Device for Automatic Flame Extinguishing During Flashback SOV/133-59-6-12/20

flashback. Technician A. Yu. Mikheyev participated in the study. There are 3 diagrams, 1 table and 3 graphs.

ASSOCIATION: VNIIAVTOGEN

Card 2/2

MECHAYEV, V.D., kand.tekhn.nauk

Investigating the balanced-pressure cutting torch. Trudy VNIIAvtogen no.7:87-103 '60. (MIRA 13:7)
(Gas welding and cutting--Equipment and supplies)

NECHAYEV, V.D., kand.tekhn.nauk

Oxyacetylene burners with external mixing of gases. Svar. proizv. no.1:22-24 Ja '61. (MIRA 1411)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov.
(Gas welding and cutting—Equipment and supplies)

NECHAYEV, V.D., kand.tekhn.nauk

Linear heating burners operating on premixed, acetylene-substitute, gases. Svar. proizv. no.7:28-31 Jl '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov.
(Gas welding and cutting—Equipment and supplies)

S/135/61/000/012/007/008
A006/A101

AUTHOR: Nechayev, V. D., Candidate of Technical Sciences

TITLE: New equipment with gas mixing in the nozzle

PERIODICAL: Svarochnoye proizvodstvo, no. 12, 1961, 24-26

TEXT: To develop new torches with internal gas mixing, or gas mixing in the outlet nozzle, for operation on all gas fuels and all types of gas flame treatment of metals, including gas welding, the author studied basic structural parameters, and thermophysical properties of the flame. The following optimum parameters were established: diameter of the outlet nozzle 1.2 - 1.5 mm; length of outlet nozzle l = (8-10) d, length of the dosage channels: 3 - 4 diameters; distance between the dosage channels (2 - 4) d; longitudinal distance between the nozzle burners (2.5 - 3) d. The thermophysical properties of the flame for torches with internal gas mixing are the same as for conventional torches. As a result of the experimental investigation the following experimental torches were designed: 1) single-flame welding torch, not recommended for industrial use; 2) multi-flame netted preheating torch; 3) cutting torch for separating oxygen cutting of steel, which is only suitable for particular cases when the stability

Card 1/2

NECHAYEV, V.D., kand. tekhn. nauk

Methods of calculating equal-pressure type torches. Svar. proizv. no.6:31-34 Je '63. (MIRA 16:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov.

NECHAYEV, V.D., kand. tekhn. nauk

Calculating proportioning channels and nozzles for the flame cutting equipment operating on acetylene and substitute gases. Trudy VNIIAvtogen no.9:33-56 '63. (MIRA 16:12)

NECHAYEV, V.D., kand. tekhn. nauk

Propane-butane-oxygen GZU-2-62 and GZM-2-62 welding torches. Svar. proizv. no.3:29-31 Mr '64. (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov.

NECHAYEV, V.D., kand.tekhn.nauk

Using a propane-butane-acetylene mixture for the welding of metals. Svar.proizv. no.4:31-33 Ap '64.

(MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov.

ARTYUKHOVSKAYA, S.A.; TESMENITSKIY, L.I.; ASINOVSKAYA, G.A.; BOYKO, M.I.; KOLTUNOV, P.S.; NEKRASOV, Yu.L.; KOROVIN, A.I.; NECHAYEV, V.I.; NINBURG, A.K.; SHASHKOV, A.N.; FIEL'SON, A.M.; ANTONOV, I.A., kand. tekhn. nauk, red.

[Using acetylene substitute gases for flame metalworking.] Primenenie gazov-zamenitelei atsetilena pri gazoplamennoi obrabotke metallov. Moskva, Mashinostroenie, 1964. 150p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut avtogennoi obrabotke metallov. Spravochnye materialy po gazoplamennoi obrabotke metallov, no.23). (MIRA 17:9)

NECHAYEV, V.D., kand. tekhn. nauk

Investigating [illegible] nozzle mixing of gases. Trudy Vsesoiuznogo [illegible]
(MIRA 17:10)

NECHAYEV, V.D., kand. tekhn. nauk

The [illegible] gas mixer for gas-electric welding and cutting of metals. Svar. proizv. no. 7:43-44 '65.

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennogo mashinostroyeniya.

NECHAYEV, V.D., kand. tekhn. nauk

Investigating the efficiency of using a propane-butane-acetylene mixture for the flame machining of metals. Trudy VNIIAVTOGENMASH no.12:146-175 '65. (MIRA 18:11)

MURAV'YEV, Vasiliy Petrovich; DMITRIYEV, Gennadiy Andreyevich; FILATOV, Mikhail Nikolayevich; SAFOKHIN, Mikhail Samsonovich; GOL'DBERG, Leonid Abramovich; KRUT'KO, Mariya Vladimirovna; NECHAYEV, Vadim Ivanovich; KOLCHANOV, Vitaliy Dmitriyevich; BESSONOV, Yevgeniy Aleksandrovich; OBLOMSKIY, Ivan Yefimovich; KORABLEV, A.A., otv. red.; ABRAMOV, V.I., red. izd-va; PROZOROVSKAYA, V.L., tekhn. red.

[Automation in the coal mining industry] Avtomatizatsiia v ugol'noi promyshlennosti. [By] V.P.Murav'ev i dr. Moskva, Gosgortekhizdat, 1962. 258 p. (MIRA 15:10)
(Coal mines and mining) (Automation)

NECHAYEV, V. I.

PA 25/49T40

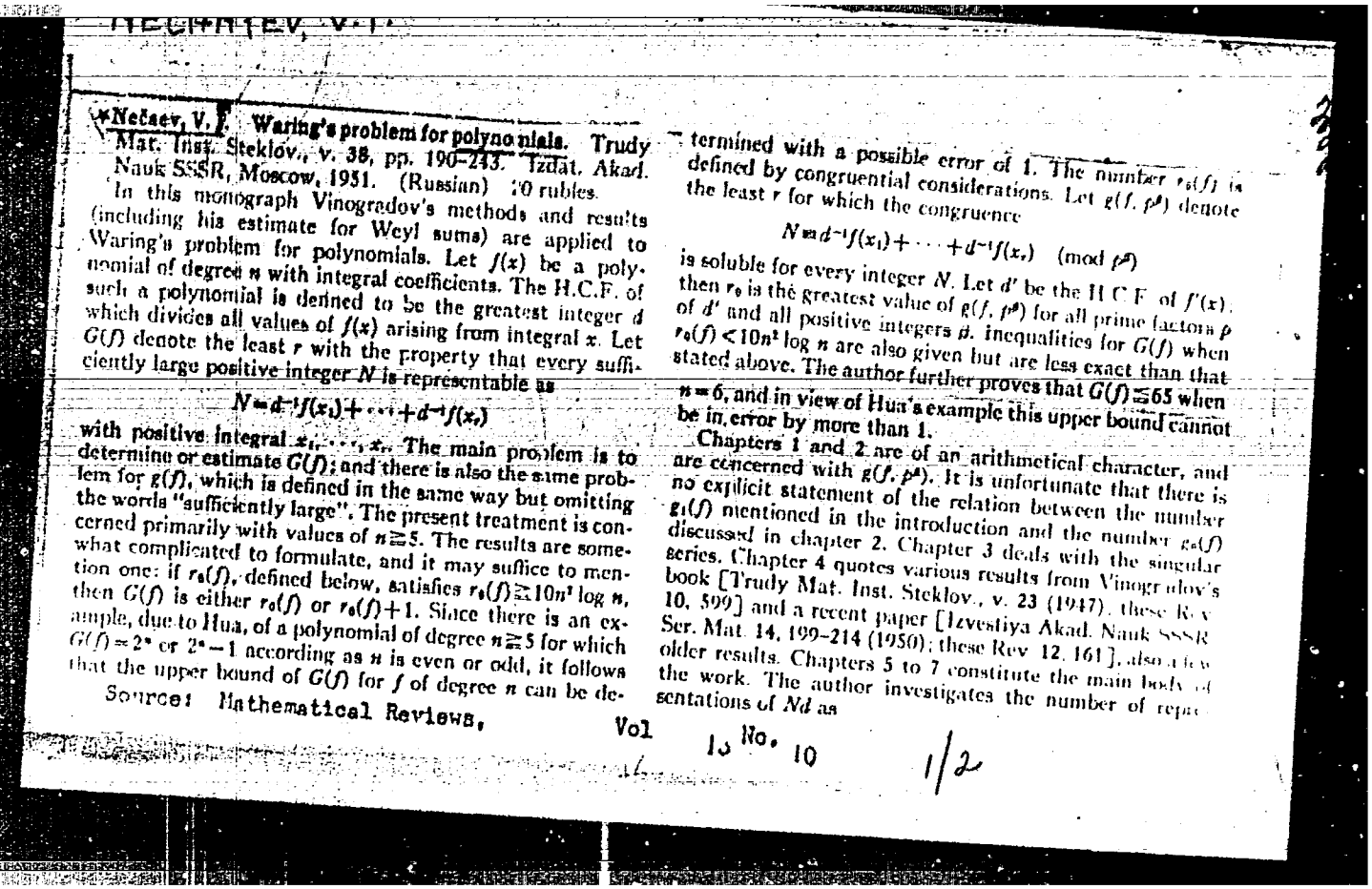
USSR/Mathematics -- Number Theory Jan 49

"Representation of Integral Numbers as a Sum of Factorial Terms of the Form $\frac{x(x+1)\ldots\ldots(x+n-1)}{n!}$," V. I. Nechayev, 4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 2

Generalizes Vinogradov's solution for $f(x)=x^n$, extending it to any nth degree polynomial. Vinogradov found $G(x^n)$ to be less than 3n log n + 11n, where $G(f)$ denotes the least r so that there exists a certain c for which any integer N greater than, or equal to, c may be expressed in the form $N = \frac{f(x_1)}{d} + \ldots\ldots + \frac{f(x_r)}{d}$. $x_1, \ldots\ldots\ldots$, x_r are > 0, where d is the greatest common divisor of the quantities $f(x)$.

FDB 25/49T40



NECHAEV, V. I.

*Nečaev, V. I. **Waring's problem for polynomials.** Trudy Mat. Inst. Steklov., v. 38, pp. 190–243. Izdat. Akad. Nauk SSSR, Moscow, 1951. (Russian) 10 rubles.

In this monograph Vinogradov's methods and results (including his estimate for Weyl sums) are applied to Waring's problem for polynomials. Let $f(x)$ be a polynomial of degree n with integral coefficients. The H.C.F. of such a polynomial is defined to be the greatest integer d which divides all values of $f(x)$ arising from integral x. Let $G(f)$ denote the least r with the property that every sufficiently large positive integer N is representable as

$$N = d^{-1}f(x_1) + \cdots + d^{-1}f(x_r)$$

with positive integral $x_1, \cdots, x_r$. The main problem is to determine or estimate $G(f)$; and there is also the same problem for $g(f)$, which is defined in the same way but omitting the words "sufficiently large". The present treatment is concerned primarily with values of $n \geqq 5$. The results are somewhat complicated to formulate, and it may suffice to mention one: if $r_0(f)$, defined below, satisfies $r_0(f) \geqq 10n^2 \log n$, then $G(f)$ is either $r_0(f)$ or $r_0(f)+1$. Since there is an example, due to Hua, of a polynomial of degree $n \geqq 5$ for which $G(f) = 2^n$ or $2^n - 1$ according as n is even or odd, it follows that the upper bound of $G(f)$ for f of degree n can be determined with a possible error of 1. The number $r_0(f)$ is defined by congruential considerations. Let $g(f, p^\beta)$ denote the least r for which the congruence

$$N \equiv d^{-1}f(x_1) + \cdots + d^{-1}f(x_r) \pmod{p^\beta}$$

is soluble for every integer N. Let d' be the H.C.F. of $f'(x)$, then r_0 is the greatest value of $g(f, p^\beta)$ for all prime factors p of d' and all positive integers β. Inequalities for $G(f)$ when $r_0(f) < 10n^2 \log n$ are also given but are less exact than that stated above. The author further proves that $G(f) \leqq 65$ when $n = 6$, and in view of Hua's example this upper bound cannot be in error by more than 1.

Chapters 1 and 2 are of an arithmetical character, and are concerned with $g(f, p^\beta)$. It is unfortunate that there is no explicit statement of the relation between the number $g_1(f)$ mentioned in the introduction and the number $g_0(f)$ discussed in chapter 2. Chapter 3 deals with the singular series. Chapter 4 quotes various results from Vinogradov's book [Trudy Mat. Inst. Steklov., v. 23 (1947), these Rev. 10, 599] and a recent paper [Izvestiya Akad. Nauk SSSR Ser. Mat. 14, 199–214 (1950); these Rev. 12, 161], also a few older results. Chapters 5 to 7 constitute the main body of the work. The author investigates the number of representations of Nd as

Source: Mathematical Reviews, Vol 13 No. 10 1/2

$$f(x_1)+\cdots+f(x_s)+u+u',$$

where $1 \le x_i \le P$ and u and u' run through numbers of the form $f(\xi_1)+\cdots+f(\xi_k)$, where $\xi_1, \cdots, \xi_k$ are in intervals of successively lower orders of magnitude of the kind now usual in Waring's problem. The integral for the number of representations is split into basic and supplementary intervals in the usual way, and various choices of r and k are made according to the ranges of n and of $r_0(f)$. Chapter 8 is concerned with the polynomial $\varphi(x) = x(x+1)\cdots(x+n-1)$, and it is proved by a combination of elementary and analytical methods that $g(\varphi) < \frac{1}{2}n^2 \log n + 6n \log n$.

H. Davenport (London).

Source: Mathematical Reviews, Vol ; No.

2/2

NECHAYEV, V. I.

Theory of Numbers

Waring's problem for polynomials; Trudy Mat. inst. no. 38, 1951.

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

Nechaev, V. I. On the representation of natural numbers as a sum of terms of the form

$$\frac{x(x+1)\cdots(x+n-1)}{n!}.$$

Izvestiya Akad. Nauk SSSR. Ser. Mat. 17, 485–498 (1953). (Russian)

Let $\varphi_n(x)$ denote the polynomial of the title, and let $g(\varphi_n)$ denote the least r with the property that every positive integer is representable as a sum of at most r values of $\varphi_n(x)$, arising from non-negative integral values of x. In [illegible] [Trudy Mat. Inst. Steklov. 38, 190–243 (1951); these Rev. 13, 914] the author proved that

$$g(\varphi_n) < \tfrac{1}{2}n^2 \log n + 6n \log n$$

for $n \geq 12$. In the present paper he improves the right-hand side to $6n \log$ ... $n \log\log n$. The proof is based on the work of the monograph, but requires improved estimates at many points. The main tool by which these are obtained is the use of the inequality

$$\left|\sum_{x=1}^{p} \exp\left(2\pi i f(x)/p\right)\right| < n p^{1/2}$$

for exponential sums (p prime, $f(x)$ a polynomial of degree n), due to A. Weil [Proc. Nat. Acad. Sci. U. S. A. 34, 204–207 (1948); these Rev. 10, 234]. Use is also made of some of Tchebychev's estimates for the distribution of primes.

H. Davenport (London).

NECHAYEV, V.I.

BUKHSHTAB, A.A., prof.; DITSMAN, A.P., dots.; NECHAYEV, V.I., dots.; KRUYS, I.G., tekhn. red.

[Programs of pedagogical institutes; advanced algebra] Programmy pedagogicheskikh institutov; vysshaia algebra. Moskva, Gos. uchebno-pedagog. izd-vo M-va prosv. RSFSR, 1957. 6 p. (MIRA 11:9)

1. Russia (1917- R.S.F.S.R.) Glavnoye upravleniye vysshikh i srednikh pedagogicheskikh uchebnykh zavedeniy.
(Algebra--Study and teaching)

BAZYLEV, V.T.; NECHAYEV, V.I. (Moskva)

Measures for raising the level of the preparation of students in mathematics. Mat. v shkole no.6:77-82 N-D '59. (MIRA 13:3)
(Mathematics--Study and teaching)

MIKHELOVICH, Sheftel' Khenekhovich; ANDRONOV, I.K., prof., retsenzent; BUKHSHTAV, A.A., prof., retsenzent; NECHAYEV, V.I., dots., retsenzent; TAL'SKIY, D.A., red.; GOROKHOVA, S.S., tekhn. red.

[Theory of numbers] Teoriia chisel. Moskva, Gos. izd-vo "Vysshaia shkola," 1962. 259 p. (MIRA 16:7)
(Numbers, Theory of)

NECHAYEV, V.I.

Group of nonsingular matrices over a finite field, and recurrent sequences. Dokl. AN SSSR 152 no.2:275-277 S '63. (MIRA 16:11)

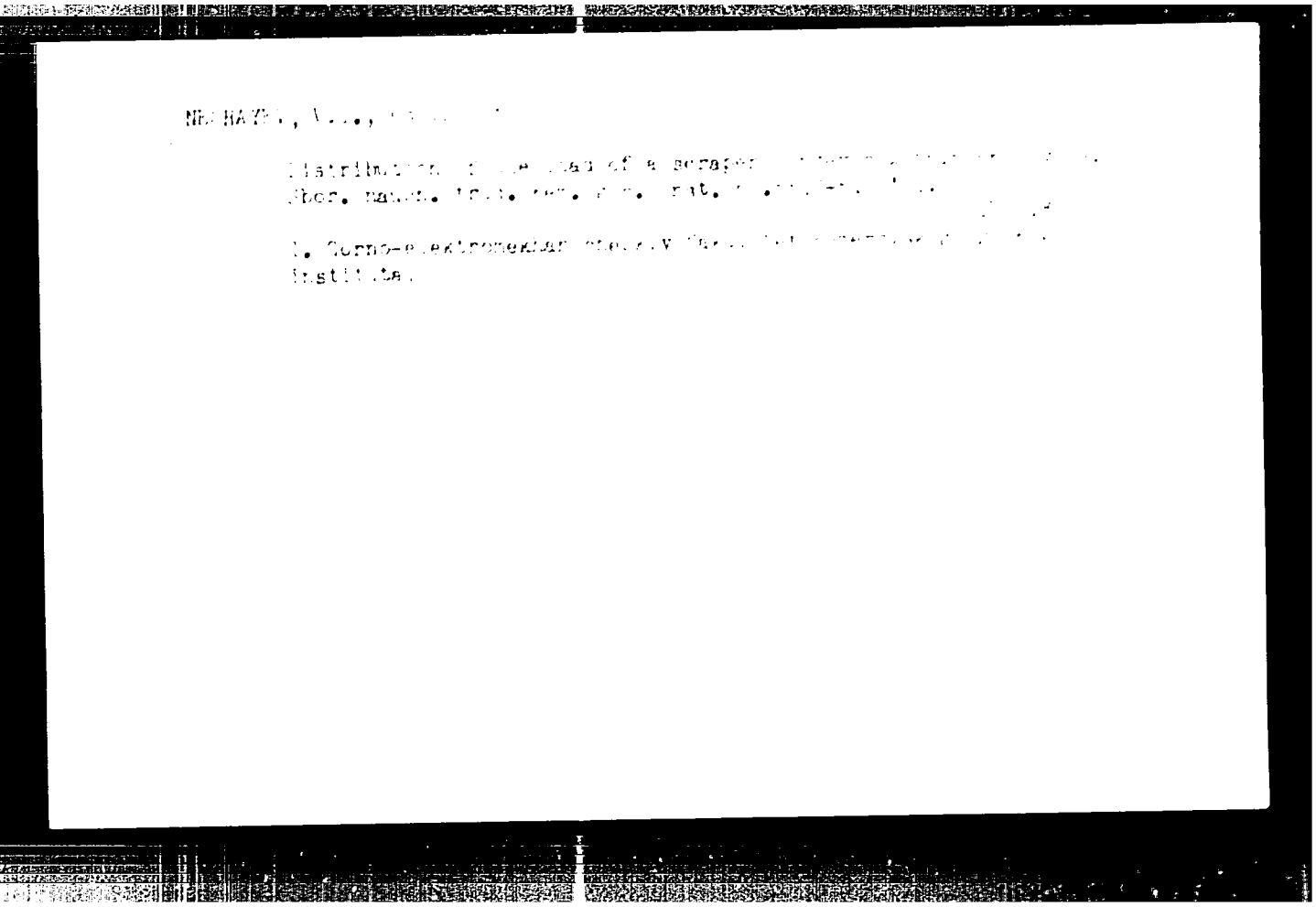
1. Predstavleno akademikom I.M. Vinogradovym.

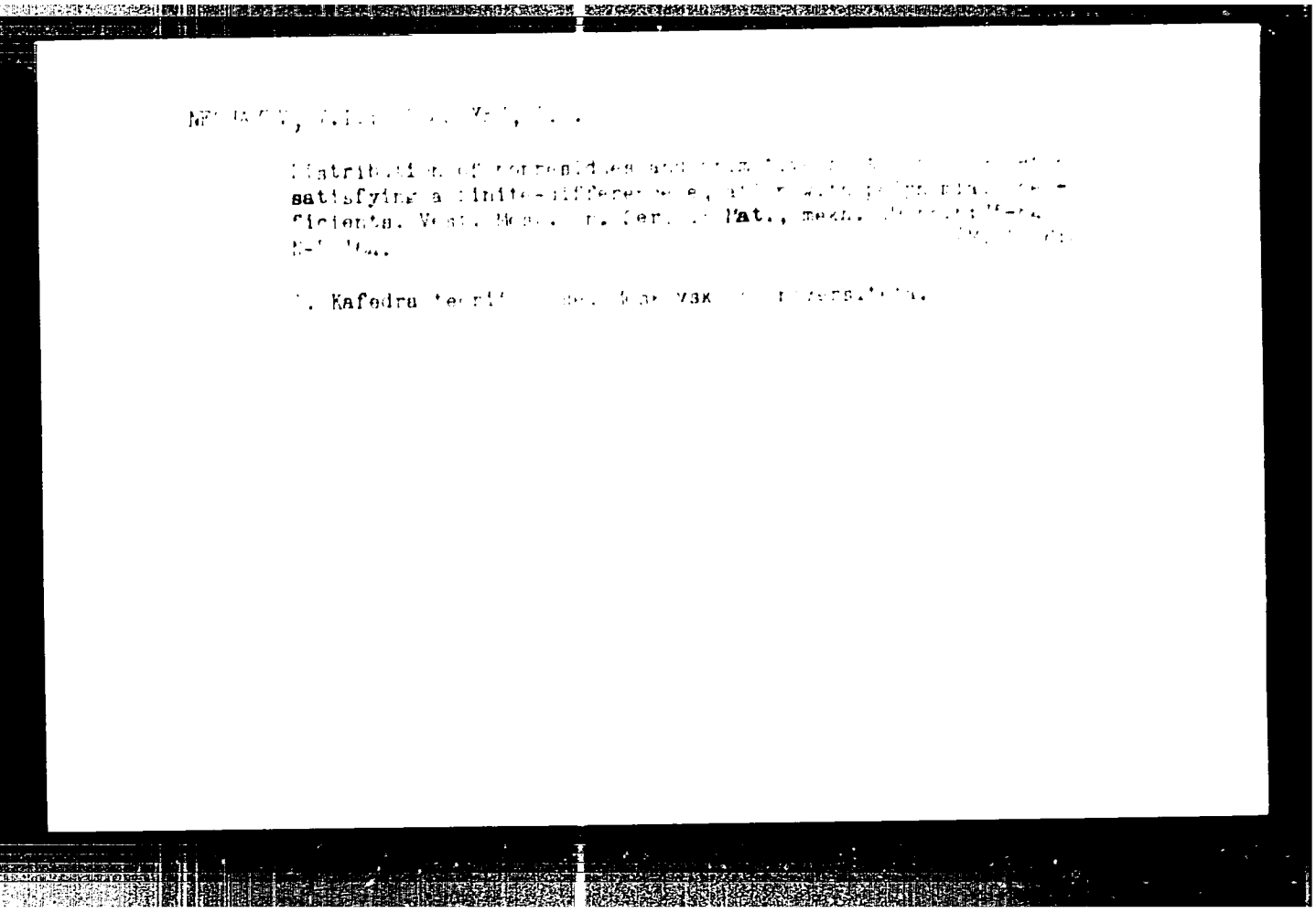
NECHAYEV, V.I.

Independent systems of axioms determining integers. Uch. zap. MGPI no.188:125-130 '62. (MIRA 16:6)
(Numbers, Theory of) (Axioms)

NECHAYEV, V.I.; TELESIN, Yu.Z.

Exact value of G(f, a) for sequences of polynomials of the 2d degree. Uch. zap. MGPI no.188:131-138 '62. (MIRA 16:9)
(Polynomials)





NECHAYEV, V.I.; STEPANOVA, L.L.

Distribution of non-residues and primitive roots in recursive sequences over a field of algebraic numbers. Usp. mat. nauk 20 no.3:197-203 My-Je '65. (MIRA 18:6)

ACC NR: AR6033777 SOURCE CODE: UR/0058/66/000/007/G014/G014

53

AUTHOR: Kunin, N. F.; Nechayev, V. I.

TITLE: Relationship between current and reaction in point discharge

SOURCE: Ref. zh. Fizika, Abs. 7G106

REF SOURCE: Tr. Chelyab. in-ta mekhaniz. i elektrifik. s.-kh., vyp. 22, 1965, 103-111

TOPIC TAGS: ionized gas, current, reactive force, point discharge space, ionized gas flow, electric current, twist angle, momentum

ABSTRACT: A study was made of the reactive force as a function of current in a point discharge in gas. A pair of points was mounted on a rigidly fixed axis and the angle of twist produced by the reactive force of the momentum was measured. The experiments were conducted by varying the pressure, the type of gas used, the intensity, and the geometric configuration of the points. The relationship between the reactive force and the current in all cases was found to be close to linear. The ratio was found to depend on the conditions of the experiment: according to the authors, this relationship may be qualitatively explained within the framework of their

Card 1/2

L 09364-67

ACC NR: AR6033777 O

simple model of ionized gas flow in a discharge space. A. Kadymov. [Translation of abstract]

SUB CODE: 20/

Card 2/2 nlc

NECHAYEV, V.I.

Unimprovable estimate of trigonometric sums for recursive functions with nonconstant coefficients. Dokl. AN SSSR [illegible]. 520-522 Ja '64. (MIRA 17:[illegible]

1. Matematicheskiy institut im. V.A. Steklova AN SSSR.
Predstavleno akademikom I.M.Vinogradovym.

BEL'AZ, Yuliy L'vovich; [illegible], ..., inzh., retsenzent; [illegible], ..., kand. tekhn. nauk, retsenzent; [illegible], V.V., nauchn. red.; [illegible], Ye.Ye., red.

[Experimental investigation of the strength [illegible] mil. Eksperimental'noe issledovanie prochnosti [illegible] V. Leningrad, Sudostroenie, 19[illegible]. (MIRA 17:5)

SOV 124-57-3-3473

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 3, p 122 (USSR)

AUTHOR: Nechayev, V. K.

TITLE: On the "Rigid" and "Elastic" Nonuniformity of the Rotation of a Crankshaft (O "zhestkoy" i "uprugoy" neravnomernosti vrashcheniya kolenchatogo vala)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1954, Vol 75, pp 253-264

ABSTRACT: A study is conducted on the forced torsional oscillations of an engine shaft under the action of an external sinusoidal torque moment wherein the "rigid" oscillations corresponding to the motions of the whole system as a unit are set apart. Similar oscillations would take place with absolute torsional rigidity of the shaft. The oscillations indicated represent the so-called zero solution which occurs during the ordinary investigation of torsional oscillations of free, i.e., non fastened systems.

F. M. Dimentberg

Card 1/1

SOV/124-58-7-8197

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 122 (USSR)

AUTHOR: Nechayev, V.K.

TITLE: On the Relationships of the Torsional-vibration Damping Characteristics to Certain of the Parameters of an Engine Installation (O svyazyakh kharakteristik zatukhaniya krutil-nykh kolebaniy s nekotorymi parametrami motornoy ustanovki)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1957, Vol 85, pp 20-35

ABSTRACT: The problem of the reduced damping coefficients of the shafts of internal-combustion engines is discussed. Taken into account are the viscous resistance of the mechanisms of each of the engine cylinders and the hysteresis of the shaft material. The area of the hysteresis loop is assumed to be proportional to a certain power of the amplitude of the vibrations; the importance of designating the correct exponent is noted.

Ya.G. Panovko

1. Internal combustion engines 2. Shafts--Vibration

Card 1/1

SOV 124-58-7-8199

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7 pp 122 (USSR)

AUTHOR: Nechayev, V. K.

TITLE: On Some of the Peculiarities of Resonant Torsional Vibrations in the Shafts of Engine Installations (O nekotorykh osobennostyakh rezonansnykh krutil'nykh kolebaniy valov motornykh ustanovok)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1957, Vol 85, pp 36-48

ABSTRACT: The point is stressed that during the action of perturbation moments on the shaft of an internal-combustion engine the elastic torsional vibrations in the shaft are accompanied by "rigid" vibrations on the part of the shaft in its capacity as a solid body. The author states that these rigid vibrations must be taken into account in the interpretations of experimental "torsiograms" depicting the total vibration process. He points out that disregarding these rigid vibrations can cause sizable errors in the estimates arrived at, based on the torsiograms, of the amount of damping required. Included are examples of simplified diagrams showing up the importance of allowing for the rigid vibrations.

Card 1/1 Ya. G. Panovko

1. Shafts--Vibration 2. Internal combustion engines--Design

NECHAYEV, V.K.

Using the method of changeable flywheels in analysing damping forces in motor units. Izv.TPI 85:55-60 '57. (MIRA 10:12)
(Engines--Vibration)
(Shafts and shafting--Vibration)

124-58-9 10551

Translation from: Referativnyy zhurnal, Mekhanika 1958 Nr 9 p 158 (USSR)

AUTHORS: Nechayev V K Bolgov, A T

TITLE: On the Determination of Energy Losses in Shafts Due to Hysteresis (K opredeleniyu gisterezisnykh poter energii v valakh)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1957 Vol 85 pp 61 68

ABSTRACT: The methodology proposed is based on an analysis of "vibro grams", recorded with the aid of inductive transducers of free vibrations. The vibrations were excited by a pair of electro-magnets which acted upon protuberances on a flywheel suspended to the lower extremity of a shaft, the upper end of which had been rigidly clamped. The electromagnets received their power from a synchronous A-C generator In determining the hysteresis-loss parameters s and q the authors based their reasoning on the following expression for the elementary "hysteresis work dA_h done in an elementary volume:

$$dA_h = s \tau^q dV$$

Card 1/2

124-58 9 10551

On the Determination of Energy Losses in Shafts Due to Hysteresis

where τ is the value of the amplitude of the shearing stress in the given volume element dV.

G S Pisarenko

1. Shafts--Performance 2. Vibrations--Analysis 3. Hysteresis--Analysis

Card 2/2

MECHAYEV, V.K.

Characteristics of ball governors. Izv.TPI 85:83-88 '57.
(MIRA 10:12)

(Governors (Machinery))

MECHAYEV, V.K.

Problems of resistances in controlling diesel engines. Izv.TPI 85:89-92 '57. (MIRA 10:12)
(Diesel engine)

ACCESSION NR: AR4041559 S/0274/64/000/004/B005/B005

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz'. Svodny*y tom, Abs. 4B23

AUTHOR: Nechayev, V. K.

TITLE: Use of directional frequency-tuned microphones for investigation of engine noise

CITED SOURCE: Izv. Tomskogo politekhn. in-ta, v. 107, 1963, 100-105

TOPIC TAGS: microphone, directional frequency tuned microphone, engine noise investigation, noise spectrum

TRANSLATION: Experimental investigations (at Tomsk Polytechnic Institute) of noisiness created by a diesel engine show that in spectrum of noise there are definite peaks, position of which on spectrograms remains constant under all speed and load conditions. These peaks are the result of forced oscillations of some units of engine. For detecting of sources of acoustic peaks there is

Card 1/2

ACCESSION NR: AR4041559

used a receiving-amplifying device, tube-microphone. The installing, on the microphone, of a cylindrical tube-microphone. The installing, on the microphone, of a cylindrical tube-cape, the internal surface of which is covered by a highly absorbent material, increases the directivity of microphone. For tuning of tube-cap to given frequency it is necessary to change its length. Changing angle of directivity of axis of microphone and taking reading of indicator of output, it is possible to construct a graph from which is determined the location of principle source of sonic oscillations in engine. There is given a description and diagram of tube-microphone, Eight illustrations.

SUB CODE: EC, GP ENCL: 00

Card 2/2

IVANOV, Aleksandr Ivanovich; KRIVORUCHENKO, Vladimir Vladimirovich; IL'ICHEV, Vasiliy Andreyevich; KRYZHKO, I.S., retsenzent; MECHAYEV, V.M., retsenzent; IRTEGOV, N.N., retsenzent; TAYTS, A.Yu., red.; ARKHANGEL'SKAYA, M.S., red. izd-va; DOBUZHINSKAYA, L.V., tekhn.red.

[Electrolytic production of magnesium] Proizvodstvo magniia elektrolizom. Moskva, Gos. nauchno-tekhn. izd-vo litry po chernoi i tsvetnoi metallurgii, 1962. 254 p. (MIRA 15:2)

(Magnesium--Electrometallurgy)

PRIBYLEV, V.F.; NECHAYEV, V.M.

Fixing the number of mechanics on duty. Mashinostroitel' no.6: 40-41 Je '65. (MIRA 18:7)

ACC NR: AP7005632 SOURCE CODE: UR/0413/67/000/002/0048/0048

INVENTOR: Baymakov, Yu. V.; Lebedev, O. A.; Tatakin, A. N.; Nechayev, V. M., Khristyuk, G. P.

ORG: None

TITLE: A method for complex reprocessing of magnesium alloy scrap and waste. Class 40, No. 190573 [announced by the Solikamsk Magnesium Plant (Solikamskiy magniyevyy zavod)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 48

TOPIC TAGS: magnesium alloy, electrolytic refining

ABSTRACT: This Author's Certificate introduces: 1. A method for complex reprocessing of magnesium alloy scrap and waste. The procedure involves sorting, remelting to standard alloys, remelting in salt baths, electrolytic refining and vacuum sublimation. The quality of the resultant magnesium alloys is improved by using a part of the secondary metal obtained from the salt baths for the charge in smelting standard magnesium alloys and subjecting a part of this secondary metal to electrolytic refining by the three-layer method with subsequent extraction. The anode metal is subjected to vacuum sublimation. 2. A modification of this method in which the vacuum sublimation residue is used as an aluminum-copper base for making aluminum alloys while the condensate (magnesium-zinc) is used for making an anode alloy.

SUB CODE: 11/ SUBM DATE: 03Jul64

UDC: 669.721.472-982.621.74.02

Card 1/1

MECHAYEV, V.N. (Khabarovsk)

Operating steam locomotives on longer hauls. Zhel.-dor.transp. 41 no.9:73-74 S '59. (MIRA 13:2)

1. Glavnyy inzhener sluzhby lokomotivnogo khozyaystva Dal'nevostochnoy dorogi.
(Khabarovsk--Locomotives--Performance)

NECHAYEV, V.P.

NECHAYEV V. P

9(4) PHASE I BOOK EXPLOITATION SOV/1778

Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti. Moskovskoye pravleniye

Tranzistornaya elektronika v priborostroyenii; sbornik trudov konferentsii (Transistor Electronics in the Instrument-making Industry; Collection of Conference Transactions) Moscow, Oborongiz, 1959. 289 p. 1,400 copies printed.

Ed.: N.I. Chistyakov, Doctor of Technical Sciences, Professor; Ed. of Publishing House: S.D. Khametova; Tech Ed.: V.P. Rozhin; Managing Ed.: A.S. Zaymovskaya, Engineer.

PURPOSE: The book is intended for scientific and engineering personnel of the instrument-making and radio industries engaged in the development of electronic and radio equipment.

COVERAGE: The authors of this collection of articles discuss the theory, principle of operation, calculation and application of electronic circuits using transistors. They also describe transistor application in measuring circuits, computers, radio and automatic and remote control circuits. The book is based on transactions of the Scientific and Engineering Conference organized by NTO in Moscow in December 1956. The conference discussed 54 papers on thermistors, photocells, thermocouples, cooling elements, nonlinear capacitors, crystal diodes, and transistors. A considerable number of these papers have been included in the present book. No personalities are mentioned. References appear at the end of each article.

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LEKONTSEV, Yu.A.; NECHAYEV, V.S.

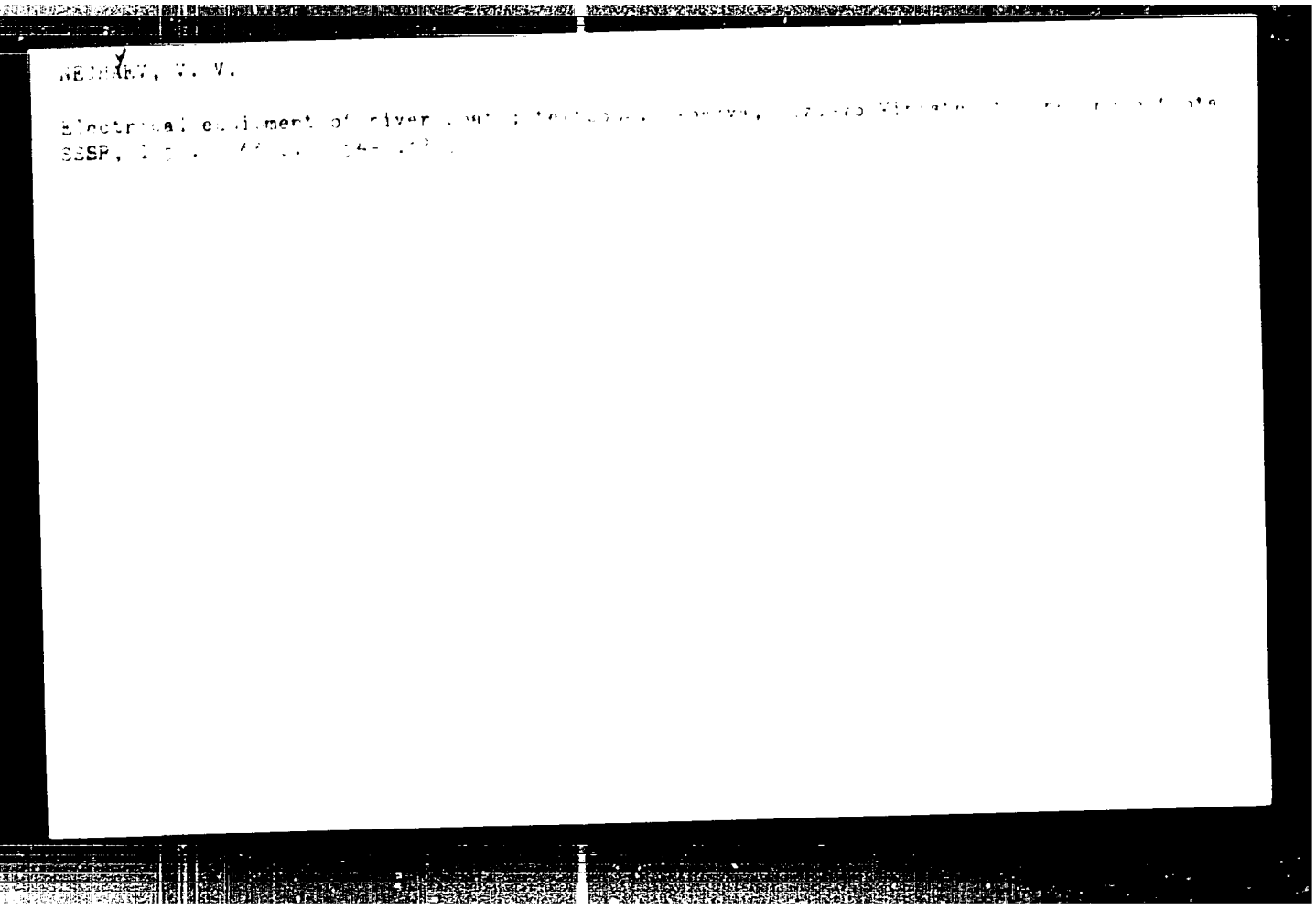
Operation of a blast furance with the use of mazut. Metallurg (MIRA 16:8)
8 no.7:8-9 Jl '63.

1. Chusovskoy metallurgicheskiy zavod.
(Blast furnaces) (Mazut)

VASILOV, S.I.; NECHAYEV, V.V.; RODIONOVA, L.N.

Determining bacterial concentration by the fluorescent method.
Zhur. mikrobiol. epid. i immun 28 no.2:59-63 F '57 (MLRA 10:4)

1. Iz kafedry fiziki i mikrobiologii Chitinskogo meditsinskogo instituta.
(BACTERIA, determ.
concentration determ. by luminescent method)
(LUMINESCENCE
luminescent method in determ. of bact. concentration)



NE[illegible], V. V.

Electrical equipment of river [illegible]
SSSR, [illegible]

NECHAYEV, V. V.

NECHAYEV, V.V.; FRIK, A.O., redaktor.

[Electrical equipment for river boats] Elektrooborudovanie rechnykh sudov. 2.izd. [Moskva] Vodtransizdat, 1953. 283 p. (MLRA 7:4)
(Electricity on ships)

NECHAYEV, V. V.

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Book D 198267, 24 Jan 55

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[Ship's electrical equipment; with the principles of electrical engineering] Sudovoe elektrooborudovanie; s osnovami elektrotekhniki. Moskva, Izd-vo "Rechnoi transport," 1954. 263 p. [Microfilm] (MLRA 8:2)

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SUKHOV, Dmitriy Konstantinovich; NECHAYEV, V.V., retsenzent; KONSTANTINOV, V.P., retsenzent; YEVLANOV, S.N., redaktor; KAN, P.M., redaktor izdatel'stva; KRASNAYA, A.K., tekhnicheskiy redaktor

[Electric engineering and telecommunication] Elektrotekhnika i elektrosviaz'. Izd. 2-oe, dop. i ispr. Moskva, Izd-vo "Rechnoi transport," 1956. 466 p. (MLRA 9:8)
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MECHAYEV, Vyacheslav Vasil'yevich; SABANEYEV, I.A., retsenzent; NIKOLAYEV, S.A., retsenzent; BOGORAD, B.I., kand.tekhn.nauk, red.; SHLEYNIKOVA, Z.V., red.izd-va; KRASNAYA, A.K., tekhn.red.

[Electric motors] Elektricheskie mashiny. Pod red. B.I.Bogorada. Moskva, Izd-vo "Rechnoi transport," 1958. 285 p. (MIRA 11:3)
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MECHAYEV, Vyacheslav Vasil'yevich; YAKOVLEV, O.S., retsenzent; CHICHKIN, V.N., retsenzent; FRIK, A.O., inzh., red.; SHLENSKOVA, Z.B., red.izd-va; POKHLEBKINA, M.I., tekhn.red.

[Electric equipment of ships used in inland-water transportation] Elektricheskoe oborudovanie sudov vnutrennego plavaniiia. Moskva, Izd-vo "Rechnoi transport," 1960. 341 p. (MIRA 14:4)

1. Nachal'nik otdela elektroradiooborudovaniya i avtomatiki TSentral'nogo tekhniko-konstruktorskogo byuro (for Yakovlev).
(Inland water transportation)
(Ships--Electric equipment)

NECHAYEV, Vyacheslav Vasil'yevich; STUKUSHIN, V.I., inzh., retsenzent; KHOKHLOV, G.P., elektromekhanik, retsenzent; FRIK, A.O., red.; KAN, P.M., red. izd-va; REMNEVA, T.T., tekhn. red.

[Electric equipment of ships] Elektrooborudovanie sudov. Moskva, Izd-vo "Rechnoi transport," 1962. 208 p. (MIRA 15:11)

1. Rechnoy Registr RSFSR (for Stukushin). 2. Rechnoy teplokhod "Sovetskiy Soyuz" (for Khokhlov).
(Electricity on ships)

TESLENKO, A.V.; NECHAYEV, V.V.

Tectonic scheme of the Azov [illegible] area. [illegible]
131-133 S '64.

1. Kiyevskaya [illegible]

ACC NR: AT7003833 SOURCE CODE: UR/3169/66/000/018/0042/0045

AUTHOR: Nechayev, V. V.; Teslenko, A. V.

ORG: Ukrainian Geophysical Exploration Trust (Trest "Ukrgeofizrazvedka")

TITLE: Belt of subcrustal faults along the border of the Paleozoic folded region and the alpine geosyncline in the south of the European part of the USSR

SOURCE: AN UkrSSR. Geofizicheskiy sbornik, no. 18, 1966. Geofizicheskiye issledovaniya stroyeniya zemnoy kory (Geophysical investigations of the structure of the earth's crust), 42-45

TOPIC TAGS: magnetometer, ~~scientific research, geologic research facility, research program,~~ geologic exploration, geologic survey, ~~geology,~~ physical geology, magnetic anomaly, ground magnetic detection, ~~airborne magnetic detection,~~ magnetic domain boundary, magnetic field, EARTH CRUST, TECTONICS

ABSTRACT: Ground and air magnetometric investigations are currently in progress in Bulgaria and Rumania and in the Ukraine and the Ciscaucasus. Generalization of the results of all magnetometric investigations of the territory stretching from the Caspian Sea to Rumania and Bulgaria will greatly expand and refine information available on the geologic structure, particularly the deep structure, in the south of the European part of the USSR. The belt of large-scale, linear magnetic anomalies

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ACC NR: AT7003833

located near the northern border of the alpine megaanticlinoria in the Balkans, Crimea, and Caucasus is described and interpreted geologically. Characteristics of the structure of the magnetic field make it possible to conclude that intrusive activity predominates and that the intrusions are in the form of isolated masses up to 30 meters wide. The faulting is also the result of the extreme tectonic activity (mobility) along the southern edge of the Paleozoic platform, which controls the location of the alpine foredeeps, with the possible exception of the Balkan. Orig. art. has: 1 figure.

[29]

SUB CODE: 08/SUBM DATE: 11Oct64/ORIG REF: 007

Card 2/2

06500
SOV/141-58-4-16/26

AUTHORS: Kuznetsov, M.I. and Nechayev, V.Ye.

TITLE: Oscillations of the Rotating-Wave Type in a Non-Split Anode Magnetron (Kolebaniya tipa vrashchayushcheysya volny v nerazreznom magnetrone)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Nr 4, pp 126-130 (USSR)

ABSTRACT: It is known that in a cylindrical non-split anode magnetron the space charge can produce oscillations not only in the presence of a resonant tank in the anode-cathode circuit but also when the electrodes of the tube are short-circuited for the high frequencies. (Ref 1-3). Since the mechanism of such oscillations has not been adequately studied, the problem was investigated in the work described. The measurements were conducted on a specially constructed tube (Fig 1) whose anode cylinder had three circular apertures; small discs were placed into these apertures (Fig 2). The anode and cathode of the tube were short-circuited for the high frequency by means of special cylindrical mica condensers (Fig 2). The angular distances between

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Oscillations of the Rotating-Wave Type in a Non-Split Anode Magnetron

the centres of the discs were 75°, 105° and 180°. The currents induced in the measuring discs were led by means of coaxial lines of equal lengths to the inputs of a phase metering device. The input impedances of the phase metering device were equal to the characteristic impedances of the lines, P (75 Ω). The voltages at the phase-meter input had the same phase difference as the currents induced in the discs. Another pair of these voltages were applied to an electric switch which successively connected them to the input of a superheterodyne receiver; the switching frequency was 50 c/s and the receiver was fitted with three frequency changers. Block schematic of the phase meter is shown in Fig 3. The receiver was provided with an automatic frequency control in order to make the phase measurements independent of the frequency and phase variations in the magnetron. The phase measurements were recorded photographically by means of an oscillograph; some of the resulting

Oscillations of the Rotating-Wave Type in a Non-Split Anode Magnetr

oscillograms are shown in Fig 4. Errors of measurements were less than 15°. During the experiments the authors were unable to observe any axially symmetrical motion of the space charge in the magnetron. All the oscillations observed were in the form of a rotating wave, the most common and the most stable oscillation occurring for n = 2. The results of the experiments are shown in Table 1, while Table 2 contains the calculated phase differences for various values of n. It is concluded that in the above magnetron, with a cathode-anode short, only the space charge oscillations of the rotating-wave type can exist. The authors express their gratitude to T.Ya.Savicheva and A.P.Sedov for their great help in designing the phase-meter. There are 4 figures, 2 tables and 3 Soviet references, 1 of the references is translated from Englis

0650

SOV/141-58-4-16/26

Oscillations of the Rotating-Wave Type in a Non-Split Anode Magnetron

ASSOCIATION: Issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Research Institute of the Gor'kiy University)

SUBMITTED: 23rd March 1958

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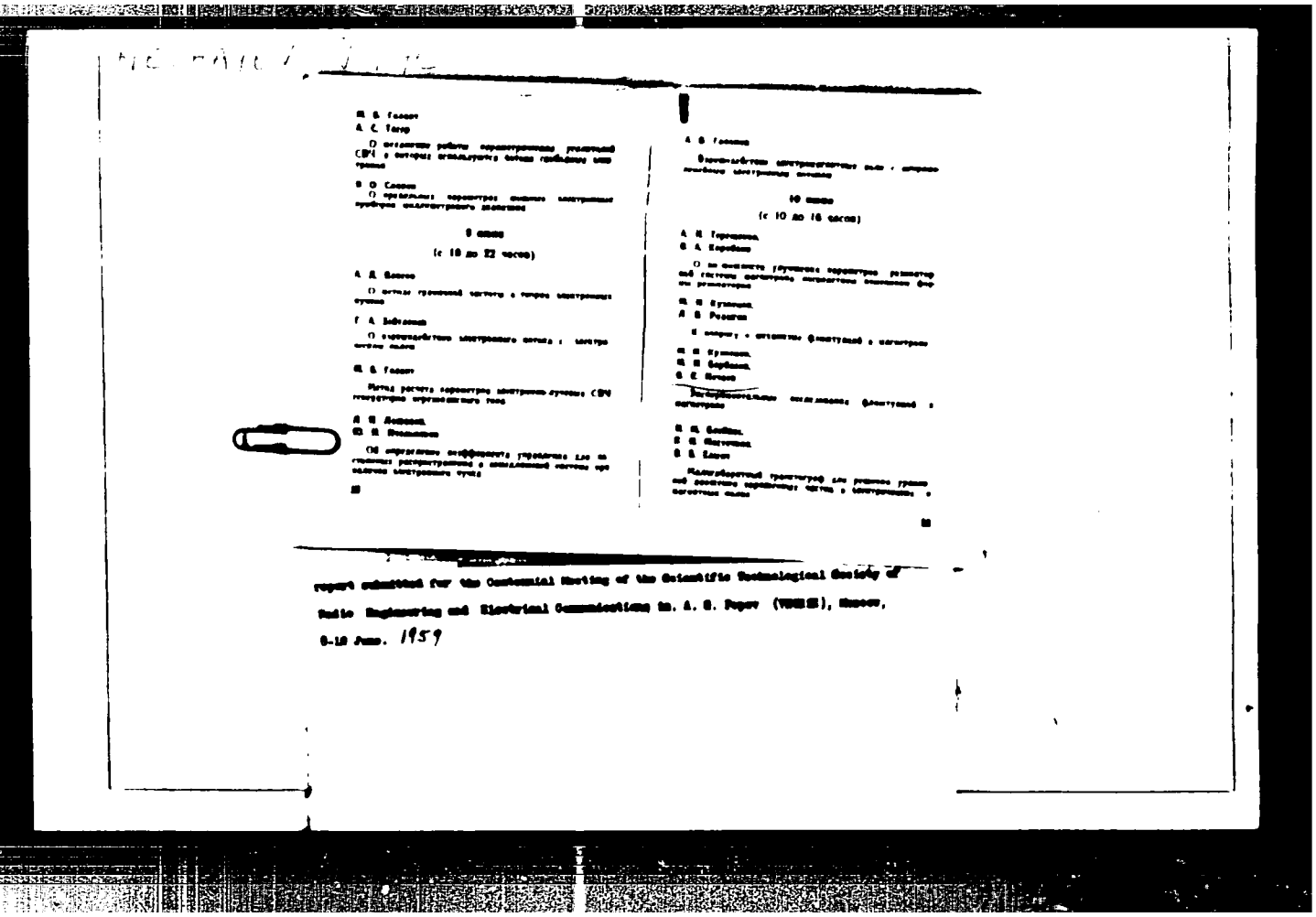

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNIIR), Moscow, 8-10 June. 1959

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E192/E582

9.4210

AUTHORS: Berbasov, V.A., Kuznetsov, M.I. and Nechayev, V.Ye.

TITLE: Investigation of the Fluctuations in Magnetrons. 19
I. Amplitude Fluctuations 35

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika 1960, Vol 3, Nr 1, pp 102-109 (USSR)

ABSTRACT: The fluctuation spectra of the anode current in five specially designed magnetrons with various ratios of the anode-cathode diameters were investigated. The magnetrons operated in the metre wave range. A specially designed spectrum analyser was employed which permitted the spectrum to be observed directly on the screen of a cathode ray oscillograph over a bandwidth of 20 to 180 Mc/s (Ref 7). In all the investigated tubes the internal diameter of the anode was 35 mm. The cathodes of all the tubes, except one which had a tungsten filament with a diameter of 0.18 mm, were of identical construction and differed only in size. The cathodes consisted of nickel cylinders coated with a layer of the double carbonate and contained heaters inside. The

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Investigation of the Fluctuations in Magnetrons. I. Amplitude Fluctuations

diameters of the cathode cylinders were 4, 11 and 17 mm. The centering of the cathodes was done with an error of 0.5 to 1 mm. In order to determine the effect of the cathode position inside the tube, the cathode having the diameter of 17 mm had two designs; in the second design, the cathode could be centred with an error of 0.1 mm with respect to the anode by means of ceramic washers. The tubes were activated and aged, and were sealed at a pressure lower than 5×10^{-7} mm Hg. In order to eliminate the possibility of obtaining the oscillations of the resonant type the anode and cathode of the experimental tubes were shorted by means of a special screen. The diagrams of two experimental tubes fitted with the screens are shown in Figs 1 and 2. The results obtained from the investigation of the fluctuations of the anode current in the magnetron having a cathode of 11 mm diameter are shown in Fig 3

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Investigation of the Fluctuations in Magnetrons I. Amplitude Fluctuations

The vertical coordinate denotes the frequency while the horizontal coordinate gives the magnetic field H in Oe-units. The "dots" in the figure denote the maxima which are due to symmetrical fluctuations while the "crosses" show the maxima which are caused by azimuthal fluctuations. Similar results were observed in all the remaining tubes. From the experiments it is concluded that a comparatively broad maximum is observed at a frequency which is lower than the cyclotron frequency When the magnetic field intensity is near to the critical values, the maximum of the fluctuations occurs at a frequency which is about 30% lower than the cyclotron frequency However, as the intensity of the magnetic field is increased the maximum is shifted nearer to the cyclotron frequency Other peaks of the fluctuation spectrum have narrower bandwidths (5-10 Mc/s) The maximum of the spectral

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Investigation of the Fluctuations in Magnetrons I. Amplitude Fluctuations

density of the fluctuations whose frequency increases with the increase of the magnetic field cannot be explained by the non-coherent oscillations of the rotating-wave type, since such a maximum is not observed in the azimuthal current spectrum It is therefore necessary to assume that the maximum is a result of the natural oscillations of the symmetrical type which are excited by the fluctuation currents The experiments showed that it is possible to excite the harmonic forced oscillations in the vicinity of the natural frequency the oscillations being of the resonant type.

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There are 4 figures, 1 table and 8 references, 6 of which are Soviet and 2 English. (One of the Soviet references is translated from English)

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute of Gor'kiy University)

SUBMITTED: August 5, 1959

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S/141/60/003/02/014/025
B192/B382

9.4210

AUTHORS: Berbasov, V.A., Kuznetsov, M.I. and Nechayev, V.Ye.

TITLE: Investigation of the Fluctuations in a Magnetron. II Fluctuations of the Azimuthal Current

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol 3, Nr 2, pp 290 - 298 (USSR)

ABSTRACT: The fluctuation spectrum in the pre-oscillation regime in a magnetron was investigated. In the pre-oscillation regime the resonator system of the magnetron is not excited and all the segments of the anode are practically equipotential. The state of the space charge and its fluctuations should not differ substantially from the corresponding states and fluctuations in a magnetron with a non-split anode. Consequently, the fluctuations of the space charge were studied on laboratory models with non-split anodes. The measurements were carried out at decimetre and metre waves, so that they can be conducted comparatively easily and accurately. The experimental tubes (shown in Figures 1 and 2) were constructed in such a way that at the frequencies of interest the anode and the cathode of the tubes could be

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Investigation of the Fluctuations in a Magnetron. II Fluctuations of the Azimuthal Current

regarded as being short-circuited at high frequencies. Small apertures, whose diameter was much smaller than the length of the rotating wave of the space charge, were cut in the anode cylinders of the tubes. Measuring probe-discs were inserted into the apertures. The discs were connected to lines having the wave impedance $\rho = 75\ \Omega$. The signals were conducted by means of the lines to a receiver. The construction of one of the tubes was such as to permit the observation of the current received by the disc as well as the cathode current. The experiment showed that the spectrum of the anode current contains only one comparatively wide maximum in the vicinity of the cyclotron frequency, while the spectrum of the azimuthal current consists of a number of narrow maxima, whose position is determined with an accuracy of 10-20% by the Hartree formula. The fluctuation spectrum of the azimuthal current obtained by means of a spectrum analyser is shown in Figure 3. The Hartree curves obtained by means of Eq (4) are also plotted in Figure 3. It is seen that

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Investigation of the Fluctuations in a Magnetron. II Fluctuations of the Azimuthal Current

the regions of maximum intensity correspond to the Hartree lines. The fluctuations of the azimuthal current could be studied more accurately by employing the second tube whose geometry and operation conditions were nearer to the actual magnetron (Figure 2). Results of the measurements are shown in Figure 4. The maxima of the fluctuations follow the Hartree lines with an accuracy of 10%. By employing a comparatively high anode voltage, the observations could be effected over a wide frequency band and for n up to 7. From the graphs of Figure 4 it is seen that the maximum fluctuations of the azimuthal current are almost independent of the magnitude of the magnetic field. The intensity of the fluctuations is principally dependent on the anode voltage. It is interesting to compare the spectrum of the fluctuations with the spectrum of the natural oscillations in the magnetron. For this purpose, the measurements were carried out on the tube shown in Figure 1. The oscillations were excited by an external signal applied to one of the measuring discs

Investigation of the Fluctuations in a Magnetron. II Fluctuations of the Azimuthal Current

through a distributed amplifier. In this way, it was possible to excite non-symmetrical oscillations in the form of rotating waves. The reaction of the space charge to the applied signal was observed on the screen of a spectrum analyser. The signal from the second measuring disc was also applied to the input of the analyser. In this way, it was possible to observe simultaneously the spectrum of the non-coherent oscillations and the reaction of the system to the external excitation. It was found that the reaction has a clearly resonant character and that the resonant frequencies coincide with the frequencies at which the maximum fluctuation amplitudes are observed. The results of this experiment are indicated in the oscillograms of Figure 5. It is interesting to compare the above experimental results with certain theoretical data. Thus, according to Harris (Ref 11), the natural frequencies of space-charge oscillations in a cylindrical magnetron can be expressed by Eqs (7), where r_e is the

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Investigation of the Fluctuations in a Magnetron. II Fluctuations of the Azimuthal Current

external radius of the space-charge cloud and ω_H is the cyclotron frequency. From this formula it follows that the natural frequencies do not coincide with the Hartree lines. This is in contradiction to the experimental results. Consequently, it is concluded that the Brillouin state is not realised in a magnetron. There are 5 figures and 13 references, 12 of which are English and 1 is Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific-research Radiophysics Institute of Gor'kiy University)

SUBMITTED: July 6, 1959

Card 5/5

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S/141/62/005/003/007/011
E192/E382

9.4210
9.2585

AUTHOR: Nechayev, V.Ye.

TITLE: Approximate analysis of the processes in a multi-cavity magnetron (plane model)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 5, no. 3, 1962, 534 - 548

TEXT: A large portion of the results of the paper was read at the session of the Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific Technical Society for Radio-engineering and Electrical Communications im. A.S. Popov) in May, 1960.
An approximate method of evaluating the induced current and the power in a plane model of a multicavity magnetron is presented. The analysis is based on the consideration of the motion of the electrons in the field of the system and does not contain any parameters depending on the high-frequency voltages. The effect of the space-charge fields and the relativistic effects are neglected, so that the motion of the electrons for the plane model (Fig. 1) can be described by:
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Approximate analysis ....

$$\frac{m}{e}\frac{d^2y}{dt^2} = \frac{\partial U}{\partial y} - B\frac{dx}{dt} \qquad (1)$$

$$\frac{m}{e}\frac{d^2x}{dt^2} = \frac{\partial U}{\partial x} + B\frac{dy}{dt} \qquad (1a)$$

where e/m is the charge-to-mass of an electron,
B is the magnetic induction, and
U is the scalar electric potential.

By considering only the fundamental space harmonic of the field Eqs. (1) and (1a) can be represented as:

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Approximate analysis ....

$$-\frac{\omega}{\omega_H}\dot{X} + \dot{Y} = \alpha_1 \operatorname{sh} Y \cos X \qquad (3)$$

$$\frac{\omega}{\omega_H}\dot{Y} + \dot{X} = \alpha_o - \alpha_1 \operatorname{ch} Y \sin X \qquad (3a)$$

where $\omega_H = eB/m$ is the cyclotron frequency and the normalized parameters and variables are defined by:

$$\alpha_1 = \frac{U_1}{U_o} \cdot \frac{d}{D} \cdot \frac{\sin \beta a}{\beta a} \cdot \frac{1}{\operatorname{sh} \beta d} ; \quad \alpha_o = \frac{U_o - U_o}{U_o} \qquad (4)$$

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Approximate analysis ....

where U_1 is the high-frequency field amplitude between the neighbouring segments of the resonator block,
U_o is the voltage between the anode and cathode,
$\beta = \omega/D$,
$U_{cr} = dB\omega/\beta$, $Y = \beta y$ and $X = \beta x - \omega t$.

The differentiation of X and Y in Eqs. (3) and (3a) is with respect to $T = \omega t$. Eqs. (3) and (3a) can be represented as:

$$\frac{d^2Z}{d\tau^2} + j\frac{dZ}{d\tau} = j\frac{\omega}{\omega_H}(\alpha_o - \alpha_1 \sin Z) \qquad (6)$$

By introducing new variables $Z = X + jY$ and $\tau = \omega_H t$.
If it is assumed that the righthand-side is small in comparison with ω/ω_H , the equation can be solved approximately and
In this case the differential equation for the average trajectory is:

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Approximate analysis ....

$$\frac{dX}{dY} = \frac{a_o - a_1 \text{ ch } Y \sin X}{a_1 \text{ sh } Y \cos X} \qquad (10)$$

so that the average trajectory itself, found by integration with Eq. (10) is given by:

$$a_o Y - a_1 \text{ sh } Y \sin X = \text{const.} \qquad (11) .$$

The average electron trajectory is thus determined by the ratio a_o/a_1 (see Eq. 11) and the choice of the initial point. If the high-frequency field is absent, which corresponds to $a_1 = 0$, the trajectory is cycloidal. The initial coordinate Y_o for the average trajectory in the presence of the high-frequency field is chosen as $Y_o = (\omega/\omega_H)(1 + a_o)$.

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Approximate analysis ....

Eq. (11) is used to determine the trajectories of the boundary electrons for a "spoke" of the space charge and the trajectory of the average electron ($X_o = 0$). The condition that the electrons appear at the anode of the magnetron can be determined by considering the singular points of Eqs. (10). A singular point exists if $a_o/a_1 < 1$ for $Y' = \operatorname{arch} a_o/a_1$. Eq. (10) is also used to find the number of periods of the cyclotron frequency during which the electron reaches the anode; the number of periods n is given by:

$$n = \frac{1}{2 a_1} \frac{\omega_H}{\omega} \ln \frac{\operatorname{th} Y_a/2}{\operatorname{th} Y_o/2} \qquad (17) .$$

On the basis of the above approach it is possible to evaluate the average power per period for cases when the singular point is absent and when it is present but $Y' < Y_o$ and for the case when $Y' > Y_o$ and the singular point is present. The anode

Approximate analysis ....

current produced by the electrons of a single "spoke" is also evaluated for these cases. An expression for the efficiency of the magnetron is derived and it is shown that this can be applied to a cylindrical model by introducing the following substitutions:

$$d = r_a - r_K; \quad D = \pi(r_a + r_K)/N; \quad Y_a = (r_a - r_K)N/(r_a + r_K); \tag{10}$$

$$U_0 = (r_a^2 - r_K^2)\,\omega B/N; \quad \beta a = N\varphi/2$$

where r_a and r_K are the radii of the anode and the cathode,
N is the number of resonators in the block and
φ is the angular half-width of the resonator slots.

The resulting formula for the efficiency is in reasonable agreement with the experimental data obtained for several cylindrical magnetrons. The induced current of the magnetron is evaluated on the basis of the Shockley-Ramo theorem and it is found that the formulae are identical with the results obtained

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Approximate analysis ....

by the approximate method. The theory presented in the article can be used in analyzing the oscillations in magnetron oscillators but it is first necessary to find the dependence of the space charge parameter ν_0 representing the average space charge in the vicinity of the cathode on the electrical operating conditions.

The author thanks M.I. Kuznetsov for reading the manuscript and for valuable remarks and L.V. Rodygin for useful discussion.

There are 5 figures.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute of Gor'kiy University)

SUBMITTED: October 26, 1961

Card 3/3

S/141/62/005/005/014/016
E140/E135

AUTHOR: Nechayev, V.Ye.

TITLE: On the adiabatic approximation in the analysis of magnetron type devices

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.5, no.5, 1962, 1035-1037

TEXT: It is shown that if the force due to the electric field is small with respect to that due to the magnetic field, it is not necessary to impose quasihomogeneity of the magnetic field, in the representation of electron motion in the form of drift and revolution. To calculate the power and induced current the trochoidal motion may be replaced by an average motion.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete
(Scientific Research Radiophysical Institute at Gor'kiy University)

SUBMITTED: April 17, 1962

Card 1/1

AVANESOV, V.T.; MARTIROSOVA, A.O.; NECHAYEV, V.Ye.; TAVARYAN, V.Ye.

New laboratory resistivity deep-meter for determining the oil-water saturation of reservoirs. Neftepром. delo no.9:26-28 '63. (MIRA 17:4)

1. Azerbaydzhanskiy nauchno-issledovatel'skiy institut po dobyche nefti.

ACCESSION NR: AP4024475 S/0141/64/007/00./0146/0159

AUTHOR: Nechayev, V. Ye.

TITLE: Contribution to the analysis of processes in a multi[illegible] magnetron

SOURCE: IVUZ. Radiofizika, v. 7, no. 1, 1964, 146-159

TOPIC TAGS: magnetron, multicavity magnetron, electron motion, induced current, electron trajectory, bunched beam, beam and field interaction, electronic efficiency

ABSTRACT: A calculation method previously used by the author to investigate a planar model of the magnetron (IVUZ. Radiofizika v. 5, 534, and 1035, 1962) is used to analyze the motion of an individual electron in the specified field of the interelectrode space of a multicavity magnetron. A closed system of equations is written down, in which the power given up by the electrons to the high fre-

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ACCESSION NR: AP4024475

quency field, or the induced current, is expressed explicitly in terms of the high frequency voltage for a specified magnetic induction and for a constant anode voltage. Asymptotic expressions are obtained for the velocities and trajectories up to the second approximation inclusive. Space charge is neglected. The average trajectories are qualitatively analyzed and the interaction between a bunched beam and the high-frequency field (or its synchronous harmonic) is given. A formula is derived for the electronic efficiency. The results are compared with some published data on magnetrons. It is pointed out that the experimental material is still not sufficient to be able to write down a closed system of equations in which the power is expressed in terms of the high frequency voltage. "The author is grateful to R. A. Dudnik and L. V. Rody*gin for a discussion and for useful remarks." Orig. art. has: 5 figures, 34 formulas, and 2 tables.

ASSOCIATION: Nauchno issledovatel'skiy radiofizicheskiy institut

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ACCESSION NR: AP4024475

pri Gor'kovskom universitete (Scientific Research Radiophysics Institute at the Gor'kiy University)

SUBMITTED: 02Apr63 DATE ACQ: 15Apr64 ENCL: 00

SUB CODE: PH, GE NR REF SOV: 008 OTHER: 008

Card 3/3

L 58465-65 EWT(1)/EEC(b)-2/EWA(h) Pm-4/Pn-4/Pac-4/Peb/Pi-4/Pj-4 JM

ACCESSION NR: AP5014517 UR/0141/65/008/002/0413/0416
621.385.64

AUTHOR: Groshkov, L. M.; Nechayev, V. Ye.

TITLE: Experimental investigation of electron motion in a magnetron oscillator

SOURCE: IVUZ. Radiofizika, v. 8, no. 2, 1965, 413-416

TOPIC TAGS: multicavity magnetron, electron motion, self oscillating mode, electron beam probing

ABSTRACT: A study has been made of the motion of electrons in the course of the initial orbits in the near-cathode region of a multicavity magnetron under conditions of steady self-oscillation. A method of longitudinal probing by a narrow electron beam was employed in which the transverse plane motions of both the magnetron electrons and the probing beam electrons are governed by the same laws. The beam electrons arriving at the fluorescent screen in the base of the tube yield information on the character of the electron motion in the magnetron. The experimental setup comprised a continuous-wave magnetron (similar to the US LCW magnetron with a 16-cavity anode block) and the electron probing equipment. It was found that at voltages below the threshold voltage, electron trajectories have a loop-like form. As the

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anode voltage approaches the threshold, the size of the fluorescent spot on the screen increases, indicating a growth of fluctuating fields in the interaction region. In the presence of strong coherent oscillations (λ = 26.7 cm), the electron beam path on the screen is drawn into a small azimuthal arc. By photographing successive positions of the probing beam on the screen at various transit times, i.e., at various velocities of the beam electrons, an image of electron motion in the second trajectory loop is obtained as shown in Fig. 1 of the Enclosure. Fig. 2 shows the positions of electrons moving near the tip of the second trajectory loop as the plate current and oscillation intensity are increased. The results indicate that the mathematical models most closely approaching actual electron motion are those based on analytical methods and according to which electrons move from the very beginning along perturbed epicyclic paths. Orig. art. has: 4 figures. [JR]

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Institute of Radio Physics at Gorky University)

SUBMITTED: 10Jun64 ENCL: 02 SUB CODE: NP, EC

NO REF SOV: 003 OTHER: 003 ATD PRESS: 4024

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ACCESSION NR: AP5014517

ENCLOSURE: 01

0

Fig. 1. Typical electron path

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ENCLOSURE: 02

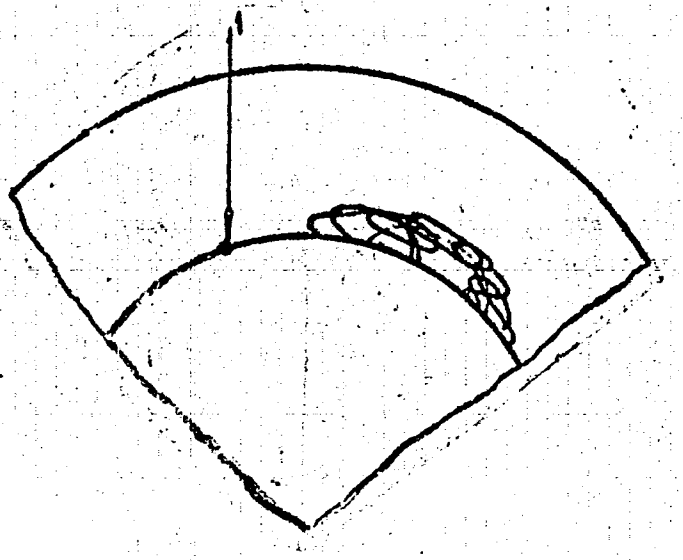

Fig. 2. Sequence of electron positions for stepwise variations in transit time (V_{accel} = 800—3000 v) and fixed power (H = 430 oe; V_0 = 2.25 kv; I_0 = 120 mamp)

1 - The point of beam entrance.

Card 4/4

BEK, R.Yu.; KUDRYAVTSEV, N.T.; NECHAYEV, Ye.A.

Cathodic polarization in the electrodeposition of silver from ferrocyanide electrolytes. Zhur. fiz. khim. 36 no.11:2504-2508 N'62. (MIRA 17.4

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.

L 29935-66 EWT(m)/EWP(t)/ETI IJP(c) JD
ACC NR: AR6010650 SOURCE CODE: UR/0276/65/000/010/B070/B070

AUTHOR: Gnusin, N.P.; Nechayev, Ye. A.; Kutyukov, G. T.; Lavrova, T.A.

TITLE: Comparative evaluation of the existing methods of cadmium plating from non-cyanide solutions

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 10B440

REF SOURCE: Sb. dokl. k Novosib. nauchno-tekhn. konferentsii po mashinostr. Ch. 1. Novosibirsk, 1964, 129-134

TOPIC TAGS: metal plating, cadmium compound, electrolyte, ammonium salts

ABSTRACT: Results are given of studying basic electrolytes for cadmium plating and the technological parameters of their work are compared. It is noted that good results are obtained from complex ammoniate salts. The outlook for further improvement of electrolites based on amino compounds is stressed.

SUB CODE: 11,07/ SUBM DATE: none

Card 1/1 CC

NECHAYEV, Ye.A., BEK, R.Yu., KUDRYAVTSEV, N.T.

Electrodeposition of silver from complex electrolytes. Part 1. Method of studying the kinetic parameters and capacity of the double electrical layer in the process of silver electrodeposition. Elektrokhimiia 1 no.11.1325-1331 N '65. (MIRA 18:11

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni Mendeleyeva i Institut fiziko-khimicheskikh osnov pererabotki mineral'nogo syr'ya Sibirskogo otdeleniya AN SSSR.

NECHAYEV, Ye.A.; BEK, R.Yu.; KUDRYAVTSEV, N.T.

Process of silver electrodeposition from complex electrolytes. Part 2: Relation between the structure of the deposit and the capacity of the electric double layer in the electrolytic silver plating from cyanide electrolytes. Elektrokhimiia 1 no.12:1443-1448 D '65. (MIRA 19:1)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva i Institut fiziko-khimicheskikh osnov pererabotki mineral'nogo syr'ya Sibirskogo otdeleniya AN SSSR. Submitted January 25, 1965.

L 21592-66 EWT(m)/EWP(t) IJP(c) JD/JG
ACC NR: AP6012437 (N) SOURCE CODE: UR/0364/65/001/012/1458/1461

AUTHOR: Nechayev, Ye. A.; Bek, R. Yu.; Kudryavtsev, N. T.

ORG: Moscow Chemical Engineering Institute imeni D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Some characteristics of the process of electroplating silver on platinum

SOURCE: Elektrokhimiya, v. 1, no. 12, 1965, 1458-1461

TOPIC TAGS: silver, platinum, metal plating, electrolysis

ABSTRACT: The authors study the process of silverplating platinum to determine the cause for unsatisfactory quality in silver coatings on this metal and to find conditions for producing dense silver films at high current densities. The experiments were done in electrolytes with the following composition: Ag--0.25 N, NaCN--0.25-1.0 N, Na CO --0.5 N at t = 25-30°C and i = 0.1-0.5 a/dm^2 without the application of alternating current, and i = 0.1-1.5 a/dm^2 with the application of alternating current with a frequency of 50 cps and i_{ac}/i_{dc} = 2.5. Plating quality was studied under a microscope. On the basis of the experimental data, the following plating conditions are recommended for producing high quality silver coating on platium: electrolyte composition: Ag--0.25 N, NaCN--0.5 N, Na_2CO_3--0.5 N, i < 1.5 a/dm^2 t = 20-25°; con-

UDC: 621.357.7

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L 24592-66
ACC NR: AP6012437

ditions for application of alternating current: i_{ac}/i_{dc} = 10-15 in the first ten seconds of electrolysis and $i_{ac} = i_{dc}$ = 2.0-2.5 through the rest of the plating process. Orig. art. has: 3 figures.

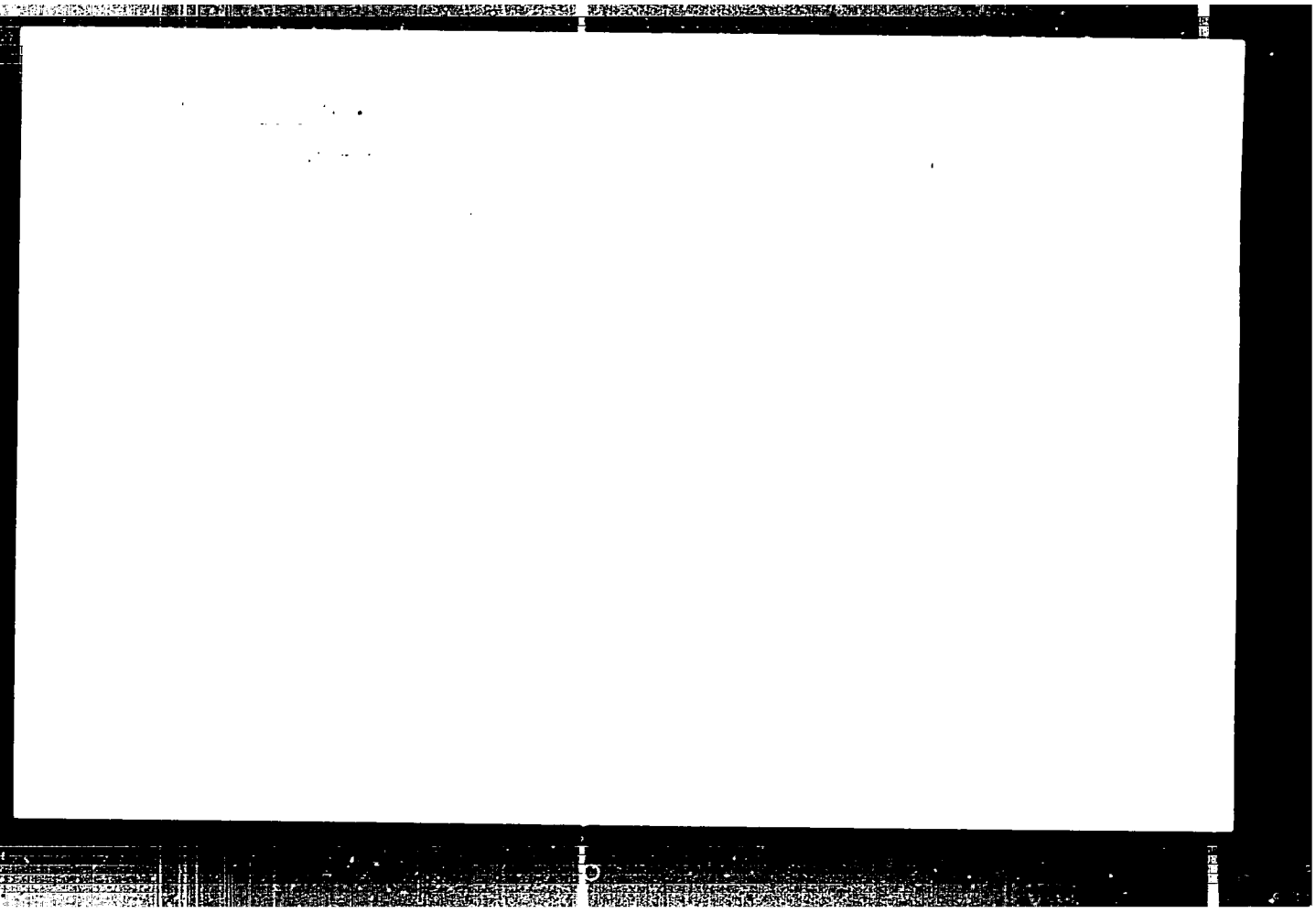
SUB CODE: 11/ SUBM DATE: 25Jan65/ ORIG REF: 002/ OTH REF: 002

Card 2/2 BK

BEK, R.Yu.; NECHAYEV, Ye.A.; KUDRYAVTSEV, N.T.

Cathodic electrodeposition of silver. Zhur. fiz. khim. 39 no.3:628-630 Mr '65. (MIRA 18:7)

1. Khimiko-tekhnologicheskiy institut imeni Mendeleyeva, Moskva.



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