S.S.R.)

Received 5/1957

Reviewed 6/1957

ABSTRACT

In order to clarify the process of electron capture in the betatron (electron gun) on the occasion of acceleration, the relation between the current I_{em} which is introduced into the chamber of the betatron and the current I which circulates along the orbit during the capturing period, is determined. Besides, the question is investigated as to the manner in which I changes according to time during the capturing period. This is possible by taking into account that the capturing angle 2 which is contained in the expression for \bar{n}_{eff} (effective average number of revolution of the electron if there is a space charge in the chamber) is a function of the instantaneous radius r_1 . On the front of the impulse injection electron energy and r_1 increase. The angle and consequently also I , increase rapidly on this occasion after which they decrease slowly. At the rear front of the impulse injection the current increases slowly with the decreasing of r_1 but it then decreases rapidly again. The equation is derived in which the capturing processes of Kerst and Barden are contained as special cases. This equation is solved and the amplitude of the radial oscillation of the electron δ is obtained. This amplitude increases with an increase of the current in the chamber during the capturing period. During the capturing period

Card 1/2

AUTHOR: Korobochko, Yu. S.

57-27-7-31/40

TITLE: Investigation of the Capturing Process of Electrons in a Betatron (Issledovaniye protsessa zakhvata elektronov v betatrone).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 7, pp. 1603-1605 (USSR)

ABSTRACT: Experiments were made here, in order to measure the currents circulating in the vacuum-chamber of a betatron during the time of capture and in order to determine the relative efficiency of the capture in different impulse-injection-domains. The experiments were performed in the betatron of the Leningrad Polytechnic Institute ($E_{\gamma} = 15$ MeV). The current-measuring method employed was with some modifications that by Bess a.Hanson, Rev.Sci.Instr., 19, 108, 1948. The test showed that the betatron in operating position possesses the maximum γ -radiation-intensity when a maximum quantity \bar{n} is attained by means of a positioning control of the injector. A similar relation between the adjustment of the betatron to a maximum \bar{n} and the maximum γ -ray-discharge, although somewhat less distinct, exists upon modification of the angle under which the beam diverges from the injector,

Card 1/2

SUBMITTED: ~~October 27, 1957~~
1. Electron capture-Effectiveness 2. Betatrons-PerformanceAVAILABLE: ~~Library of Congress~~

9(3)

SOV/20-123-4-10/53

AUTHORS:

Komar, A. P., Academician of the AS UkrSSR, Korobochko, Yu. S.

TITLE:

On Two Processes Favoring the Capture of Electrons Under
Betatron Conditions of Acceleration (O dvukh protsessakh,
sposobstvuyushchikh zakhvatu elektronov v betatronnyy rezhim
uskoreniya)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 4, pp 643-644
(USSR)

ABSTRACT:

Various authors have already suggested mechanisms for the capture of electrons in a betatron (Refs 1-4). However, according to the opinion of the authors of the present paper, **two more** effects must be considered which may vary the amplitudes of the radial oscillations of the electrons considerably by the capture of part of these electrons. The first effect is shown by a diagram, which represents the orbit of the electron beam in the chamber during a period of the radial oscillations. In this case the orbit around which the radial oscillations happen to develop has the shape of a periodic curve, and its period is equal to that of the radial oscillations. The orbit of the electron is distorted under these conditions. The amplitude of the radial oscilla-

Card 1/3

SOV/20-123-4-13/53

On Two Processes Favoring the Capture of Electrons Under Betatron Conditions of Acceleration

tions of the electron emitted in the direction of the external chamber wall will decrease monotonously. From the point of view of the effect investigated such electrons are easily captured as were emitted by the injector in the direction of the external wall of the chamber. Besides the above investigated effect there must also be an interaction between those beams which circulate one behind the other. The beam probably retains its band-like shape for several circulations. Under these conditions a force will act upon the electron which will vary in a very complicated manner in the course of time; it may either increase or reduce the amplitudes of radial oscillations. The first effect is reduced to a monotonous variation of the electron radial oscillations (which are injected in the direction of the outer chamber wall) as a result of interaction occurring on the edges of the beam. The second effect is reduced to the scattering of electrons on the inhomogeneities in space charge distribution. There are 1 figure and 5 references, 3 of which are Soviet.

Card 2/3

21.9000

75331
SOV/57-29-10-8/18

AUTHORS: Ivanov, D. P., Komar, A. P., Korobochko, Yu. S.

TITLE: Investigation of the Non-Steady-State Current in a Betatron

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1959, Vol 29, Nr 10, pp 1235-1244
(USSR)

ABSTRACT: In the chamber of the betatron a circulatory current of electrons exists during the time of capture. This non-steady-state current, as it is called by the authors, is the subject matter of the study described in this paper. The study is of a purely experimental nature. Two methods of operation of the betatron are considered: a normal operation when the gamma-radiation is present, and the constant field operation. In the normal operation the intensity of gamma-radiation was 5 to 7 roentgen, the amplitude of the magnetic field was 4,050 oersteds, and the amplitude of the injection impulse was 30 to 50 kv. In the constant field method the amplitude of the magnetic field was 0 to 40 oersteds and the amplitude of the injection impulse did not exceed 10 kv. In the latter method the magnetic field in the airgap was constant,

Card 1/4

Investigation of the Non-Steady-State Current
in a Betatron.

75331
SOV/57-29-10-8/18

the current in the winding having been obtained from an electric battery, and the time duration of the injection impulse was purposely increased to between 30 and 50 μ sec. The coil placed on the vacuum chamber had 500 to 1,000 turns. The signal obtained in this coil was first preamplified, then passed through an iterated circuit of $R = 70,000$ ohms and $C = 7,000 \mu\mu f$, and amplified again before being passed through the oscilloscope. The amplifying circuit was checked, and it was observed that no distortions were introduced either in the shape or in the amplitude of the impulse. During the capture time when the beam begins to circulate within the chamber, not coming in contact with its external walls, the emitted electrons increase the magnitude of the current, this increase constituting the non-steady-state current. The time intervals between the injection impulses were measured on the oscilloscope. The magnitude of the error in measuring the non-steady-state current is determined from the natural noise of the amplifier and the degree of homing of the injection circuit; it did not exceed approximately 5 per cent. The results of the study show that the magnitude of the average number of revolutions n at first rapidly increases, then remains practically constant as

Card 2/4

Investigation of the Non-Steady-State Current
in a Betatron

75331
SOV/57-29-10-3/18

the radial coordinate r_N of the injection filament decreases. The magnitude of n begins to remain constant at the moment when almost all the electrons have been emitted within the limits of the capture angle and the orbital current begins to decrease. At that moment the gamma-radiation reaches its maximum value. It is described how this fact can be used for simple adjustment of the electrons in the betatron; it is stated that the method is used in factories for unsealed betatron chambers of sizes sufficiently small to be placed on a table. A relationship is given between the magnitude of the non-steady-state current at the time of capture and the current caused by the electrons emitted by the injector. As the emission current increases, the number n of revolutions decreases from 6-8 to about 2-3, or even less. The greatest value of the non-steady-state current never reached more than one half of the calculated value, which does not include the first-turn electrons. It was observed that the magnitude of n cannot be clearly defined as a function of the magnetic field, and that in the constant field method the magnitude of n fell considerably after several months of betatron operation. As n changes so also in a similar manner does the non-steady-state

Card 3/4

Investigation of the Non-Steady-State Current
in a Betatron

75331
SOV/57-29-10-8/18

current change. Measurements of this current show it to equal 50 to 60% of the maximum possible value of the orbital current. In the experiments described, no captured current was observed: not because it does not exist but because it was too small to be recorded by the measurement method used. Teumin, M. I., Oks, I.O., Kiselev, R. A., and Glushanok, Yu. B., helped in the study. There is 1 table, 6 figures, and 10 references, 5 Soviet, 4 U.S., and 1 British. The U.S. references are: *Rev. Sci. Instr.*, 29, 1958; *J. Appl. Phys.*, 29, 1958; *Phys. Rev.*, 1958; *Phys. Rev.*, 1958. The British reference is: *Proc. Phys. Soc.*, 65, 1951.

ASSOCIATION: Leningrad Polytechnic Institute im. Kalinina (Leningradskiy politekhnicheskij institut im. Kalinina)

SUBMITTED: August 20, 1958

Card 4/4

21.2000

77325
SOV/57-30-1-4/18

AUTHORS: Denisov, S. G., Ivanov, D. P. , Komar, A. P., Korobochko, Yu. S.

TITLE: Investigation of Electron Distribution in a Batatron Vacuum Chamber

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol 30, Nr 1, pp 31-36 (USSR)

ABSTRACT: The authors devised experiments to investigate the space charge distribution over the cross section of the chamber. During the injection time the electron distribution was studied with a fixed magnetic field while the distribution of the trapped electrons was studied during the work of the betatron and in the presence of γ -rays. All measurements were done on the betatron of the Leningrad Politechnic Institute (Leningradskiy politekhnicheskoy institut), with a maximum γ -ray energy of 15 mev. (1) Investigations of electron distribution over the chamber cross section at injection time: The block diagram is on Fig. 1. The probe is a molybdenum wire

Card 1/8

Investigation of Electron Distribution in
a Batatron Vacuum Chamber

77325
SOV/57-30-1-4/18

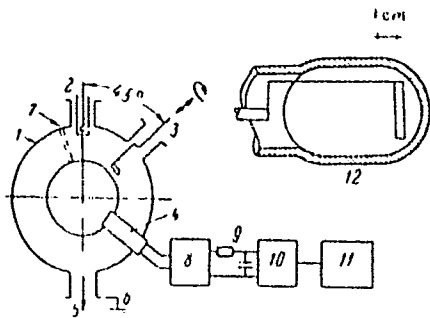


Fig. 1. (1) vacuum chamber;
(2) injector; (3) probe;
(4) coil; (5) pump connec-
tions; (6) grounding of
the conducting coating of
the chamber; (7) slit in
the conducting coating;
(8) and (10) preamplifier
and amplifier; (9) inte-
grating circuit; (11)
oscillograph; (12) diagram
of the probe position in
the chamber.

Card 2/8

Investigation of Electron Distribution in
a Batatron Vacuum Chamber

77325
SOV/57-30-1-4/18

1.2 mm in diameter, with a 5 x 25 mm² stainless steel plate at the end. The current in the chamber is reduced by the amount of the charge caught by the probe, and this quantity is proportional to the density of electrons at the position of the probe. The size of the current is measured by means of a coil, wound around the chamber, whose signal after amplification and time integration is fed to the input of an oscillograph with slave scanning. The input signal is, at every moment, proportional to the instantaneous magnitude of the nonstationary current in the chamber. The apparatus registers the current distribution at the moment when the radius of the injected electrons is near the geometrical center of the cross section of the chamber. The injection impulse was nearly equal to a half-wave of a sinusoid of approximately 40 μ sec duration and of an amplitude 4 to 8 kv. Prior to measurements the injector is always adjusted to yield a maximum value of the nonstationary current for the given emission from the injector. Figures 2a and 2b represent the decrease in the nonstationary current, I,

Card 3/8

Investigation of Electron Distribution In
a Batatron Vacuum Chamber

77325
SOV/57-30-1-4/18

as a function of the position of the probe. Curves are obtained for emission currents varying between 7 and 30% of the calculated limiting current. The authors explain that the variation in I/I_{\max} with the injection current intensity, is due to the registration procedure they have chosen and not due to processes occurring in the camera. Figure 2b shows two clear minimums corresponding to the first and second electron revolution in the chamber. From the position of these and the position of the filament, the authors obtain 0.69 for the effective value of n over the gap width, and for the angle between the circle tangent to the filament and the direction of the beam axis, a value $\theta = -2.2^\circ$. This yields the beam regions for the first five turns plotted at the top of Fig. 2b., where the trapping angle for the beam is limited by the width of the chamber to 8.8° . Compared to this, the width of the minimum shows that the actual trapping width corresponds to a $\theta' = 4.5^\circ$. These regions are shown by thick lines on Fig. 2b.

Card 4/8

Investigation of Electron Distribution in
a Batatron Vacuum Chamber

77325
SOV/57-30-1-4/18

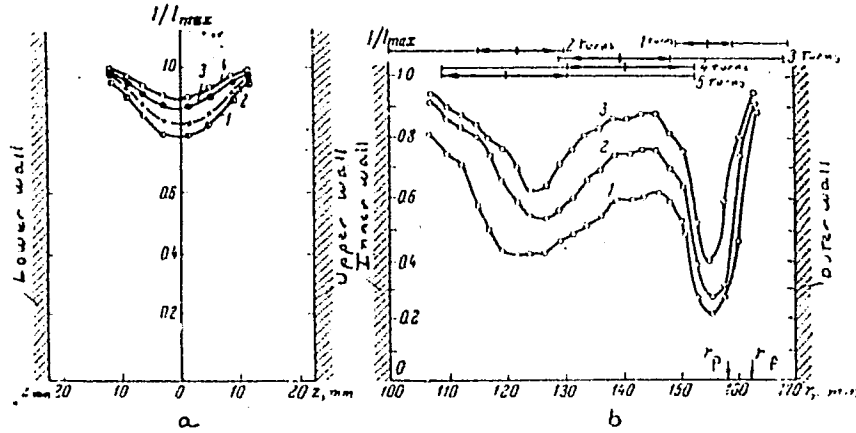


Fig. 2. (a): (1) $I_{em} = 0.07 I_{lim}$; (2) $I_{em} = 0.16 I_{lim}$; (3) $I_{em} = 0.25 I_{lim}$; (4) $I_{em} = 0.3 I_{lim}$ (b): (1) $I_{em} = 0.07 I_{lim}$; (2) $I_{em} = 0.16 I_{lim}$; (3) $I_{em} = 0.3 I_{lim}$. r_f and r_p are radial coordinates of the injector filament and injector point nearest the orbit (similar in Fig. 4b).

Card 5/8
8

Investigation of Electron Distribution in
a Batatron Vacuum Chamber

77325
SOV/57-30-1-4/18

Attempts to measure the probe current fail, mostly because of secondary electron emissions. (II) Distribution of trapped electrons: While the probe in the stationary magnetic field is almost completely transparent to electrons, which made some 10 turns, during the working cycle of the betatron the probe becomes completely opaque when at the place of the equilibrium radius, as seen in Fig. 4a and 4b. Figure 4b shows that electrons occupy practically the entire width of the chamber, and the largest electron current density is in the equilibrium region. This takes place also during the accelerating cycle. Detecting the γ -rays generated by means of a scintillation detector, the authors found rays of 4-5 mev energy hitting the probe during the acceleration process. The authors do not know the exact cause of the step to the left of the minimum of the equilibrium radius. They speculate that there may be two trapping orbits, or that for some values of the instantaneous radius and radial oscillation amplitudes, there may be a resonance value of 0.75

Card 6/8

Investigation of Electron Distribution in a Batatron Vacuum Chamber

77325
SOV/57-30-1-4/18

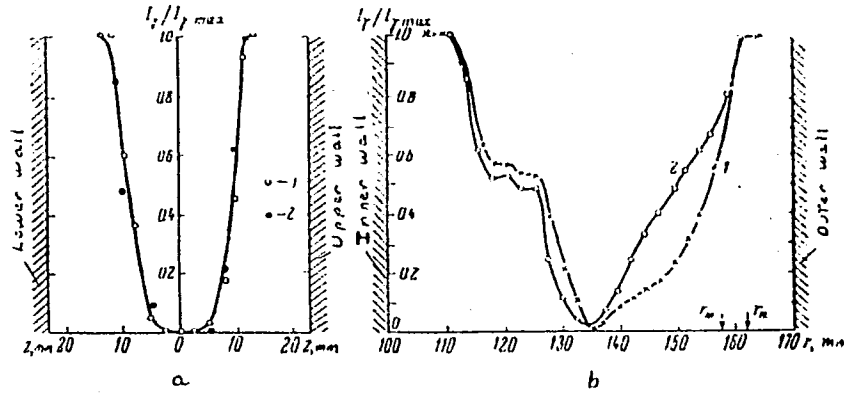


Fig. 4. (a): (1) energy of accelerated electrons, 5 meV; (2) energy of accelerated electrons, 15 meV; (b): (1) electron throw-off on external target; energy of accelerated electrons, 5 meV; (2) electron throw-off on inner wall of the chamber; energy of accelerated electrons, 5 meV.

Card 7/8

Investigation of Electron Distribution in
a Batatron Vacuum Chamber

77325
SOV/57-30-1-4/18

for the effective value of n . The difference in shape of curves 1 and 2, Fig. 4b, is due only to the fact that when the back side of the injector is used as the target, the γ -rays from the probe (which is also a target for electrons, see Fig. 3) miss the ionization chamber. There are 4 figures; and 3 Soviet references.

ASSOCIATION: Physico-Technical Institute AS USSR, Leningrad C. (Fiz-
iko-tehnicheskii institut AN SSSR, g. Leningrad)

SUBMITTED: July 20, 1959

Card 8/8

S/057/60/030/008/016/019
B019/B060

AUTHORS: Korobochko, Yu. S., Shilkov, K. S.

TITLE: A Model of a Cylindrical Air-core Betatron /7

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 8,
pp. 981-983

TEXT: The betatron described here consists of two solenoids telescoped within each other (Fig. 1) which are separated by two glass tubes. Details of the construction and the electron injection are discussed. Two quartz reflectors are utilized for securing the stability of the electron motion. L. A. Rivlin is mentioned in this connection. The bremsstrahlung was measured with a scintillation counter, the gamma radiation output was observed in different phases of the electron injection and at different potentials on the reflectors. As compared to similar constructions, the betatron described offers the advantage that its intensity can be considerably augmented by increasing the length of the system. It is said to be well suited for certain purposes. The authors thank Professor A. P. Komar for his interest and advice. There is 1 figure.

Card 1/2

✓B

A Model of a Cylindrical Air-core Betatron

S/957/60/030/008/016/019
B019/B060

ASSOCIATION: Leningradskiy politekhnicheskij institut im. M. I. Kalinina
(Leningrad Polytechnic Institute im. M. I. Kalinin)

SUBMITTED: March 1, 1960

✓B

Card 2/2

24.6740

41571
S/057/62/032/010/009/010
B104/B102

AUTHORS: Korobochko, Yu. S., and Shilkov, K. S.

TITLE: Model of a cylindrical ironless betatron with axial magnetic focusing

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 10, 1962, 1245-1247

TEXT: An ironless cylindrical betatron model in which the electron motion was axially stabilized by electrostatic reflectors was reported in a previous paper (Yu. S. Korobochko and K. S. Shilkov, ZhTF, XXX, no. 8, 981, 1960). Since the negatively charged electrostatic reflectors had been found to hinder particle injection, the second model had two additional magnetic lenses (Fig. 1) to provide with axial focusing. The equilibrium orbital radius was 40 mm, the outer coil had one turn per cm, its diameter was 157 mm and its length 600 mm. The inner coil had 5 turns per cm, a diameter of 40 mm and a length of 600 mm. Five of the turns of the reflecting lenses were connected in series to an outer coil and ten turns to an outer d-c or a-c source. The reflectance of the lenses could be varied. A Kerst injector was fed with voltage pulses of 15 μ sec and amplitudes up to 35 kv, Card 1/3

S/057/62/032/010/009/010
B104/B102

Model of a cylindrical ...

the magnetic system was fed with current pulses of 240 μ sec. An FG-235A ignotron was used as discharge exciter. Results: (1) the intensity of x-ray emission increases strongly as the injection energy and the emission current increase. At a distance of 1 m from the target a maximum x-ray intensity of 600 μ r/min was measured; (2) lens and solenoid must be well adjusted in order to ensure a maximum yield; (3) the highest intensity is attained if the injector is inserted into the accelerator space to such a depth that the electron-emitting wires are at a distance of 5-8 mm from the midplane of the neighboring lenses; (4) a change in the reflectance of the outer lenses does not notably affect the intensity; From an electron counter oscillogram it can be seen that two escape mechanisms exist: During the injection period, electrons which do not enter the accelerating cycle are lost to the walls, and electrons are spontaneously lost to the walls. The spontaneous accumulation of electrons on the chamber walls was intensified at the end of the cycle. It is attributed to a kind of magnetic resonance. There are 2 figures.

ASSOCIATION: Leningradskiy politekhnicheskii institut (Leningrad Polytechnic Institute)

Card 2/3

L 53804-65 EWT(1)/EWP(m)/EWP(1)/EPA(w)-2/EEC(t)/EWP(t)/EWP(b)/EWA(m)-2
Pz-6/Feb/P1-4 DIAAP/IJP(o) JD/AT

ACCESSION NR: AP5013882

UR/0056/65/048/005/1248/1256

AUTHOR: Korebochko, Yu. S.; Kosmach, V. F.; Mineyev, V. I.

59
50
B

TITLE: Coherent bremsstrahlung of electrons

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 5, 1965, 1248-1256

TOPIC TAGS: bremsstrahlung, coherent radiation, thin film, single crystal

ABSTRACT: The authors describe an experimental observation of coherent bremsstrahlung of electron with energies 30-80 keV customarily used in experiments on electron diffraction. A thin single-crystal film LiF (~ 500-1000 Å) sputtered on a hot polished surface of single-crystal rock salt followed by dissolution of the rock salt in water, was used as the target. The film was placed in an electronograph and oriented in such a way that the electron beam was perpendicular with maximum accuracy to the [100] plane. Since diffraction gratings could not be used for the analysis of the spectra (the number of coherent photons was small), the spectra were recorded with a proportional counter (90% Ar + 10% CH₄ at atmospheric pressure). The counting rate of the bremsstrahlung photons was ~ 100-300 counts per second. The entire system was stable within 2% over the course of a working

Cont 1/2

L 53804-65

ACCESSION NR: AP5013882

9

day. All spectra showed a rather broad maximum which is attributed by the authors to the coherent bremsstrahlung. It follows from the data and from the kinematics of the process that at primary-electron energies of the order of several units or several tens of MeV it is possible to obtain a bremsstrahlung spectrum consisting of narrow, well separated coherent peaks. An investigation of such a coherent bremsstrahlung can be of interest for the study of solids and particularly for the study of thin films. Since other methods (x-ray structural analysis or electron diffraction) do not disclose the fine points of the structure. "The authors are deeply grateful to M. A. Kumsh and A. P. Lukirskiy for continuous help and numerous consultations, V. I. Perel' and G. V. Konstantinov for help in the theoretical aspects of the work, and A. F. Komar for continuous interest. The authors are also grateful to P. V. Golubev for prompt preparation of the mechanical part of the apparatus and N. N. Morozov for supplying the electronograph." Orig. art. has: 6 figures and 6 formulas. [02]

ASSOCIATION: Leningradskiy politekhnicheskii institut (Leningrad Polytechnic Institute)

SUBMITTED: 25Dec64

ENCL: 00

SUB CODE: NP,SS

NO REF SCV: 001

OTHER: 004

ATD PRESS: 4022

Card 2/2

I, 45978-66 EWT(m)
 ACC NR: AP6028612 SOURCE CODE: UR/0057/66/036/008/1394/1398

AUTHOR: Korobochko, Yu.S. 53
52
73

ORG: Leningrad Polytechnic Institute im. M.I. Kalinin (Leningradskiy politekhnicheskiy institut)

TITLE: On the monochromatization of electron bremstrahlung spectra 4

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no.8, 1966, 1394-1398

TOPIC TAGS: bremstrahlung, single crystal, coherent light, mathematic physics, ELECTRON DIFFRACTION

ABSTRACT: This theoretical paper is concerned with the coherent peaks in the bremstrahlung spectrum produced by high energy electrons incident on a thin single crystal target, which have been discussed by H. Überall (Phys. Rev., 103, 1055, 1965) and by G. Barbellini, G. Bologna, G. Diambri, and P.G. Murtas (Phys. Rev. Lett., 8, 454, 1962). Moderately high energy (tens of MeV) incident electrons are considered, rather than the very high energies treated in the cited references. The process of coherent bremstrahlung is treated as a particular case of electron diffraction on a periodic structure, and the sum over the reciprocal lattice points is replaced, as an approximation, by an integration, after the reciprocal lattice points have been smeared over planes of constant momentum transfer. The width of the coherent peak is taken into account by ascribing a finite thickness to the reciprocal lattice plane. The following factors contributing to the width of the peak are considered; the finite thickness of the target; the finite curvature of the Ewald sphere; misalignment of the target or

UDC: 537.531

Card 1/2

L 45978-66

ACC NR: AP6028612

its mosaic structure; lack of perfect collimation of the electron beam; the finite solid angle of observation; and multiple scattering of electrons in the target. The effects of these factors are estimated, and it is concluded that one can achieve a relative dispersion in the coherent peak of the momentum transfer to the lattice of the order of 0.01 by using a target of the order of one micron thick and keeping the vertex angle of the cone of observation less than $0.1/E$, where E is the incident electron energy in terms of the electron rest energy. The author thanks A. P. Komar for valuable discussions and for his interest in the work. Orig. art. has: 11 formulas and 3 figures.

SUB CODE: 20

SUBM DATE: 19Jul65

ORIG. REF: 003

OTH REF: 004

Card

2/2 JS

L 04421-67 EWT(l)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/GG/AT
ACC NR: AP6034266 SOURCE CODE: UR/0386/66/004/007/0241/0243

63
62
B

AUTHOR: Grachev, B. D.; Komar, A. P.; Korobochko, Yu. S.; M'neyev, V. I.

ORG: Leningrad Polytechnic Institute im. M. I. Kalinin (Leningradskiy politekhnicheskiy institut)

TITLE: Electron focusing in thin single-crystal copper films

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 4, No. 7, 1966, 241-243

TOPIC TAGS: fiber crystal, copper whisker, electron optics, electron reflection, electron diffraction analysis

ABSTRACT: To check on the possible focusing of electrons passing through a single crystal, in analogy with the already observed focusing of protons by chains of atoms in a crystal, the authors investigated the yield of K radiation from a thin (400 - 600 Å) single-crystal film of copper bombarded with 20 - 60 keV electrons. The measurements were by an electron diffraction technique, with the film secured on a rotary device which made it possible to set its inclination relative to the electron beam accurate to $< 0.5^\circ$. The alignment of the beam direction with the principal crystallographic axes was determined from the electron-diffraction pattern. The copper L photons were counted with a proportional counter whose entrance window was set at an angle of 80° relative to the electron-beam direction in the plane defined by the beam axis and the film rotation axis. The range of photon energies corresponding to the

Card 1/2

^D
KOROBV, A., insh.

Against underestimation in mechanizing track maintenance. Zhel.
dor.transp. 36 no.5:48-55 № '55. (MIRA 12:5)

1. Nachal'nik Pushkinskoy distantzii puti Severnoy dorogi.
(Railroads--Track)
(Railroads--Equipment and supplies)

~~KOROBV, A.D.~~

A useful pamphlet ("Track maintenance on sections having electric traction, automatic blocking, and centralized electric switches." N.T. Kalitin, N.G. Kogan, A.B. Gorobets. Reviewed by A.D. Korobov). Put' i put.khoz. no.6:48 Je '57. (MIRA 10:7)

1. Nachal'nik distantcii puti stantsii Pushkino Severnoy dorogi.
(Railroads--Maintenance and repair) (Kalitin, N.T.)
(Kogan, N.G.) (Gorobets, A.B.)

KOROBov, A.D., inzh.

Experience in using reinforced concrete railroad ties. Bet. 1
shel. -bet. no.8:333-334 Ag '57. (MIRA 10:10)
(Railroads--Ties)

37717

S/139/62/000/002/012/028
E114/E435

6.4200

AUTHORS: . Vodop'yanov, K.A., Pankov, Yu.D., Korobov, A.I.

TITLE: Measurement of the dielectric constant and loss angle
in rigid foam at high frequency

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika.
no.2, 1962, 80-82

TEXT: Rigid foams used presently in radio-communication apparatus
have dielectric constant nearly equal to unity and a small loss
angle. This makes it difficult to measure their characteristics
at frequencies as high as 300 megacycles. The authors evolved an
improved variant of the resonance method for measurements at
frequencies 270 to 330 megacycles by using variable resistance.
A high frequency signal generator was fed from a stabilized
voltage source and connected to a measuring circuit comprising a
remote controlled capacitor made of circular discs in air with
vernier adjustment, and a thick silvered tube. The galvanometer
was connected through a high frequency detector to a loop weakly
coupled inductively with the measuring circuit. The measuring
circuit had provision for shunting the capacitor by a non-
Card 1/3

Measurement of the dielectric ...

S/139/62/000/002/012/028
E114/E435

inductive resistance made of nichrome and copper wire. The generator frequency was adjusted for resonance with the sample clamped between capacitor plates. While frequency was held constant, the capacitor was adjusted to achieve resonance without the sample in circuit. The dielectric constant of the material was determined from the ratio of thickness of the material to the distance between the capacitor discs in air at resonance. The tangent of the loss angle was calculated as a product of frequency, capacitance of the sample and of its equivalent resistance. The equivalent resistance was determined by measuring current in the circuit at resonance with and without the sample, and thirdly with the calibrated non-inductive resistance in the circuit. Assuming that loss current through the dielectric is very small and choosing such value of the resistance that the difference between currents in the circuit, with and without the resistance, is also small a simplified calculation is possible. Results are shown of measurements at 300 megacycles on polystyrene and polyurethane foams with different foaming agents. The method was proved to be good for measurements at 300 megacycles and more.

Card 2/3

VODOP'YANOV, K.A. [deceased]; KOROBOV, A.I.

Production of dielectric films on the basis of titanium-containing substances. Izv.vys.ucheb.zav.; fiz. no.3:166-171 '63.

(MIRA 16:12)
1. Issledovatel'skiy fiziko-tekhnicheskii institut pri Gor'kovskom universitete imeni Lobachevskogo.

L 10526-65 EWT(1)/EWT(m)/T/EEC(b)-2/EWP(b) IJP(c)/ASD(a)-5/RAEM(i)/ESD(gs)/
RAEM(c)/ESD(dp)/AFETR/AFWL/RAEM(t)/ESD(t) JD/GG
ACCESSION NR: AP4020298

S/0139/64/000/001/0049/0054

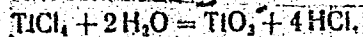
AUTHORS: Vodop'yanov, K. A. (Deceased); Korobov, A. I.; Komarova, N. V.

TITLE: Selection of conditions for obtaining dielectric films deposited from the gas phase

SOURCE: IVUZ. Fizika, no. 1, 1964, 49-54

TOPIC TAGS: dielectric film, dielectric property, gas deposition, titanium tetrachloride, loss tangent, capacitance, microminiaturization, microminiature capacitor, capacitor, dielectric

ABSTRACT: The various factors affecting the dielectric properties of thin TiO_2 films produced by deposition from the gaseous state have been investigated. The gas deposition method described by L. Holland (Vacuum Deposition of Thin Films, London, 1956) has been used in which gaseous $TiCl_4$ is bubbled through water, and



This is compared to a simplified method of feeding the working gas to the deposit substrate, taking special care to keep the substrate smooth and uniform in temperature and ventilating the reaction products. The two methods show different loss

Card 1/2

L 10526-65
ACCESSION NR: AP4020298

tangent-frequency response in the resulting deposit. The capacitance and loss tangent curves of the film when plotted against the substrate temperature show an initial drop up to $T = 200^{\circ}\text{C}$, followed by a constant value up to 280°C , and then a rise up to a temperature of 350°C . The tangent loss shows no dependence on the bubbling bath temperature but climbs up sharply for gas feed rates above 200 ml/min . The dependence noticed on the type of substrate material used is attributed to variations in adhesive forces. Orig. art. has 6 figures, 1 table, and 1 formula.

ASSOCIATION: Issledovatel'skiy fiziko-tekhnicheskiy institut pri Gor'kovskom gosuniversitet im. N. I. Lobachevskogo (Research Physical and Technical Institute, Gorkiy State University)

SUBMITTED: 22Oct62

ENCL: 00

SUB CODE: GP,EM

NO REF SOV: 008

OTHER: 003

L 22893-66 EWT(1)/EWT(m)/EWP(e)/EWP(t) IJP(c) JD/GG/WH

ACC NR: AP6006871

SOURCE CODE: UR/0181/66/008/002/0613/0615

AUTHOR: Korzo, V. F.; Korobov, A. I.

ORG: none

TITLE: On the dependence of the electric strength of dielectric films on the thickness

21, 44, 55

63
61
B

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 613-615

TOPIC TAGS: silicon dioxide, dielectric coating, dielectric strength, dielectric breakdown, impact ionization, semiconductor carrier

ABSTRACT: The purpose of the investigation was to check previously derived formulas for the relation between the breakdown electric field intensity and the thickness of a dielectric, which were derived under various assumptions by different workers and which point to a dependence on the thickness (d) like d^α , with $\alpha = -(0.25--0.5)$. Since the earlier investigations were limited to a narrow range of thicknesses, the authors checked the theoretical relations for SiO₂ films obtained by decomposition of ethylates. The films had an amorphous structure. The results show that $\alpha = -(0.6--1.5)$ in the thickness range 600--1200 Å. With increasing d, the relation becomes logarithmic. At very small d, the behavior tends

Card 1/2

2

L 22893-66

ACC NR: AF6006871

2

to saturation. It is suggested that with increasing thickness of the dielectric film an important role is assumed in the pre-breakdown fields by the current connected with the injection of the carriers from the electrodes. With increasing d , the curves display the characteristic kink typical of currents due to impact ionization. The authors thank B. V. Vul and V. A. Chuyenkov for interest in the work and a discussion of the results. Orig. art. has: 2 figures and 3 formulas.

SUB CODE: 20/ SUBM DATE: 22Sep65/ ORIG REF: 004/ OTH REF: 006

Card 2/2 BLG

L 63643-65 ENT(m)/EMP(l)/EMP(b)/EMP(t) IJF(c) JD
ACCESSION NR: AP5016736 UR/0286/65/000/010/0048/0048 10
621.316.849 17
B

AUTHOR: Bondarenko, O. Ye.; Ignat'yev, V. V.; Kondyba, P. Ye.; Korobov, A. I.

TITLE: A method for the preparation of heat-resistant thin-film resistors. Class 21, No. 171044 16

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 10, 1965, 48

TOPIC TAGS: heat resistant microresistor, thin film resistor, resistor production

ABSTRACT: This Author Certificate introduces a method for the preparation of heat-resistant thin-film resistors for micro circuits by thermal evaporation of the metallo-silicide alloy on planar heated pyroceramic supports in a vacuum. The method is distinguished by: 1) triple annealing in vacuum of the evaporator carrying the layer of the evaporating alloy at a temperature on the order of 1750C; 2) holding the just sprayed resistor in vacuum for 3 min at a temperature of 340—360C; and 3) final oxidation of the free silicon within the film by atmospheric action. This procedure reduces the scattering of the rated values and increases the stability of the resistor. [08]

Card 1/2

L 63643-65

ACCESSION NR: AP5016736

ASSOCIATION: Gosudarstvennyy komitet po elektronnoy tekhnike SSSR (State Committee for Electronic Technology of the SSSR)

SUBMITTED: 01Jul64

ENCL: 00

SUB CODE: EC

NO REF SOV: 000

OTHER: 000

ATD PRESS: 4055

Card ^{KC} 2/2