FILIPPOV, A. A.

FILIPPOV, A. A.- "Teaching Discus Throwing." State Order of Lenin and Order of Red Banner Inst of Physical Culture imeni P. F. Lesgaft, Leningrad, 1955 (Dissertations for the Degree of Candidate of Pedagogical Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

FILIPPOV, A.A., aspirant kafedry petrografii i litologii.

Petrological description of lower Paleozoic quartzitic sandstones in the Pamirs. Sbor.nauch.trud.asp.SAGU no.1:71-74 '52.
(MLRA 9:5)

(Pamirs--Sandstone)

FILIPPOV, A.A.

Petrology of intrusive rocks. Trudy SAGU no.39:11-19 '53.
(MLRA 10:5)

(Rocks, Igneous)

FAYNGOL'D, S.G.; FILIPPOV, A.A.; ANAN'YEVA, V.I.

Experience in operating dephenolizing scrubbers without packing in the zone of contact with phenolates. Koks i khim. no.1:46-49 '61. (MIRA 14:1)

1. Yasinovskiy koksokhimicheskiy zavod.
(Phenols) (Coke industry—By-products)

KUZNETSOV, M.D.; FAYNGOL'D, S.G.; FILIPPOV, A.A.

Concerning [redacted]'s notes. Koks i khim. no.3:64 '62.
(MIRA 15:3)

1. Donetskiy industrial'nyy institut (for Kuznetsov).
2. Yasinovskiy koksokhimicheskiy zavod (for Fayngol'd, Filippov).
(Scrubber (Chemical technology)) (Phenols)

SPAZHEV, Yu.A.; FILIPPOV, A.A.; ZLOMANOV, V.A., podpolkovnik, red.; SOKOLOVA, G.F., tekhn. red.

[Translation of military terminology; the English language] Kurs voennogo perevoda; angliiskii iazyk. Moskva, Voen. izd-vo M-va obor. SSSR. Pt.1. 1962. 505 p. ___ Supplement. 15 p. (MIRA 15:3)

(English language--Translating)
(Military art and science--Terminology)

MORYLEV, Yu.N., inzh.; SKALABAN, V.Kh., inzh.; FILIPPOV, A.A., inzh.

Unit for loading cast iron into cars. Mekh. i avtom. proizv. 17 no.8:39-41 Ag '63. (MIRA 16:10)

SPAZHEV, Yu.A.; FILIPPOV, A.A.; YUR'YEV, Ye.A.; SAVIN, B.V., red.

[Course in military translation; English] Kurs voennogo perevoda; angliiskii iazyk. Moskva, Voenizdat. Pt.2. 1964. 478 p. ___[Supplement] Prilozhenie. 30 p. (MIRA 17:7)

FILIPPOV, A.A.

Facies-paleogeographical mapping of Mesozoic and Cenozoic formations in the South Tajik Depression. Nauch. trudy TashGU no.256 Geol. nauki no.22:29-31 '64 (MIRA 18:2)

Division of Cretaceous formations according to their rhythms of stratification in the South Tajik Depression. Ibid.:41-45

Facies-paleogeographical maps of Cretaceous formations in the South Tajik Depression. Ibid.:46-51

[illegible] results of corona loss measurements on the NIIPT experimental [illegible] using [illegible] conductors

SOURCE: Dal'niye elektroperedachi 500 kv (Long-distance transmission of 500 kv. electric power); sbornik statey. Moscow, Izd-vo Energiya, 1964, 170-[illegible]

TOPIC TAGS: corona, corona loss, high voltage line, electric power transmission, [illegible], conductor selection, weather effect

ABSTRACT: The investigation of corona power losses for 330 and 400 + -500 kv transmission lines, which extended over many years, has now [illegible] and the investigations for a 750 kv line are continuing at NIIPT and VNIIE. This article [illegible] the final results of these investigations [illegible]

$$\frac{P}{[illegible]} = [illegible]\left(\frac{U}{[illegible]}\right)$$

L 3682-65
ACCESSION NR: AT4045611

where P is the corona power loss, n is the number of conductors, r_0 is the conductor radius, U is the line voltage and E is the field in kv/cm. The average data for all conductors under investigation is shown in Figures 1 and 2 of the Enclosure. Special purpose lines, unusually abnormal readings, and high altitude measurements were not considered in these computations. It is concluded that the accuracy of both methods is about [illegible] as shown by a brief variance analysis using Fisher's method. [illegible] is included. [illegible] has 6 figures, 3 tables and 4 formulas.

ASSOCIATION: Laboratoriya tekhniki vy*sokikh napryazheniy NIIPT (Laboratory of High Tension Techniques, NIIPT)

SUBMITTED: 13Mar64 ENCL: 02 SUB CODE: EE

NO REF SOV: 011 OTHER: 010

Card 2/4

L 06844-65
ACCESSION NR: AT4046611

ENCLOSURE: 01

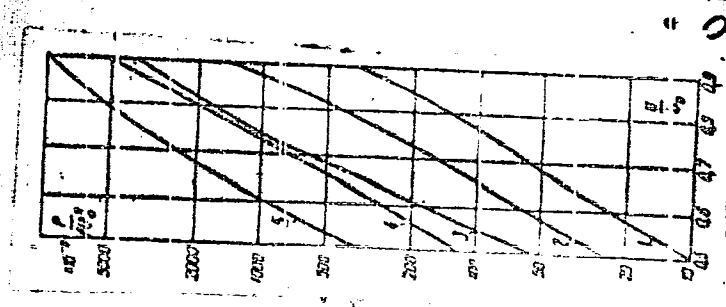
Figure 1

Average curves of

$\frac{P}{IU_0^2} = f_1\left(\frac{L}{U_*}\right)$

for various meteorological conditions:

weather



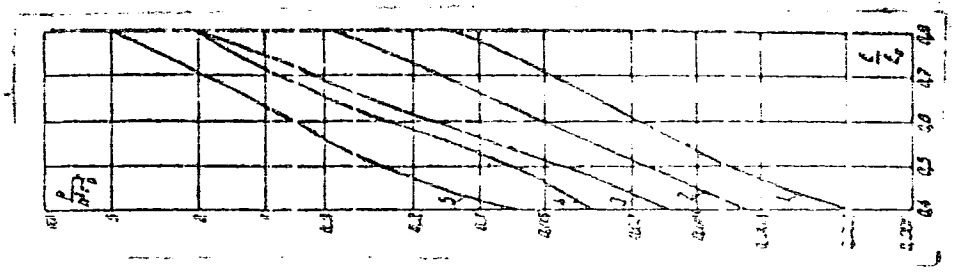
Card 3/4

L 8681-65

ACCESSION NR: AT4045611

ENCLOSURE: 02

Figure 2



Average curves

4 - wet snow

5 - rime

Card 3/4

Filippov, A.F.

Filippov, A. F. **Sufficient conditions for the uniqueness and nonuniqueness of the solution of a differential equation.** Doklady Akad. Nauk SSSR (N.S.) 60 (1948), 349–352. (Russian)

The new results are the following. (I) Let $f(x, y)$ be continuous for $0 \leqq x \leqq a$, $y \leqq b$; let $F(x, y)$ be nonnegative and continuous for $0 < x \leqq a$, $0 \leqq y \leqq b$, with $F(x, 0) \equiv 0$; and let $y' = f(x, y)$ have a solution $u(x)$ with $u(0) = 0$, $u(x) > 0$ [illegible]. If $y' = f(x, y)$ has a second [illegible] solutions for the existence [illegible] satisfy. They are that $F(x, y) \equiv \psi(x)\varphi(y)$, $\psi(x) \leqq Mx^{\alpha}$, $\alpha > 0$, and

$$\lim_{\varepsilon \to 0} \int_{\varepsilon}^{A} \left\{ \frac{1}{\psi(t)} - \frac{1}{\varphi(t)} \right\} dt = \infty ;$$

or (2) $\varphi(t)/t \to \infty$ as $t \to 0$ and

$$\liminf_{\varepsilon \to 0} \int_{\varepsilon}^{A} \left\{ \frac{1}{\psi(t)} - \frac{1}{\varphi(t)} \right\} dt > -\infty .$$

(II) [illegible] that $\varphi(t)$ and [illegible] are [illegible]

(i) [illegible] $\int_{\varepsilon}^{A} \left\{ \frac{1}{\psi(t)} - \frac{1}{\varphi(t)} \right\} dt = -\infty$;

or (ii) $\varphi(t) \leqq Mt$, $M > 0$, and

$$\liminf_{\varepsilon \to 0} \int_{\varepsilon}^{A} \left| \frac{1}{\psi(t)} - \frac{1}{\varphi(t)} \right| dt < \infty .$$

J. P. La Salle (Notre Dame, Ind.).

Source: Mathematical Reviews, Vol. 9 No. 10

FILIPPOV, A. F.

Filippov, A. F. A sufficient condition for the existence of a stable limit cycle for an equation of the second order.

Sources: Mathematical Reviews, Vol No. 19

FILIPPOV, A. F.

FILIPPOV, A. F. -- "Plane Problem of the Diffraction of Elastic Waves." Cand Phys-Math Sci, Sci Res Inst of Mechanics and Mathematics, Moscow State U, Moscow 1953. (Referativnyy Zhurnal--Mekhanika, Jan 54)

SO: SUM 168, 22 July 1954

FILIPPOV, A. F.

USSR/Mathematics - Finite differences

Card 1/1 Pub. 22 - 3/47

Authors : Filippov, A. F.

Title : About stability of finite difference equations

Periodical : Dok. AN SSSR, 100/6, 1045-1048

Abstract : A proof is presented that in the case of seeking an approximate solution of a differential equation, a finite difference equation can be used instead, provided that the differential equation has a solution; the obtained solution would be stable and would approach the exact solution of the differential equation in proportion to the diminishing of the finite differences. Examples are given. Four references: 2 USSR and 2 USA (1951-1954).

Institution : The M. V. Lomonosov State University, Moscow

Presented by: Academician S. L. Sobolev, December 3, 1954

FILIPPOV, ALEKSEY FEDOROVICH

RYABEN'KIY, Viktor Solomonovich; FILIPPOV, Aleksey Fedorovich; CHUDOVA, L.A., redaktor; GORYACHAYA, M.M., redaktor; TUMARKINA, N.A., tekhnicheskiy redaktor

[Stability of difference equations] Ob ustoichivosti raznostnykh uravnenii. Pod red. L.A. Chudova. Moskva , Gos. izd-vo tekhniko-teoret. lit-ry, 1956. 171 p. (MLRA 10:4)
(Difference equations)

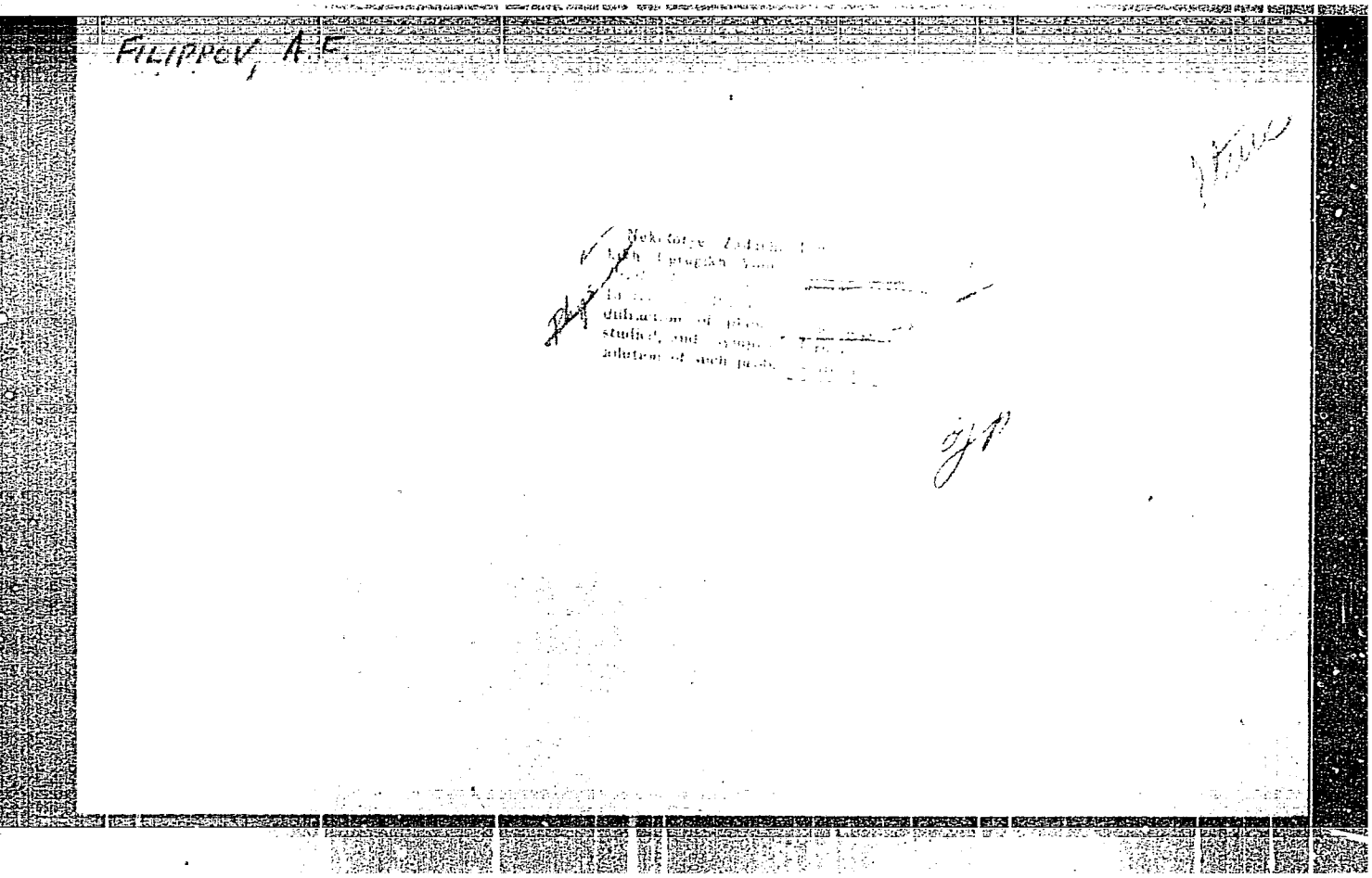
FILIPPOV, A. F.

"Some Problems on the Diffraction of Plane Elastic Waves," by A. F. Filippov, Moscow, Prikladnaya Matematika i Mekhanika, Vol 20, No 6, Nov/Dec 56, pp 688-703

The article presents a solution to the problem of the diffraction of a plane elastic wave relative to a circle and a half line. The sought-for displacements are expressed through the values of some easily tabulated function $F_1(\theta)$. The displacements are computed in 41 internal points in a field filled with the diffracted wave. Asymptotic formulas for displacements near the diffracted wave fronts are derived, and a qualitative investigation of these formulas is made. A few cases of previously uninvestigated diffraction are also studied.

The reduction of a diffraction problem to a boundary problem of the theory of functions of a complex variable, the solution of the boundary problem, and the diffraction of a transverse wave are considered.

Sum 1258



FILIPPOV, A.F.

AUTHOR: Filippov, A.F. 49-7-1/14

TITLE: On the approximate calculation of reflected and refracted waves. (O priblizhennom vychislenii otrazhennykh i prelomlennykh voln).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1957, No.7, pp. 841-854 (U.S.S.R.)

ABSTRACT: Asymptotic representation of sound and elastic waves were considered by various authors who limited themselves predominantly to the steady state oscillations and to the propagation of waves with a discontinuity at the front. Some authors (Refs.7-9) observed that in both cases approximately the same law is obtained for the change of intensity of the propagating wave. In this paper an asymptotic expression is derived, for the neighbourhood of the wave front, for the intensity and shape of the reflected and refracted waves which are suitable for any curvilinear boundary and any shape of the incident wave. From the mathematical point of view the here described method is similar to the known method of studying discontinuities which propagate along characteristics; see Hadamard (Ref.12, Chapter 7) and Courant and Gilbert (Ref.13). The fundamental idea of the method is as follows: the

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On the approximate calculation of reflected and refracted waves. (Cont.)

solution is considered of a φ linear hyperbolic equation of the second order as representing a propagating wave and equalling zero before the wave front. If at the wave front itself the function φ is continuous, $\partial\varphi/\partial n$ show a discontinuity equalling a_1, $\partial^2\varphi/\partial n^2$ a discontinuity equalling a^2, etc. ($\partial/\partial n$ denotes differentiation along the normal to the wave front), then in a point at a distance d beyond the wave front, the solution can be expressed by means of eq.(1), p.841. According to Courant and Gilbert (13), the discontinuities are displaced along rays and the magnitude of a discontinuity varies with time and complies with an ordinary differential equation of the first order. In para.1 the geometric magnitudes are considered which characterise the movement of the wave and formulae are derived for the position of the front of the propagating wave at any instant of time; the geometric picture of reflection and refraction is dealt with in para.2. In para.3 the asymptotic representation of the solution of the wave equation in the neighbourhood of the front of the propagating wave is dealt with, investigating the change with time of the intensity of the propagating

On the approximate calculation of reflected and refracted waves. (Cont.)

wave in the zone neighbouring the wave front; this investigation was carried out by Hadamard (Ref.12) for the more general case when instead of eq.(2) any arbitrary non-linear second order equation is considered. Para.4 deals with the asymptotic representation of the reflected and the refracted waves and rules for the approximate calculation of reflected and refracted waves in the near front zone are formulated; a numerical example is given in para.5. The here described method allows an approximate calculation of waves reflected and refracted at a plane or curved interface to be carried out. If both media are homogeneous and isotropic, the angle of incidence is less than the critical angle and the reflected rays do not intersect in the region under consideration, the following results apply and are derived in the present paper. In the first approximation, the amplitude of the reflected wave is equal to the amplitude of the incident wave at the point of incidence, multiplied by the reflection coefficient for the case of a plane wave at a plane interface, and by the square root of the ratio of the radii of curvature of the wave-front of the reflected wave at the point of reflection and

On the approximate calculation of reflected and refracted waves. (Cont.)

the point of observation respectively. In the three dimensional case, instead of the radius of curvature it is necessary to take the product of the three principal radii of curvature of the wavefront. It is possible to obtain more accurate approximations for the reflected and refracted waves but this involves computations which may be quite extensive. If the incident wave is due to a source which is active only during a short period of time, then the described method will allow the calculation of the reflected and refracted waves sufficiently accurately only if the period of activity of the source multiplied by the velocity of the waves, is less than the smallest of the radii of curvature of all the considered waves. These radii must be taken not only at the moment of observation but also at the moment of reflection. For other waves the method is only applicable in the region near the wavefront. The width of this region is of the order of the smallest radius of curvature mentioned above, or of the order of the minimum distance between the points on the wavefront at which the intensities differ considerably (e.g. by a factor of 2 or 3).

Card 4/5

On the approximate calculation of reflected and refracted waves. (Cont.)

There are 5 figures and 14 references, 8 of which are Slavic.

SUBMITTED: August 1, 1956.

ASSOCIATION: Moscow State University imeni M. V. Lomonosov. (Moskovskiy Gosudarstvennyy Universitet im. M. V. Lomonosova).

AVAILABLE: Library of Congress

Filippov A.F.

GAL'PERN, S.A.; GUSAROVA, R.S.; FILIPPOV, A.F.

"Integration of ordinary differential equations" by I.M. Matveev. Reviewed by S.A.Gal'pern, R.S.Gusarova, A.F.Filippov. Usp.mat. nauk 12 no.3:279-283 My-Je '57. (MIRA 10:10)
(Differential equations, Linear)

FILIPPOV, A.F.

AUTHOR: FILIPPOW,A.F. PA - 2364

TITLE: On the Difference Method of the Solution of the Trikomi Problem. (O raznostnom metodye reshenia zadachi Trikomi, Russian).

PERIODICAL: Izvestiia Akad. Nauk SSSR, Ser. Mat., 1957, Vol 21, Nr 1, pp 73 - 88, (U.S.S.R.).
Received: 4 / 1957 Reviewed: 5 / 1957

ABSTRACT: In this paper a difference equation is demonstrated the solution of which corresponds to that of the trikomi problem for the differential equation $yu_{xx} + u_{yy} = f(x,y)$. In the papers by W. Karmanow and Z. Khalilow the method of final differences is used for the purpose of solving the trikomi task in the following equation: $k(y)\frac{d^2u}{dx^2} + \frac{d^2u}{dy^2} = 0$, (1), where $k(y) = 1$ in the case of $y > 0$, $k(y) = -1$ in the case of $y < 0$.

Nothing is found in published works concerning application of the method of final differences in the equation of the mixed kind with constant coefficient. In the present work a difference equation is demonstrated the solution of which is a trikomi task for the equation (1) at $k(y) = y$ if such a solution exists. There is approximation between those functions if the solution of the differential equation has different properties (?) at the sectional points of the domain with the straight line $y = o$. The method of

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PA - 2364

On the Difference Method of the Solution of the Trikomi Problem.

determining approximation coincides mainly with the method which K.Babenko applied for the confirmation of the existence of a solution of differential equation (1) in the case of any sufficiently constant function k(y). L.I.Kowalenko proved that the here mentioned difference method is applicable in the case of the equation (1) in the case in which $k(y) = /y/^n \operatorname{sign} y$, $0 < n < \infty$. The following paragraphs of the paper have the following titles: 1) Basic assumptions (with diagram). 2) Approximation of the differential equation by differences. 3) Existence of the solution of the difference equation (with diagram). 4) Evaluation of a difference equation. 5) Coincidence of the solutions of the difference equation and the differential equation (with drawing). The paper contains 5 theorems and 45 basic formulae by means of which the evaluation of the solution of the trikomi problem for the differential equation is obtained. (Papers by Karmanow, Khalilow, and Babenko).

ASSOCIATION: Not given.
PRESENTED BY:
SUBMITTED: 3.12.1955.
AVAILABLE: Library of Congress.
Card 2/2

FILIPPOV, A.F.

Some problems in the theory of optimal regulation. Vest Mosk. un. Ser. mat., mekh., astron., fiz., khim. 14 no.2:25-32 '59 (MIRA 13:3)

1. Kafedra differentsial'nykh uravneniy Moskovskogo gosuniversiteta.
(Automatic control)

Fil, P. Pov, A. F.

report to be presented at the 1st Intl Congress of the Intl Federation of Automatic Control, 25 Jun-5 Jul 1960, Moscow, USSR.

BYKHOVSKIY, M. L. - "Ultra stability in electronic calculating devices in the solution of nonlinear equations in indefinite form"
CHELYUSTKIN, A. B. - "Use of calculating devices in systems for the automatic control of rolling mills"
CHICHINADZE, V. K. - "Concerning some problems of the organization of self-adjusting and self-teaching systems of automatic control, based on principles of random search"
DAVYDOV, E. I. - "Development of automatic control systems for boiler units"
DUDNIKOV, Ye. G. - "Determination of optimum adjustments of industrial automatic regulation systems according to initial data obtained from [illegible]"
DUB'YE, A. I., and ROZENVASSER, E. N. - "Methods of organizing Lyapunov functions in the theory of nonlinear regulating systems"
DRUZHININ, N. N. - "Balanced regulation and inter-communications of a multi-motor electric drive and technology in continuous rolling mills"
FEL'DBAUM, A. A. - "Problems of statistical theory of automatic optimization systems"
FEYGIN, F. I. - "Automation of a reversible cold rolling mill for nonferrous metals"
FILIPPOV, A. F. - "Application of the theory of differential equations with a discontinuous right side to nonlinear problems of automatic regulation"
GAVRILOV, M.A. - "Structural surplus and operational reliability of relay devices"
GANKIN, M. Z. - "Automation of irrigation systems"
GERTSENBERG, G. R., KASHTELYAN, V. Ye., KOSTENKO, M. P., NEYMAN, L. R., and SIRYY, I. S. - "Power regulation of disturbance and problems of the stability of electric power systems"
GINZBURG, S. A. - "Logical method of synthesis of functional converters"
IL'IN, V. A. - "Methods of transmission of information and the structure of telemechanical systems for dispersed structures"
INOSOV, V. L., and LUTSKIY (fnu) - "The code-impulse system of telemeasurement for dispatched operations of trunk-line gas pipe lines"
IVAKHNENKO, A.G. - "Concerning the application of the theory of combined regulation systems for cybernetic adaptation systems"
KARANDEYEV, K. B., and SHTAMBERGER, G. A. - "A quasi-equilibrated bridge as an element in a system of automatic control"
KAZAKEVICH, V. V. - "Concerning the process of extra regulation of inert objects in the presence of disturbance"
KAZAKOV, I. Ye. - "Some problems of the theory of statistical linearization and its application"
KILIN, F. M. - "Some problems of the theory of impulse systems with time selectors"
KOBRINSKIY, A. Ye., BOLKHOVITIN, S. V., VOSKOBOYNIKOV, L.M., IOFFE, D. M., POLYAN, Ye. P., POPOV, B. P., SLAVUTSKIY, Ya. L., SYSIN, A. Ya., and YAKOBSON, Ya. S. - "The problem of bioelectric control"
KOLOMIYETS, B.T. - "New types of photo resistances and their field of use"
KORCHENKO, M.L., MIKHAYLOV, B. G., and [illegible], E. A. - "System of automatic control and regulation of blast distribution in the tuyeres of blast furnace"
KOROBOCHKIN, B. L. - "Investigation of the dynamics of the hydraulic duct of a copying lathe"
KRASOVSKIY, A. A. - "Dynamics of continuous systems of automatic regulation with extra self-adjustment of corrective devices"
KRASOVSKIY, N. N. - "Concerning the selection of parameters of optimum stability systems"
KUKHTENKO, A. I. - "The dynamics of devices imitating living organisms"
KULEBAKIN, V. S. - "The invariant theory of automatic regulation and control systems"
LANIN, I. D. - "Pneumatic calculating devices as a means of insuring the reliability of complex automation systems"
LAZAREV, V. [illegible] and PARKHOMENKO, P.P. - "Mechanization of processes of analysis and synthesis of the structure of relay devices"

16.8000 (1121, 1139, 1344)

S/044/61/000/005/011/025
C111/C444

AUTHOR: Filippov, A. F.

TITLE: The application of the theory of differential equations with discontinuous right hand on non-linear problems of automatic controls

PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1961, 46, abstract 5B223. (Mezhdunar. Kongress po aotomat. upr.) M., ANSSSR, 1960, 79, illustrated.)

TEXT: Consider the differential equation:

$$dx/dt = f(t,x), \qquad (1)$$

written in vector form, where the vector funotion $f(t,x)$ is measurable in the domain G of the space (t,x). For every closed bounded domain DcG there is assumed to exist a funotion $M(t)$ such that $|f(t,x)| \leq M(t)$ almost everywhere in D. An absolutely continuous vector funotion $x(t)$ is called a solution of (1), if the vector dx/dt for almost all t belongs to the smallest convex closed set, containing all limits of the vector $f(t,x^*)$, where x^* converges arbitrarily to x, while the values of the function $f(t,x^*)$ are neglected on a set

The application of the theory... S/044/61/000/005/011/025
C111/C444

of the measure 0 of the x-space. The paper is essentially dedicated to the establishment of the above mentioned definition of the solution. It is shown that a solution, defined that way, possesses many properties of the ordinary solutions of the differential equations with continuous right hand. The possibility of obtaining criteria for the existence of periodic solutions is shown. It is noted that most of the criteria for the existence of periodic solutions of nonlinear oscillation equations $\ddot{x} + f(\dot{x}) + g(x) = e(t)$, remain correct in the case of piecewise continuous functions $f(\dot{x})g(x)$, $e(t)$, tco. It is said that the application of the described methods allows the proof of the existence of the solution for some problems of the optimal controls.

(Abstracter's note: Complete translation.)

Card 2/2

86380

S/039/60/051/001/001/001
C111/C222

16,3400

AUTHOR: Filippov, A.F. (Moscow)

TITLE: Differential Equations[16] With a Discontinuous Right Side

PERIODICAL: Matematicheskiy sbornik, 1960, Vol. 51, No.1, pp 99-128.

TEXT: Let $x = (x_1,\ldots,x_n)$, $(t,x) = (t,x_1,\ldots,x_n)$, $|x| = \sqrt{x_1^2+\ldots+x_n^2}$, $x\cdot y$ be the scalar product; $U(x,\delta)$ be the δ-neighborhood of x; let konv E be the least convex closed set containing the set E; $f(E)$ be the set of the values of $f(x)$ on E. Let

$$M\{\varphi(x)\} = \lim_{\delta\to 0} \operatorname{vrai}\max_{x'\in U(x,\delta)} \varphi(x') \tag{2}$$

and $m\{\varphi(x)\}$ denote the same limit value for vrai min.
The author considers the system

$$\frac{dx}{dt} = f(t,x), \tag{5}$$

where $f = f(f_1,\ldots,f_n)$. It is assumed:

Condition A: $f(t,x)$ is real, measurable, and defined almost everywhere in the region Q of the space $(t,x_1,\ldots,x_n)$; for every closed bounded

Card 1/9

Differential Equations With a Discontinuous Right Side

$D \subseteq Q$ there exists an almost everywhere finite function $A(t)$ so that everywhere in D it holds

(4) $$|f(t,x_1,\ldots,x_n)| < A(t).$$

Definition I: A vector function $x(t)$ defined on (t_1,t_2) is called a solution of (5) if it is absolutely continuous, and if for almost all $t \in (t_1,t_2)$ and every $\delta > 0$ the vector $\frac{dx(t)}{dt}$ belongs to the least convex closed set of the n-dimensional space which contains all values of $f(t,x')$ when x', for a fixed t, runs through almost the whole δ-neighborhood of $x(t)$.

Definition II: A vector function $x(t)$ defined on (t_1,t_2) is called a solution of (5) if it is absolutely continuous, and if for almost all $t \in (t_1,t_2)$ and an arbitrary choice of the system of orthogonal coordinates in the space $(x_1,\ldots,x_n)$ it holds

Card 2/9

Differential Equations With a Discontinuous Right Side

(7) $m_x\{f_i(t,x_1,\ldots,x_n)\} \leqslant \frac{dx_i(t)}{dt} \leqslant M_x\{f_i(t,x_1,\ldots,x_n)\}$ $(i=1,2,\ldots,n)$.

With the aid of two lemmas it is shown that both definitions are equivalent. The definitions are conpared with older definitions of Caratheodory, Ye.Ye.Viktorovskiy and Rosenthal.

Let (5) satisfy the condition B if A(t) is summable in the condition A.

Theorem 1: Let (5) satisfy the condition B in Q; let $t(\tau)$ be monotone and absolutely continuous. For the transformation of variables $t = t(\tau)$ then every solution of (5) is transformed in a solution of

(17) $\frac{dx}{d\tau} = g(\tau,x)$,

where

$g(\tau,x) = f(t(\tau),x)\cdot t'(\tau)$ holds for those τ for which $t'(\tau) \neq 0$, and $g(\tau,x) = 0$ holds for those τ for which $t'(\tau) = 0$. Reversely, every solution of (17) is transformed in a solution of (5).

Theorem 2 is a similar assertion on the possibility of the transformation of variables of the kind

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Differential Equations With a Discontinuous Right Side

(18) $y_i = \psi_i(t,x_1,\ldots,x_n) \qquad (i=1,2,\ldots,n),$

where ψ_i are continuously differentiable and the functional determinant is different from zero.

Theorem 3: In Q let be given (5) which satisfies the condition B, and

(29) $\frac{dx_k}{dt} = f_k(t,x_k)+g_k(t,x_k) \qquad (k=1,2,\ldots)$

with measurable right sides. For $t_1 \leq t \leq t_2$ let the sequence $x_k(t)$, $k=1,2,\ldots$ of the solutions of (29) be contained in a closed bounded domain $D \subset Q$. For almost all points (t,x) of a closed ε-neighborhood D_ε of D $(D \subset D_\varepsilon \subset Q)$ let

(30) $f_k(t,x) \in \bigcap_{\mu N=0} \operatorname{konv} f(t,U(x,r_k)-N) \qquad (k=1,2,\ldots),$

(30') $r_k \to 0, \quad |g_k(t,x)| \leq \psi_k(t), \quad \int_{t_1}^{t_2} \psi_k(t)dt \to 0 \quad (k \to \infty),$

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Differential Equations With a Discontinuous Right Side

where $f(t,x)$ is the right side of (5). Then:
a) $x_k(t)$, $k=1,2,\ldots$ are equicontinuous on $[t_1, t_2]$ and consequently, one may choose out of them a uniformly convergent subsequence.
b) the limit function $x(t)$ of each such sequence uniformly convergent for $k \to \infty$ of the solutions $x_k(t)$ of (29) is a solution of (5).

Theorem 4 asserts that if (5) in G satisfies the condition B then for every initial condition $x(t_o) = a$, where $(t_o,a) \in G$, there exists a solution of (5) which satisfies this initial condition and is defined on $[t_o-d, t_o+d]$, where d is so that the (n+1)-dimensional "cylinder"

$$(35) \qquad |t-t_o| \leq d, \quad |x-a| \leq \left| \int_{t_o}^{t_o \pm d} B(t)dt \right|$$

lies wholly in G, where $B(t)$ is the summable limit of $f(t,x)$ fixed by the condition B.
Theorem 5 treats the possible cases of continuability of the solutions.
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Differential Equations With a Discontinuous Right Side

Theorems 6-8 treat some properties of the solutions:
If especially

$$\frac{dx}{dt} = f(t,x) \tag{36}$$

is a scalar solution satisfying the condition B then it is stated that among all solutions of (36) going through a fixed point (t_o,x_o) there always exists an upper $\overline{x}$ and a lower $\underline{x}$ solution so that for an arbitrary solution through (t_o,x_o) it holds $\underline{x}(t) \leqslant x(t) \leqslant \overline{x}(t)$. If (36) and

$$\frac{dx}{dt} = F(t,x) \tag{37}$$

satisfy the condition B, and if almost everywhere in G it holds $F(t,x) \geqslant f(t,x)$ then every solution $x(t)$ of (36) through (t_o,x_o) for $t \geqslant t_o$ is not greater than the upper solution $X(t)$ of (37) through (t_o,x_o).

Theorem 9: Let the systems
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Differential Equations With a Discontinuous Right Side

(39) $\frac{dx}{dt} = f(t,x), \quad \frac{dz}{dt} = g(t,z)$

satisfy the condition B in G. For two arbitrary points (t,x) and (t,z) of G (with a possible exception of a point set of measure 0) let

(40) $(x-z)(f(t,x)-f(t,z)) \leq |x-z| \cdot L(t, |x-z|)$,

(41) $|g(t,x)-f(t,x)| \leq \psi(t)$,

where $L(t,u)$ is measurable, $L(t,u) = 0$ for $u \leq 0$, $L(t,u) \leq K(t)$, $K(t)$ and $\psi(t)$ are summable. Then for all solutions $x(t)$, $z(t)$ of (39) satisfying the initial conditions $x(t_0) = a$, $z(t_0) = b$, where $|a-b| \leq c$ and going through G for $t_0 \leq t \leq t_1$ there holds the inequality

$$|x(t)-z(t)| \leq u(t), \quad t_0 \leq t \leq t_1,$$

where $u(t)$ is an upper solution of $\frac{du}{dt} = L(t,u)+\psi(t)$ with the initial condition $u(t_0) = c$.

Putting in theorem 9: $g(t,x) \equiv f(t,x)$, $\psi(t) \equiv 0$, $a = b$ then it follows the uniqueness theorem 10.

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Differential Equations With a Discontinuous Right Side

In theorem 11 the continuous dependence of the solution on the initial conditions and the right side is proved.
Theorem 12 contains a general assertion in the sense of the qualitative theory.
Let the solution of the equation $\ddot{x} = f(t,x,\dot{x})$ be a function $x(t)$ so that the pair $x(t)$, $y(t) = \dot{x}(t)$ is a solution (in the sense of the definition I or II) of the system $\dot{x} = \dot{y}$, $y = f(t,x,y)$ obtained from the above equation by putting $\dot{x} = y$.
Theorem 13: In the equation

(54) $$\ddot{x} + f(\dot{x}) + g(x) = e(t)$$

let: 1) $e(t)$ be measurable, $e(t+T) = e(t)$, $m \leq e(t) \leq M$; 2) $g(x)$ satisfy the Lipschitz condition on every finite interval; 3) $g(x) \leq g_1$ for $x \leq x_1$; $g(x) \geq g_2$ for $x \geq x_2$; 4) $f(y)$ be continuous or have a finite number of discontinuities of first kind in the points $v_1,\ldots,v_s$: $f(v_i+0)-f(v_i-0) > 0$, $i=1,2,\ldots,s$; on the intervals which contain no point v_i let $f(y)$ satisfy

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Differential Equations With a Discontinuous Right Side

the Lipschitz condition; 5) $f(y) \leq f_1$ for $y < y_1$, $f(y) \geq f_2$ for $y > y_2$; $y_1 < 0 < y_2$; $f(y) \leq d_1$ for $y_1 < y < 0$; $f(y) \geq d_2$ for $0 < y < y_2$; 6) $g_1 + d_1 < m$, $g_2 + d_2 > M$; 7) $\max \{g_1, M - f_2\} < \min \{g_2, m - f_1\}$. Then (54) has at least one solution with the period T. If $f(+0) - f(-0) <$ vrai max e(t) - vrai min e(t) then this solution is different from $x(t) \equiv$ const.

Theorem 14 is a uniqueness theorem for equations with a piecewise continuous right side.

There are 2 figures ans 23 references: 10 Soviet, 8 German, 3 Czecho-Slovakian, 1 French and 1 Italian.

SUBMITTED: September 22, 1958

Card 9/9

FILIPPOV, Aleksey Fedorovich; UGAROVA, N.A., red.; AKHLAMOV, S.N., tekhn. red.

[Collection of problems on differential equations] Sbornik zadach po differentsial'nym uravneniiam. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1961. 100 p. (MIRA 15:1)
(Differential equations—Problems, exercises, etc.)

16.6100

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S/052/61/006/003/003/006
C111/C222

AUTHOR: Filippov, A.F.

TITLE: On the distribution of the sizes of the particles for a break-up

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, v. 6, no. 3, 1961, 299-318

TEXT: The author investigates the time change of a set of particles $\{e\}$ under the following conditions:

1. Every particle is characterized by a positive number $\mu(e)$, e.g. the mass.
2. In the initial moment $t = 0$ there exist a finite number or a countable number of particles and their total mass is $M_0 < \infty$.
3. In the course of time a particle e in random moments breaks up into a finite or countable number of particles e_k, $k = 1,2,\ldots$, where always $\mu(e_k) < \mu(e)$.
4. Every particle e being present in the moment t, breaks up in the inter-

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On the distribution of the sizes ...

val $(t, t + \Delta t)$ independent of its past and other particles, with the probability $p(x)\Delta t + o(\Delta t)$, where $x = \mu(e)$, $p(x)$ depends only on x, $p(x)$ is bounded on every interval $\delta < x < N$, $\delta > 0$, $N < \infty$.

5. The number of the particles arising during a break-up of the particle e, and their masses are random magnitudes. Let

$$\mu(e) = \xi \ , \quad \mu(e_k) = \xi_k \quad (k = 1,2,\dots) \ , \quad \frac{1}{\xi} \sum_{\xi_k < x} \xi_k = \phi(\xi, x) \ .$$

The mathematical expectations

$$M\phi(\xi,x) = F(\xi,x) \quad \text{and} \quad M\phi(\xi,x_1)\phi(\xi,x_2) = B(\xi,x_1,x_2)$$

are given.

6. The sum of the masses of the particles appearing during a break-up equals the mass of the original particle, i.e. $\phi(\xi,\xi) = 1$.

Under these assumptions it is shown that the break-up process satisfies the equation

$$\frac{\partial}{\partial t} M\,M(x,t) = \int_x^\infty p(\xi)F(\xi,x)d_\xi\, M\,M(\xi,t) \qquad (2)$$

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where $M(x,t) = M_0 - R(x,t)$ and $R(x,t)$ is the sum of the particles with the masses $\geq x$ in the moment t. The initial conditions read : $M(x,0) = M(x,0) = M_0 - R(x,0)$. The existence and uniqueness of the solution are proved. It is shown that this equation for $M(x,t)$ is identical with the equation for the transition probability in a one-dimensional discontinuous Markov process (point motion by steps on a line).

Furthermore it is additionally assumed :

7. $p(x) = x^n$;
8. $F(\xi, x)$ depends only on x/ξ, i.e. $F(\xi, \lambda\xi) = f(\lambda)$;
9. $B(\xi, x_1, x_2)$ depends only on x_1/ξ and x_2/ξ ;
10. $\int_0^1 \frac{f(\lambda)}{\lambda} d\lambda$ converges ;
11. $f'(\lambda) > 0$ on a set of positive measure.

Under these additional assumptions it is proved that for $t \to \infty$ the

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On the distribution of the sizes ...

distribution of the particles with respect to their masses tends to a certain limit law. A practical method for the determination of these limit distribution is given. This law of distribution can be written explicitly in the case $f(\lambda) = b\,\lambda^k$, for $b = 1$, $k > 0$, $n > 0$ it holds e.g.

$$G(u) = \frac{1}{\Gamma\left(\frac{k}{n}\right)} \int_0^u v^{\frac{k}{n} - 1} e^{-v} dv \qquad (31)$$

$$M_{m(x,t)} = te^{-t} \int_0^{x^k} F\left(1 + \frac{k}{n}, 2, \left(1 - v^{\frac{n}{k}}\right) t\right) dv \quad \text{for} \quad x \leq 1 \quad , \qquad (32)$$

where $F(a,b,z)$ is the degenerated hypergeometric function, and $m(x,t)$ denotes the magnitude $M(x,t)$ for the case that in the moment $t = 0$ there was only one particle with the mass 1.
Finally the author considers the "spray" of the mass into an infinite number of particles of the mass 0 if $p(x)$ increases sufficiently quick with the diminution of the mass. Here in the course of time it appears a loss of mass allthough during the single break-up the total mass re-

On the distribution of the sizes ...

mains constant. Amongst others the author states : If $p(x)$ tends monotonely to infinity for $x \to 0$ then for the fact that no spray takes place it is necessary and sufficient that the integral

$$\int_0^b \frac{dx}{xp(x)} \qquad (38)$$

diverges for $x = 0$.

The author mentions A.M. Yaglom. He thanks A.N. Kolmogorov for the theme and aid.

In 1952 the author reported on the results of the paper in the seminar for probability theory at the Moscow State University.

There are 6 Soviet-bloc and 6 non-Soviet-bloc references. The references to the two English-language publications read as follows : J.L.Doob, Asymptotic properties of Markoff transition probabilities, Trans.Amer. Math. Soc., 63,3,(1948),393-421 ; W. Feller, On the integro-differential equations of purely discontinuous Markoff processes, Trans.Amer.Math. Soc., 48,3 (1940), 488-515.

SUBMITTED: December 10, 1959

Card 5/5

FILIPPOV, A.F.

Conditions for the existence of the solution to a quasi-linear parabolic equation. Dokl. AN SSSR 141 no.3:568-570 N '61.
(MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova. Predstavleno akademikom I.G. Petrovskim.
(Differential equations, Linear)

FILIPPOV, A.F.

Continuous dependence of the solution on boundary conditions and the right-hand side of the equation. Vest. Mosk. un. Ser. 1: Mat., mekh. 18 no.2:33-36 Mr-Ap '63. (MIRA 16:6)

1. Kafedra differentsial'nykh uravneniy Moskovskogo universiteta.
(Differential equations) (Topology)

BAKHRAKH, Ye.E.; YEGOROVA, V.D.; FILIPPOV, A.F.

Effect of the temperature regimen on the chemical composition of the plague microbe. Zhur. mikrobiol., epid. i immun. 40 no.11:29-32 N '63. (MIRA 17:12)

1. Iz Vsesoyuznogo nauchno-issledovatel'skogo instituta "Mikrob".

L 13708-63 BDS/EWT(1)/FCC(w) AFFTC Pg-4 IJP(C)

ACCESSION NR: AP3003505 S/0020/63/151/001/0065/0068

55

AUTHOR: Filippov, A. F.

TITLE: Differential equations with many-valued discontinuous right-hand side

SOURCE: AN SSSR. Doklady*, v. 151, no. 1, 1963, 65-68

TOPIC TAGS: differential equation, linear equation system

ABSTRACT: The author makes a general survey of a class of differential equations characterized by its many-valued discontinuous right-hand side. He gives an example of a linear system, where optimum control is discontinuous on a set of arbitrary measure. He discusses measurable many-valued functions and gives an application to a system of optimum control. The paper was presented by Academician I. G. Petrovskiy on 11 January 1963. Orig. art. has: 3 formulas.

ASSOCIATION: none

SUBMITTED: 08Jan63 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: MM NO REF SOV: 006 OTHER: 005

Card 1/1

ACCESSION NR: AP4027589 S/0040/64/028/002/0305/0318

AUTHOR: Filippov, A. F. (Moscow)

TITLE: Diffraction of an arbitrary acoustical wave on a wedge

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 2, 1964, 305-318

TOPIC TAGS: wave diffraction, radial decomposition, cylindrical wave, spherical wave, diffraction on a wedge, incident wave

ABSTRACT: The author shows that from the known solution of the problem of diffraction of a plane wave on a wedge one can obtain (for the problem of diffraction of a wave of any form on the same wedge) a number of terms of the radial decomposition of the diffracted wave near its front. For certain problems on diffraction of cylindrical and spherical waves he proposes a method for obtaining a precise solution in the entire region. He investigates the plane problem of diffraction of a wave of any form with a curvilinear or rectilinear front on a barrier in the form of an angle (wedge). The wave propagation is described by

$$U_u = U_\infty + U_w \qquad (1)$$

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in the region $0 < \varphi < \alpha$, where $x = r\cos\varphi$, $y = r\sin\varphi$, $0 < \alpha \leq 2\pi$. For $t < 0$ the function $U(t,x,y)$ is given (incident wave). On the sides of the angle $\varphi = 0$ and $\varphi = \alpha$ we are given boundary conditions of any of three types

$$\text{(a)}\ U = 0, \quad \text{(b)}\ \frac{\partial U}{\partial n} = 0, \quad \text{(c)}\ \frac{\partial U}{\partial n} = c\frac{\partial U}{\partial t} \quad (c > 0) \qquad (2)$$

where $\partial/\partial n$ is the derivative along the interior normal to the boundary. He does not exclude the case where, on one side of the angle, one of the conditions (2) is given, and the other is given on the other side. If the incident wave is plane, the precise solution of the problem is a known one. By the same method one can solve the problem of diffraction under any boundary conditions of the form

$$l(u) \equiv \sum_{p+q+r=n} \beta_{pqr} \frac{\partial^n U}{\partial t^p \partial x^q \partial y^r} = 0 \qquad (3)$$

if one first finds the solution of the problem of diffraction of a plane wave under

ACCESSION NR: AP4027589

the same boundary conditions. The author applies his results to the problem of diffraction of a wave from an elementary point source, and discusses the spatial problem of diffraction of a spherical wave from a source on a two-sided angle (wedge) or any cone. Orig. art. has: 43 formulas and 1 figure.

ASSOCIATION: none

SUBMITTED: 23Nov63 DATE ACQ: 28Apr64 ENCL: 00

SUB CODE: PH NO REF SOV: 007 OTHER: 003

Card 3/3

FILIPPOV, A.F. (Moskva)

Exact expressions for a multiply diffracted wave with a circular front. Prikl. mat. i mekh. 28 no.6:1083-1091 N-D '64
(MIRA 18:2)

L 41081-66 EWT(1)

ACC NR: AP6027946 SOURCE CODE: UR/0039/66/070/004/0562/0590

AUTHOR: Filippov, A. F. (Moscow)

ORG: , none

TITLE: Diffraction by dihedral and polyhedral angles

SOURCE: Matematicheskiy sbornik, v. 70, no. 4, 1966, 562-590

TOPIC TAGS: diffraction analysis, wave diffraction, dihedral angle diffraction, polyhedral angle diffraction, WAVE EQUATION, CONVERGENT SERIES

ABSTRACT: A method for solving the three-dimensional problem of diffraction of a wave having an arbitrary form with a convex front propagating in a homogeneous medium by dihedral and polyhedral angles is presented. Ray coordinates are used to solve the problem and it is assumed that in the neighborhood of the domain of the front under study, the solution of the wave equation can be expanded in a series

$$u(t, x, y, z) = \sum_{k=0}^{\infty} f_{\lambda+k}(t-p)U_k(x, y, z), \quad (1)$$

$$f_\lambda(\tau) = \frac{\tau^\lambda}{\Gamma(\lambda+1)} \text{ when } \tau > 0, \quad f_\lambda(\tau) = 0 \text{ when } \tau < 0, \quad (2)$$

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UDC: 517,947,44

L 41081-66

ACC NR: AP6027946

where $\lambda > -1$, Γ is the gamma function, $t = p(x, y, z)$ is an analytic function describing the wave front, and $U_k(x, y, z)$ are analytic functions. The concept of a simple wave, that is, having a solution of the wave equation such that the first term of expansion (1) is the principal term is introduced. Various properties of simple waves are analyzed. It is proved that every wave with a convex front which can be expanded in series (1) can be represented as a convergent series of simple waves. With the aid of the Green's function, the solution of the problem of diffraction of any incident wave by dihedral or polyhedral angles is expressed in terms of a triple integral. A procedure for solving this integral is presented which consists in representing each wave contained in the integrand by a sum of simple waves. The obtained sum of simple waves represents the diffraction wave. The method presented here makes it possible to obtain any number of terms in the expansion (1) of the diffraction wave. Orig. art. has: 90 formulas. [LK]

SUB CODE: 20,12/SUBM DATE: 16Jun65/ ORIG REF: 010/ OTH REF: 001/ ATD PRESS: 5055

Card 2/2 11b

L 46317-66 EWP(e)/EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/JG/DJ

ACC NR: AP6030183 SOURCE CODE: UR/0131/66/000/005/0027/0029

AUTHOR: Ivanov, Ye. G.; Filippov, A. F.; Min'kov, D. B.; Makarova, T. S.; Vinogradova, L. V. 23 B

ORG: [Ivanov; Filippov] Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov); [Min'kov; Makarova; Vinogradova] Podol'sk Refractories Plant (Podol'skiy zavod ogneupornykh izdeliy)

TITLE: Melting crucibles made from cerium dioxide

SOURCE: Ogneupory, no. 5, 1966, 27-29

TOPIC TAGS: powder metallurgy, metallurgic furnace

ABSTRACT: The authors describe the manufacture of CeO_2 melting crucibles by powder metallurgy and slip casting. Cerium dioxide powder with grains measuring 5-15 μ in diameter was mixed with 6-8% binder based on 95% paraffin and 5% oleic acid. A steel mold was used which was prelubricated with a thin layer of oleic acid. Pressing was done at a pressure of 200 kg/cm^2. The crucible was then slowly heated for 10-12 hours to 1200°C and final sintering was done in a resistance furnace at 1500-1600°C. Water suspensions of cerium dioxide were used for slip casting. The slip had a pH of 4-5 and a moisture content of 58-60%. The suspension was allowed to stand for at least 24 hours before casting. After removal from the mold, the crucibles were heated to 1700-1750°C at a rate of 30-40 deg/hr and held at the final

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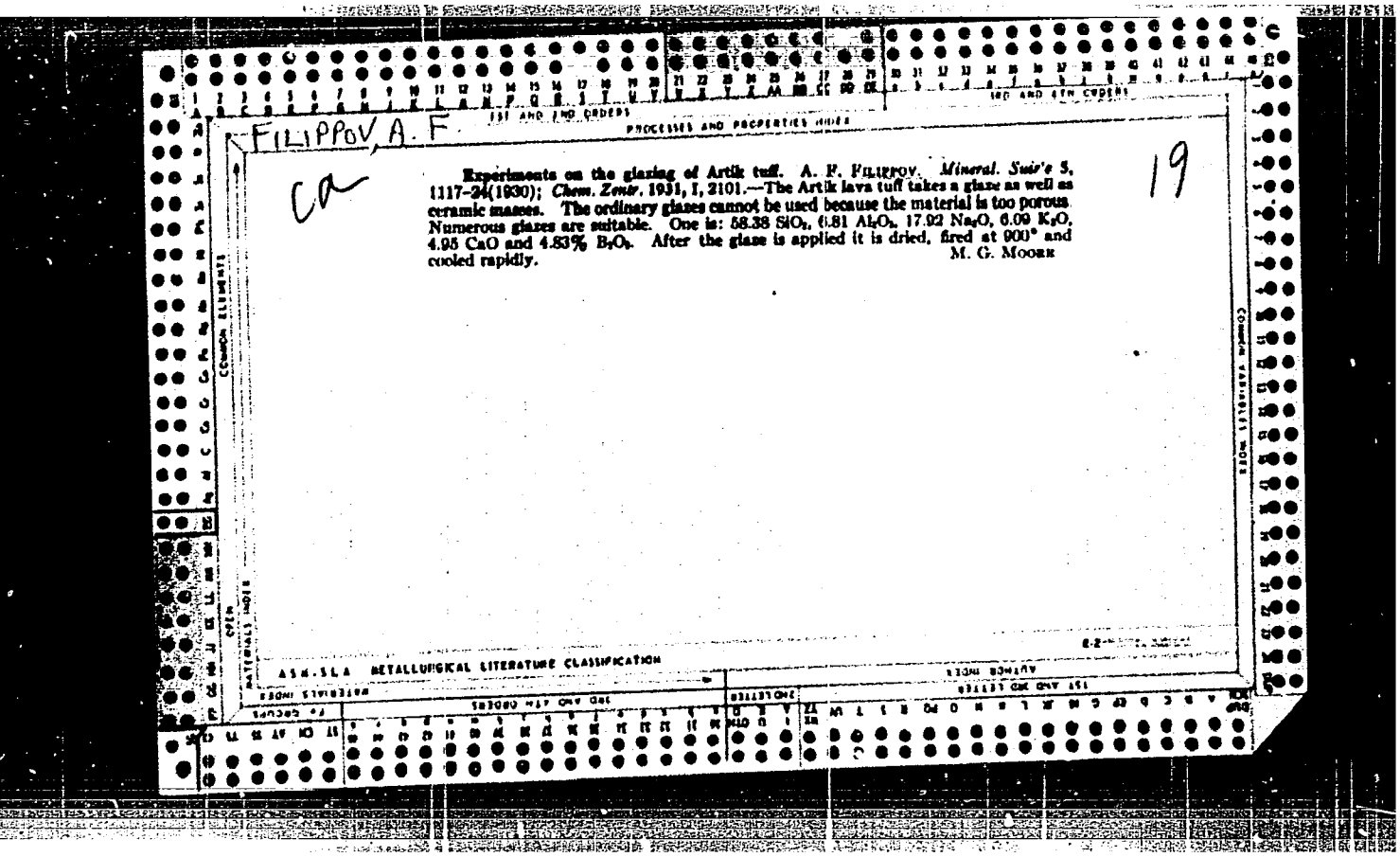
ACC NR: AP6030183

temperature for 6-9 hours. The apparent density (volumetric weight) of the crucibles was 6.6-6.4 g/cm^3 and the apparent porosity was less than 1%. A comparison of the calculated and residual cerium concentrations in alloys melted in CeO_2 and La_2O_3 crucibles shows satisfactory retention of Ce in cerium dioxide crucibles during melting. Metallographic analysis of nickel-cerium alloys melted in CeO_2 crucibles in a vacuum shows that the purity of the metal is comparable to the purity of nickel melted in alumina crucibles with hydrogen treatment. Orig. art. has: 1 figure and 1 table. [JPRS: 36,774]

SUB CODE: 11, 13 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 001

Card 2/2 egh



FILIPPOV, A. F.

CA

19

Experiments on the glazing of Artik tuff. A. F. FILIPPOV. *Mineral. Sucr'e* 5, 1117–24(1930); *Chem. Zentr.* 1931, I, 2101.—The Artik lava tuff takes a glaze as well as ceramic masses. The ordinary glazes cannot be used because the material is too porous. Numerous glazes are suitable. One is: 58.38 SiO_2, 6.81 Al_2O_3, 17.92 Na_2O, 6.09 K_2O, 4.95 CaO and 4.83% B_2O_3. After the glaze is applied it is dried, fired at 900° and cooled rapidly.

M. G. MOORE

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

FILIPPOV, A. E.

23387 Neustanno ulchshat' kachestvo obuvi. Legkaya prom-st', 1949, No. 7 c. 5-7.

SO: LETOPIS NO. 31, 1949.

FILIPPOV, A. F.

33204. Uluchshit' Ispol'z ovaniye Mekhanizmov V Lesakh Karelo-Finskoy SSR. Mekhanizatsiya Trudoyeinkikh I Tyazhelykh Rabot, 1949, No. 10, c. 37-39

SO: Letopis'Zhurnal'nykh Statey, Vol. 45, Moskva, 1949

FILIPPOV, A.F.

FILIPPOV, A.F.

Measures for improving the quality and assortment of products.
Leg.prom. 14 no.5:50-52 My '54. (MIRA 7:6)
(Knit goods industry)

FILIPPOV, A.F.

Valuable experience of a medium-sized enterprise. Leg.prom. 14 no.7:49-52 Jl '54. (MLRA 7:7)
(Clothing industry)

FILIPPOV, A.F.

Ways of economising footwear materials. Leg. prom 15 no.4: 21-26 Ap '55. (MLRA 8:7).
(Shoe industry)

FILIPPOV, A.F.

Training labor, engineering and technical personnel for light industry. Leg.prom. 17 no.11:15-20 N '57. (MIRA 10:12)
(Technical education)
(Russia--Manufactures)

FILIPPOV, A.F., tokar'

Developing innovations. Mashinostroitel' no.12:5-6 D '61.
(MIRA 14:12)

1. Leningradskiy zavod imeni Karla Marksa.
(Lathes--Technological innovations)

SAMARIN, A.M.; FILIPPOV, A.F., kandidat tekhnicheskikh nauk.

Investigating the sigma phase in chromium-nickel alloys. Sbor.Inst. stali no.32:97-104 '54. (MLRA 10:5)

1.Chlen-korrespondent AN SSSR (for Samarin) 2.Kafedra elektrometallurgii.
(Chromium-nickel steel--Metallography)

YEDNERAL, Fedor Prokop'yevich; FILIPPOV, Anatoliy Fedorovich; ROZENTSVEYG, Ya.D., redaktor izdatel'stva; EVENSON, I.M., tekhnicheskiy redaktor

[Calculations in the electrometallurgy of steel and ferrous alloys] Raschety po elektrometallurgii stali i ferrosplavov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. 188 p. (MLRA 9:12)
(Steel--Electrometallurgy)
(Iron alloys--Electrometallurgy)

FILIPPOV, A.F.

YASKEVICH, A.A., dotsent, kandidat tekhnicheskikh nauk; FILIPPOV, A.F., dotsent, kandidat tekhnicheskikh nauk; SAMARIN, A.M.

Lamination of chromium-nickel alloys in thin sheets. Sbor. Inst. stali no.35:320-326 '56. (MLRA 10:8)

1. Kafedra elektrometallurgii. 2. Chlen-korrespondent AN SSSR (for Samarin).

(Steel--Defects)
(Chromium-nickel alloys--Metallography)

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23990
S/148/61/000/005/003/015
E111/E152

AUTHORS: Shitalov, N.S., Filippov, A.F., and Surovoy, N.M. (Deceased)

TITLE: Investigation of deformability of a chromium—nickel alloy

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1961, No.5, pp. 75-84

TEXT: The object of this work was to find the influence of the melting conditions and quality of charge materials on the deformability and heat resisting properties of a nichrome-type alloy (70% Ni, 15% Cr). Ingots weighing 6 kg were produced in an ordinary and a vacuum induction furnace and under nitrogen. The following variants were tried: I) melting of a fresh charge with best grades of tungsten; II) as I, but with second-grade tungsten; iii) melting with addition of 50% scrap of the same alloy; IV) melting of 100% scrap; V) vacuum melting of 100% scrap; VI) melting of 100% scrap under nitrogen. Cast specimens 30 mm in diameter and 40 mm high were upset at 50 °C intervals from 950 to 1250 °C. A weight of 100 kg, preheated to 300-350 °C, was dropped from a height of 3 mm, the impact velocity being 7.3 m/sec.

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S/148/61/000/005/003/015
Investigation of deformability of..... E111/E152

The degree of deformation was regulated with distance pieces. Between impacts the specimens were cooled and examined; the plasticity was taken to be represented by the degree of deformation corresponding to the appearance of the first crack on the side surface. Plasticity for all variants was highest at 1150 °C. The results confirmed that the best temperature for the start and end of forging was 1150-1180 and 1000 °C respectively. Forging tests were effected with a pneumatic hammer (falling weight 230 kg). Specimens were heated in such a way that uniform temperatures were obtained. Temperatures at the start and end of forging were checked with an optical pyrometer. Various dies were tested, the ones adopted being swage dies with diameters decreasing from 40 to 30 to 20 mm in successive strokes; this was followed by the use of a cramp to give a 15-mm diameter rod, final forging being effected with flat dies. Best results were obtained with variants where top-grade tungsten was used, poorer grades giving high oxygen and non-metallic inclusion contents. Regarding the effect of scrap content in the charge, variant IV gave a poorer deformability and the authors recommend up to 50% scrap (up to 100% with vacuum melting). It was found that replacement in the

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Investigation of deformability of.....

charge of grade H00C (N000) nickel by the cheaper HO (NO) greatly impaired deformability. Strict adherence to the temperature schedule during forging was found to be most important (confirming the results of the upsetting experiments). The influence of temperature was reflected in the microstructures obtained. The authors point out that a wider temperature range may be possible with larger specimens. Impact strength and time to rupture at high temperatures was also studied, test pieces being prepared from the forged rod which had been subjected to various heat treatments. Impact strength (kgm/cm^2) is shown as a function of temperature in Fig.5, the melting variant being marked for each curve. Fig.6 shows the time to rupture in hours (left-hand ordinate, shaded areas marked with the variant number and with time to rupture in hours), the non-metallic inclusion content (%, middle ordinate, curve 1), and the total $O_2 + N_2$ content (%, right-hand line, curve 2). The materials were tested at 800 °C under a stress of 25 kg/mm^2 on type ЯЕ-1 (YaB-1) and ВП-8 (VP-8) machines. No substantial differences in structure or fracture were observed, the only differences being in the number of non-metallic inclusions and grain size. High-temperature strength was greatly decreased

Investigation of deformability of....

by internal micro-cracks produced by incorrect forging. No harmful elements (lead, antimony, tin etc.) were detected spectroscopically in heats of any variant, and chemical composition was virtually the same. The general conclusion is that the hot deformability of the chromium-nickel alloy and time to rupture at high temperature depend primarily on the quality of charge materials and on the melting conditions.
There are 6 figures and 3 tables.

ASSOCIATION: Moskovskiy institut stali
(Moscow Steel Institute)

SUBMITTED: January 12, 1961

Card 4/6

EDNERAL, Fedor Prokop'yevich; FILIPPOV, Anatoliy Fedorovich; KRAMAROV, A.D., prof., doktor tekhn. nauk, retsenzent; TOLSTOGUZOV, N.V., dots., kand. tekhn. nauk, retsenzent; LEVIN, A.M., retsenzent; VISHNYAKOV, A.V., retsenzent; KATS, L.N., retsenzent; SHVEDOV, L.V., red.; ROZENTSVEYG, Ya.D., red. izd-va; MIKHAYLOVA, V.V., tekhn. red.

[Calculations on the electrometallurgy of steel and ferroalloys]Raschety po elektrometallurgii stali i ferrosplavov. Izd.2., ispr. i dop. Moskva, Metallurgizdat, 1962. 230 p. (MIRA 15:12)

(Steel--Electrometallurgy)
(Iron alloys--Electrometallurgy)

L 61024-65 EWT(l)/EWT(m)/EPF(n)-2/EWG(m)/EWP(v)/EPA(w)-2/T/EWP(t)/EWP(k)/EWP(b)
EWA(c) Pz-6/Po-4/Pf-4/Pi-4 IJP(c) JD/HW/AT
ACCESSION NR: AR5017412 UR/0137/65/000/006/V041/V041

SOURCE: Ref. zh. Metallurgiya, Abs. 6V265

AUTHOR: Farnasov, G. A.; Filippov, A. F.; Frenkel', P. G.; Fridman, A. G.

TITLE: Experimental developments and new constructions in plasma melting apparatus

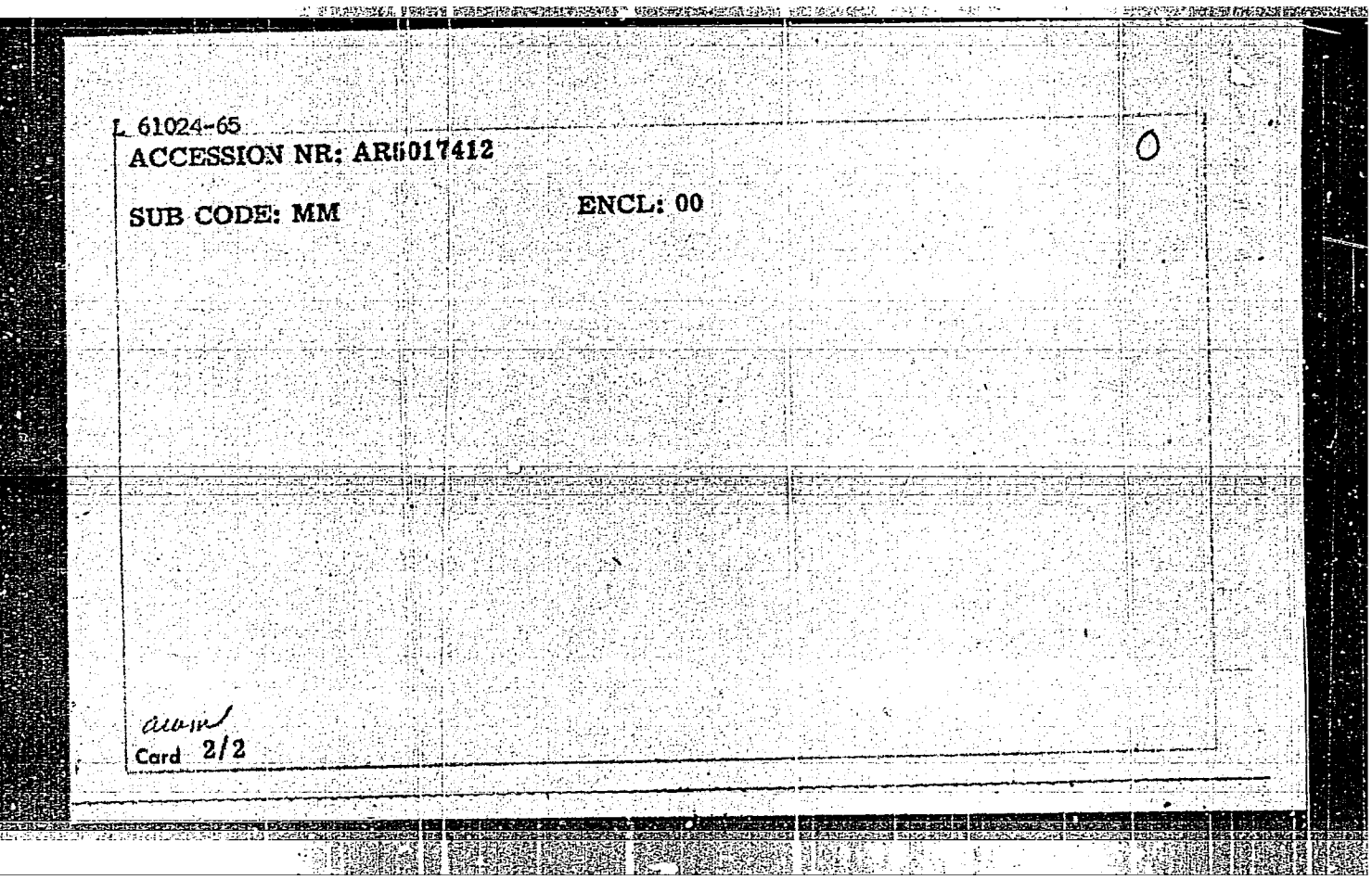
CITED SOURCE: Elektrotermiya. Nauchno-tekhn. sb., vyp. 42, 1964, 43-46

TOPIC TAGS: plasma arc, plasma jet, arc furnace, melting furnace

TRANSLATION: A plasma arc electric melting furnace was built in the ChSSR. A plasma arc heater was the heat source. Work is being carried out in the Physico technical Institute of the AN GDR on melting of tungsten in a closed bottom crystallizer. In the experimental apparatus, a plasma jet is formed between a tapered rod shaped tungsten cathode and a water cooled pure copper anode. In the United States, Alloid (Translator's Note=Sic) Electronics Corp. has developed an electron plasma electric furnace. Orig. art. has: 5 figures, 5 literature titles.

D. Kashayeva.

Card 1/2



L 61024-65
ACCESSION NR: AR6017412

SUB CODE: MM ENCL: 00

0

Card 2/2

L 26615-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) IJP(c) JD

ACCESSION NR: AP5005078 S/0130/65/000/002/0020/0022

AUTHOR: Farnasov, G. A.; Filippov, A. F.; Frenkel', P. G.; Fridman, A. G.

23
21
B

TITLE: Plasma in metallurgy

SOURCE: Metallurg, no. 2, 1965, 20-22

TOPIC TAGS: plasma furnace, plasma melting, metal melting furnace

ABSTRACT: An experimental plasma furnace with integrated mold bottom was built in East Germany in 1958 for melting tungsten wire. The temperature of the plasma jet is at least 9000C at 15-kw power. The plasma jet is 30 mm long. Another laboratory-size plasma furnace with movable mold bottom was built in Czechoslovakia. It melts 25-mm diameter ingots of low-carbon steel, pure iron, chromium, titanium and nimonic-type alloys. The surface of all ingots, except those of nimonic alloy, is smooth and bright. The iron ingots were dense and sound with a coarse-grained, homogeneous structure. Oxygen content in iron dropped from 0.15 to 0.0025% and in low-carbon steel from 0.030 to 0.0029%. Czechoslovak specialists maintain that

Card 1/2

L 26615-65

ACCESSION NR: AP5005078

the high quality of produced metal fully justified the immediate development of argon-plasma furnaces. Orig. art. has: 5 figures. [ND]

ASSOCIATION: none

SUBMITTED: 00	ENCL: 00	SUB CODE: ME, MM
NO REF SOV: 000	OTHER: 000	ATD PRESS: 3188

Card 2/2

KAZAKOV, P.P.; FILIPPOV, A.F.

Calculating the specific heat of the electroaluminothermic process for the production of ferroboron. Izv. vys. ucheb. zav.; chern. met. 8 no.7: 63-68 '65. (MIRA 18:7)

1. Moskovskiy institut stali i splavov.

L 09121-67 EWT(m)/EWP(t)/ETI IJP(c) JD/HW/JG

ACC NR: AP6027004 (A) SOURCE CODE: UR/0148/66/000/005/0069/0072

48
45
B

AUTHOR: Ivanov, Ye. G.; Stomakhin, A. Ya.; Medvedeva, G. M.; Filippov, A. F.

ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)

TITLE: Investigation of the solubility of nitrogen in melts of nickel with cerium

18 27 27

SOURCE: IVUZ. Chernaya metallurgiya, no. 5, 1966, 69-72

TOPIC TAGS: ~~solubility~~, nitrogen, nickel alloy, cerium, MOLTEN METAL

ABSTRACT: The investigation was performed with the aid of the experimental setup used by A. Ya. Stomakhin (Candidate degree dissertation, Moscow Institute of Steel and Alloys, 1965). Six discrete melts of Ce-treated Ni (refined electrolytic Ni at least 99.987% pure, alloyed with 99.2% pure Ce) were melted at 1550°C (1823°K) in identical CeO_2 crucibles (used in order to reduce to a minimum the interaction between the Ce of the metal and the crucible). The time needed for the equilibrium to set in (10-20 min) was the longer the higher the Ce content of the alloy was. All the six melts were brought under the same temperature and pressure (298°K, 760 mm Hg) in order to assure the reproducibility of findings and subjected to tests for determining the solubility of nitrogen in these melts by the method described in Stomakhin's work.

Card 1/3 UDC: 669.24:541.8:546.17

The findings (Fig. 1) show that Ce reduces the activity (increases the solubility) of N in the

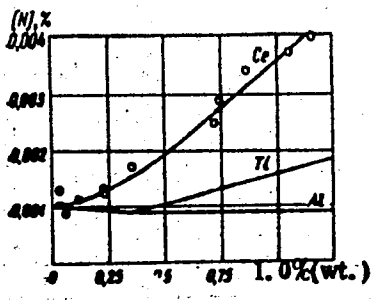


Fig. 1. Effect of Ce, Ti and Al on the solubility of N in molten Ni at 1550°C and N_2 pressure of 1 atm

melt to a much greater extent than other metals, e.g. Ti and Al, even though the affinity of Ce to N is much smaller than that of Ti. This may be attributed to the higher activity coefficient of Ce, compared with Ti and Al, in molten diluted Ni-base alloys. The N content of Ce--treated Ni alloy is extraordinarily low (<0.001% N for alloys containing 0.38 and 2.87% Ce). It is further established that no nitride phase forms in these alloys at 1550°C and P_{N_2} = 1 atm.

L 04737-67
ACC NR: AP6027004

3

At room temperature, however, the alloy with 0.3% contains, as shown by metallographic examination, a nitride phase in the form of minute inclusions of a color that is gray in a bright field and pink in a dark field. Therefore, by analogy with the nitrides of Ti and Al, the nitrides of Ce also form in Ni alloys on cooling. Orig. art. has: 4 figures, 3 tables.

SUB CODE: 13, 11 / SUBM DATE: 20Jan66 / ORIG REF: 001/ OTH REF: 002

Card 3/3 gd

L 37702-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/HW/JG/WB

ACC NR: AP6024525 SOURCE CODE: UR/0148/66/000/007/0077/0079

43

AUTHOR: Ivanov, Ye. G.; Opara, B. K.; Filippov, A. F. 42 B

ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)

TITLE: The oxidation resistance of Kh20N80 alloy containing lanthanum and cerium

SOURCE: IVUZ. Chernaya metallurgiya, no. 7, 1966, 77-79

TOPIC TAGS: nickel alloy, chromium containing alloy, lanthanum containing alloy, cerium containing alloy, alloy oxidation resistance / Kh20N80 alloy

ABSTRACT: The purpose of this study was to determine the effect of small additions of lanthanum (0.001—0.148%) and cerium (0.001—0.16%) on the oxidation resistance of Kh20N80 alloy in air at 900—1200C. Specimens were held at all test temperatures for two hours and at 900C also for 200 hours. The oxidation resistance was found to increase with increasing cerium content (see Fig. 1). Alloying with lanthanum had the same effect. The increase of oxidation resistance was associated with improved protective properties of the oxide films formed on the lanthanum and cerium alloys. As the cerium content

Card 1/2 UDC: 669.14.018.45:669.087.046.51

L 37702-66

ACC NR: AP6024525

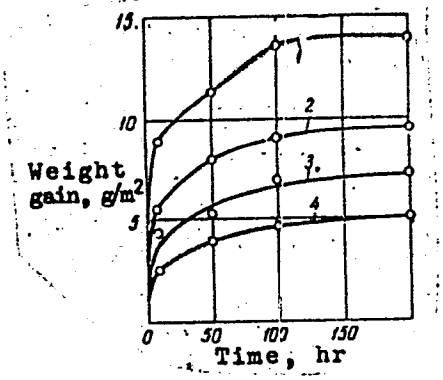


Fig. 1. Weight gain of Kh20N80 alloy containing 0 (1), 0.006 (2), 0.033 (3), and 0.145% cerium (4) versus test duration at 900C

increased, the volatility of Cr_2O_3 oxide dropped sharply. This is explained by a formation of complex spinel-type oxides, which greatly improved the oxidation resistance. Orig. art. has: 5 figures. [FM]

SUB CODE: 11/ 13, SUBM DATE: 19Mar66/ ORIG REF: 007/ OTH REF: 002
ATD PRESS: 5041
heat resistant alloy, 8
Card 2/2

FILIPPOV, A.G.

Direct-current electronic voltmeter. Sbor. nauch. rab. MIFI no.9:132-134 '55. (MIRA 10:1)

(Voltmeter)

FILIPPOV, A.

USSR/Electronics - Testing instruments

Card 1/1 Pub. 89 - 22/33

Authors : Filippov, A.

Title : Transistor tester

Periodical : Radio 2, 46-47, Feb 56

Abstract : A description is given of a simple device with the aid of which it is possible to take, by points, a set of static characteristics of point-contact transistors: $U_k = f(I_k)$ at I_j = const; $U_j = f; (I_j)$ at I_k = const; $U_k = f(I_j)$ at I_k = const; $U_j = f(I_k)$ at I_k = const and determine the parameters of the transistors (r_{11}, r_{12}, r_{21}, r_{22}, α) at any working point. Diagram; table.

Institution : .....

Submitted : .....

Filippov, A.G.

AUTHOR: Filippov, A.G., Regular Member of the Society VNORIE 108-8-3/10
TITLE: On the Frequency Properties of Composite Crystal Triodes (O chastotnykh svoystvakh sostavnykh kristallicheskikh triodov)
PERIODICAL: Radiotekhnika, 1957, Vol 12, Nr 8, pp 21-27 (USSR)

ABSTRACT: Composite crystal triodes is the term used for a special switching on of two, three, or more ordinary crystal triodes for the purpose of obtaining a higher current amplification coefficient. In order to determine the dependence α on frequency in a composite triode, the results of measurements and calculations carried out are given. On the basis of curves it is shown that the course taken by the frequency characteristics of the composite triode is, on the whole, analogous to that of the part triodes, both with respect to α as also to the phase φ_k^o. The limit frequency f_o of the composite triode is near to that triode component which has the highest frequency. Contrary to the simple triodes, $\alpha > 1$ within a certain frequency domain. In order to obtain general rules of the frequency characteristics of composite triodes, a theoretical calculation of the characteristics was carried out on the basis of an approximated representation of the dependence of the simple triode on frequency. In form of a summary it is said that in some respects composite triodes have better

Card 1/2

FILIPPOV, A. G.

L. A. Serkin, I. P. Stepanenko, B. N. Kononov, T. M. Agakhanyan, A. G. FILIPPOV, L. N. Patrikeyev: "Elements of semiconducting digital machines." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep. 58

Results are presented of the development of systems of fundamental logical elements using semiconducting instruments for a digital computer. Fundamental computational relations and experimental characteristics of the elements are presented. Among the system elements are: a trigger, a coincidence circuit and an amplifier-limiter. The elements guarantee reliable operation of the fundamental components of a computer at a 500 kc frequency of the main (cyclic) pulses in an -60° C---+ 50° temperature range with the relative humidity 98%.

FILIPPOV, A. G.

A. G. Filippov, I. P. Stepanenko, B. N. Kononov, T. M. Agakhanlan, L. A. Serkin, L. N. Patrikeyev, "Certain components of a digital computer using semiconducting triodes." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep 58.

The balanced operation of semiconducting elements of a computer (analyzed in the note "Elements of semiconducting computers") is verified in three basic components of a parallel type machine: the register; counter and adder. Logical circuits of the components mentioned are analyzed and a method and results of testing are presented. An experimental investigation has been made on four types of each of the components.

Experiments were carried out by changing the ambient temperature, the voltage of the supply source, by scattering the parameters of the components and replacement of the semiconducting instruments, by humidity. The experiments showed reliable operation of the set of computer elements developed.

FILIPPOV, A. G., AGAKHANYAN, T. M., KONONOV, B. N., SERKIN, L. A.,

VOLKOV, Yu. A., LEBEDEV, V. I., PATRIKEYEV, L. N., NIKOLAYEV, A. V.

and FOST, Yu. N.

"Development of Standard Semiconductor Components for Discrete Type Computers."

research conducted at the Moscow Engineering-Physics Inst.
Izv. Vysshikh uchebnykh Zavedeniy, Radiotekhnika, No. 5, Sep-Oct 58, 622-623

Filippov, A.G.

AUTHORS: Kononov, B. N., Lebedev, V. A., Serkin, L. A., Stepanenko, I. P., Filippov, A. G. 119-1-4/13

TITLE: Experiences With a Newly-Developed Register Operating With Laminar Semiconductor Triodes (Opyt razrabotki registra na ploskostnykh poluprovodnikovykh triodakh)

PERIODICAL: Priborostroyeniye, 1958, Nr 1, pp. 10-13 (USSR)

ABSTRACT: The possibilities are shown of how to use semiconductor triodes in numerical calculating machines. By means of a block of "movable registers", the scheme of which is given, the possibility of its application is proved. The register mentioned can take up a numerical code and pass it on to the left or right but it can also store a numerical code no longer needed.

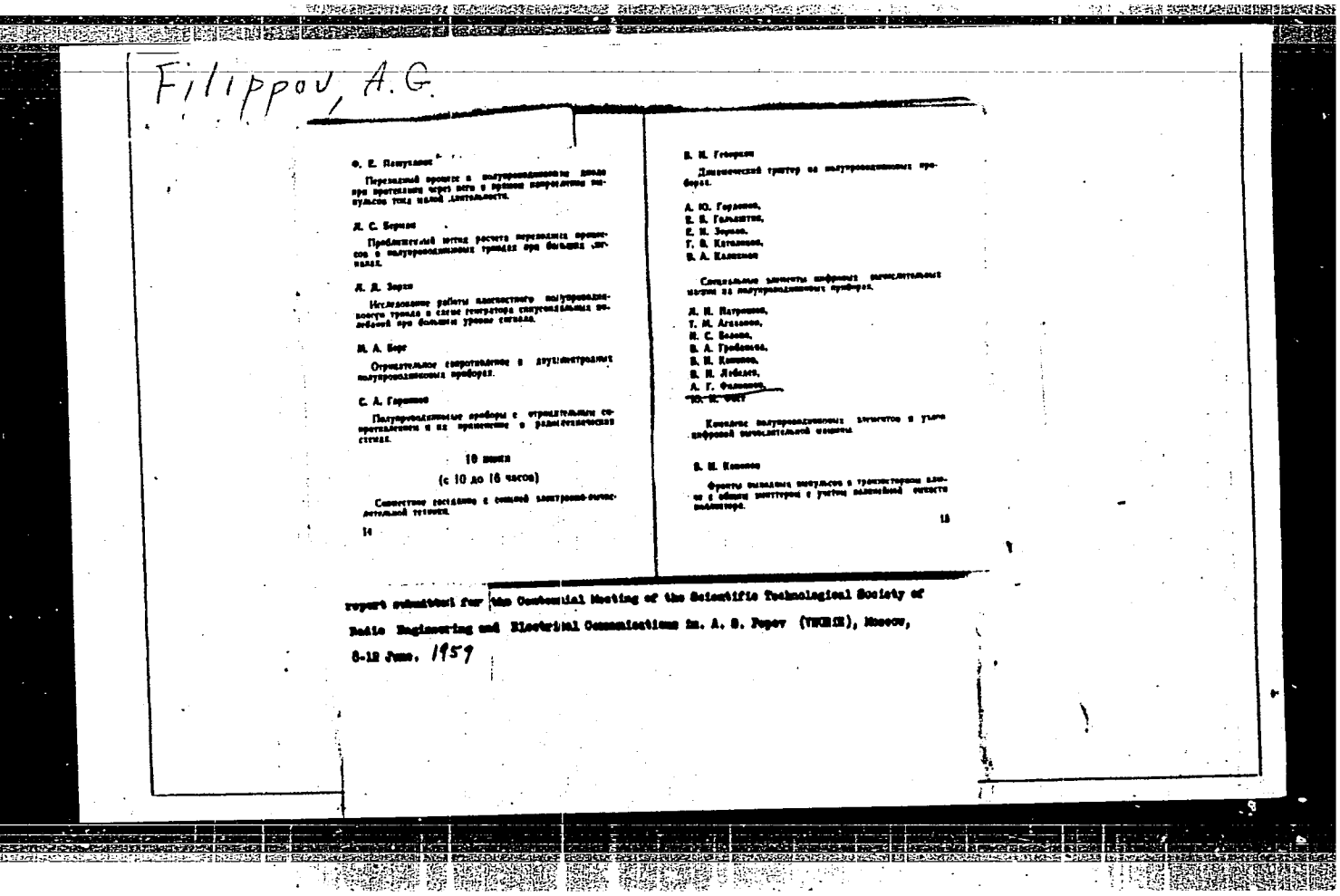
The main block is a decoder which brings about a comparison of the states of neighbouring triggers. A switch-diagram is given for the triggers. The radio-technical units used are discussed. It is most useful to employ triodes with common emitters for the amplifiers used. With such connections and with the aid of a transformer tuning as well as of an R-C-member as corrector in the emitter

Card 1/2

circuit a maximum amplification even of short impulses can be reached. With a certain arrangement to a lo - 14 fold power amplification can be reached with a duration of the input pulse of 0,5 μs. There are 6 figures and 3 references, all of which are Slavic.

AVAILABLE: Library of Congress

1. Triodes-Application



Filippov, A.G.

Ф. Е. Пожуланис

Перспективы применения в полупроводниковых диодах при протекании через него в прямом направлении импульсов тока малой длительности.

Л. С. Берман

Предварительный метод расчета переходных процессов в полупроводниковых триодах при больших сигналах.

Л. Д. Зорин

Исследование работы квантового полупроводникового триода в схеме генератора синусоидальных колебаний при больших уровнях сигнала.

М. А. Бор

Отрицательное сопротивление в двухэлектродных полупроводниковых приборах.

С. А. Гершунов

Полупроводниковые приборы с отрицательным сопротивлением и их применение в радиотехнических схемах.

10 июня
(с 10 до 16 часов)

Совместное заседание с секцией электронно-вычислительной техники.

14

В. Н. Гетцерлин

Динамический триггер на полупроводниковых приборах.

А. Ю. Гордонов,
Е. Б. Гольдштейн,
Е. Н. Зернов,
Г. Б. Катаевский,
В. А. Калинцев

Специальные элементы цифровых вычислительных машин на полупроводниковых приборах.

Л. Н. Катреныч,
Т. М. Агеенков,
Н. С. Волков,
В. А. Трофимов,
В. Н. Кашаев,
В. Н. Лебедев,
А. Г. Филиппов,
[illegible]

Комплекс полупроводниковых элементов и узлов цифровой вычислительной машины.

В. Н. Кашаев

Фронты импульсных сигналов в транзисторных ключах и общие принципы с учетом паразитной емкости коллектора.

15

report submitted for the Conferential Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (NTORES), Moscow, 8-12 June, 1959

FILIPPOV A. G.

В. А. Грибонов,
Б. Н. Каганов,
В. Н. Лебедев,
А. Г. Филиппов,
Ю. Н. Фост.

Комплекс полупроводниковых элементов и узлов цифровой вычислительной машины.

10 июня

(с 18 до 22 часов)

А. А. Кочурко

Методы расчета устройств на ферритовых сердечниках.

Ю. М. Шамаев

Основы расчета импульсных схем, содержащих ферромагнитные сердечники с прямоугольной петлей гистерезиса.

Н. В. Корольков,

В. С. Гаврилов

Быстродействующие магнитные элементы дроссельного типа.

А. А. Гаш

О расчете схем на [illegible] триггерах.

11 июня

(с 10 до 16 часов)

З. М. Завалишина

Счетчики на ферротранзисторных ячейках.

В. А. Ильичев

Применение однотактных ферритодиодных регистров сдвига импульсов с ключами в схемах автоматики и телемеханики.

К. В. Карольков

Магнитный формирователь импульсов для питания магнитных элементов.

С. М. Зайдель,

В. Д. Вайнштейн

Трехфазный импульсный источник тактовых сигналов для вычислительной машины на ферритах.

11 июня

(с 18 до 22 часов)

В. К. Шнеер

Запоминающие трубки для цифровых машин дискретного счета.

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959

FILLIPOV, A.G.

9(4) 24(6) p.4 PHASE I BOOK EXPLOITATION SOV/1765

Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi

Poluprovodnikovaya elektronika (Semiconductor Electronics) Moscow, Gosenergoizdat, 1959. 222 p. 13,950 copies printed.

Ed.: V.I. Shamshur; Tech. Ed.: K.P. Voronin.

PURPOSE: The book is intended for engineering and technical personnel working with semiconductor devices.

COVERAGE: The book is a collection of lectures delivered at the All-Union Seminar on Semiconductor Electronics in March 1957. The seminar was organized by the Scientific and Technical Society of Radio Engineering and Electrical Communications imeni A.S. Popov. The authors of the lectures have attempted to systematize the basic information on the operation of semiconductor devices. The articles describe the operation and characteristics of crystal diodes and transistors and discuss their application in various low-frequency, high-frequency and pulse circuits. No personalities are mentioned. References appear at the end of each article.

Card 1/7

Semiconductor Electronics SOV/1765

TABLE OF CONTENTS:

of temperature on diode operation. There are 2 Soviet references (including 1 translation).