ALEKSEYEV A-S

ALEKSEYEV, A. S., GELCHINSKIY, B. YA.

"Successive Approximations in the Ray Theory and its Application in Propagation Problems Involving Boundaries."
"Ray Theory of Intensity and Shape of Leading Waves in an Elastic Medium."

paper[s] presented at the 4th All- Union Acoustics Conf., 26 May - 4 June 1958.

ALEKSEYEV, A.S.

49-1-2/16

AUTHORS: Babich, V.M. and Alekseyev, A.S.

TITLE: On the Ray Method of Calculating the Intensity of Wave-fronts (O luchevom metode vychisleniya intensivnosti volnovykh frontov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 1, pp.17-31 (USSR)

ABSTRACT: The growth of dynamic seismology leads to the necessity of calculating the intensity of longitudinal and trans-verse waves in inhomogeneous media at the reflection of the waves from curvilinear boundaries. Such calculations can be carried out by considering the relations obtaining on the characteristic manifolds of the equations describ-ing the wave processes. Analogous considerations lie at the basis of the methods of Hadamard (Ref.1) and Sobolev (Ref.2) for the solution of the Cauchy problem for hyper-bolic equations. The method described in this paper has previously been applied to Maxwell's equations (Refs.3-5) and to the wave equation (Refs.6-9). Levin and Rytov (Ref.10), and Zvolinskiy and Skuridin (Refs.11 and 12) have applied ray considerations to the equations of the

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theory of elasticity, but in none of these papers are to be found the equations 4.2, 4.3, 4.5 and 4.7, which are at the basis of the method described. The method of describing the function $f(\alpha_1, \alpha_2)$ for a concentrated source, which is an important part of the method, is also new. Let $t = \tau(x, y, z)$ be the equation of the wavefront at time t. Let the wave process under consideration be described by the scalar or vector function $U(x, y, z, t)$ where it is assumed that

$$U(x,y,z,t) = U_0(x,y,z)f_0(t - \tau) + U_1(x,y,z)f_1(t - \tau)+$$

$$+0(f_2(t - \tau)) \qquad (Eq.1.1)$$

in which

$$f_2'(t) = f_1(t), \quad f'_1(t) = f_0(t) \ .$$

It is assumed that in some sense the function $f_2(t)$ can be neglected in comparison with its derivative. If Eq.(1.1) is substituted into

$$U_{xx} + U_{yy} - \frac{1}{c^2(x, y)} U_{tt} = 0 \qquad (Eq.2.1)$$

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and the coefficient of f'_0 equated to zero, there results

$$2 \text{ grad } \tau \text{ grad } U_0 + U_0 \Delta\tau = 0 \qquad \text{(Eq.2.4)}$$

which is studied in some detail. Equations analogous to Eq.(2.4) for the case of an inhomogeneous elastic medium are derived by substituting the expression for the vector $\underline{U}(x, y, t)$ from Eq.(1.1) into the two-dimensional differential equations of motion of an inhomogeneous elastic medium. Thus we have

$$-(\lambda + \mu)(\text{grad } \tau\underline{U}_0)\text{grad } \tau - \mu\underline{U}_0 (\text{grad } \tau)^2 + \rho\underline{U}_0 = 0, \quad \text{(Eq.2.6)}$$

$$\underline{M}(\underline{U}_0, \tau) - (\lambda + \mu)(\text{grad } \tau U_1)\text{grad } \tau - \mu\underline{U}_1 (\text{grad } \tau)^2 + \rho\underline{U}_1 = 0$$
$$\text{(Eq.2.7)}$$

where

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$$\underline{M}(\underline{U}_0, \tau) = (\lambda + \mu)\left[(\text{div } \underline{U}_0)\text{grad } \tau + \text{grad } (\underline{U}_0\text{grad } \tau)\right] +$$

$$+ \mu\left[\underline{U}_0 \Delta\tau + 2(\text{grad } U_{0x}\text{grad } \tau)i + 2(\text{grad } U_{0y}\text{ grad } \tau)j\right] +$$

$$+ \text{grad } \lambda (\underline{U}_0 \text{ grad } \tau) + (\text{grad } \mu\underline{U}_0)\text{grad } \tau + (\text{grad } \mu \text{ grad } \tau)\underline{U}_0$$

$$(\text{Eq.2.8})$$

and $\underline{U}_0 = \left\{U_{ox}, U_{oy}\right\}$; i, j are unit vectors in the directions of x and y respectively. Eq.(2.6) is a system of two homogeneous equations in the two unknowns U_{ox} and U_{oy} , and it can be shown that the determinant of this system only vanishes in two cases. These are:

(a) when $\left|\text{grad } \tau\right|^2 = \dfrac{1}{a^2} = \dfrac{\rho}{\lambda + 2\mu}$ (longitudinal wave) in

which case we shall write τ_a for τ; and

(b) $\left|\text{grad } \tau\right|^2 = \dfrac{1}{b^2} = \dfrac{\rho}{\mu}$ (transverse wave) in which case

we shall write τ_b for τ. In the first case it can be

Card 4/9 shown that:

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$$\underline{U}_0 = \varphi_0 \operatorname{grad} \tau_a \qquad (\text{Eq.3.1}) \quad \text{where} \quad \varphi_0 \quad \text{is a scalar}$$

function of position. Eq.(2.7) can also be regarded as an algebraic system of equations for the unknown components of the vector $\underline{U}_1$. Again there are two conditions for solution, the first of which can be written in the form :

$$\underline{M}(\underline{U}_0, \tau_a) \operatorname{grad} \tau_a = 0 \qquad (\text{Eq.3.3}) \qquad .$$

If Eq.(3.1) is substituted into Eq.(3.3), after some simplification

$$2\frac{\partial \varphi_0}{\partial \tau_a} + \left[a^2 \Delta \tau_a - (\lambda + 2\mu)\left(\operatorname{grad} \frac{1}{\rho} \operatorname{grad} \tau_a \right) \right] \varphi_0 = 0 \quad (\text{Eq.3.6})$$

is obtained. In Eq.(3.6) the derivative is calculated along the ray of the longitudinal wave. If U_n and U_ν

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On the Ray Method of Calculating the Intensity of Wavefronts.

are the components of the U_0 along the normal and the binormal to a ray of the transverse wave, then the condition for the solubility of the system 2.7 can be written in the form:

$$2\frac{\partial U_n}{\partial \tau_b} + 2Tb U_\nu + \left(b^2 \Delta \tau_b + \frac{1}{\rho}\,\mathrm{grad}\,\mu\,\mathrm{grad}\,\tau_b\right) U_n = 0\ ,$$

$$2\frac{\partial U_\nu}{\partial \tau_b} - 2Tb U_n + \left(b^2 \Delta \tau_b + \frac{1}{\rho}\,\mathrm{grad}\,\mu\,\mathrm{grad}\,\tau_b\right) U_\nu = 0 \ \Bigg\}(3.8)$$

Suppose that a point on the ray is characterized by the quantity τ , and the ray itself by the parameter α , and let $x = x(\alpha, \tau)$, $y = y(\alpha, \tau)$;   or, in vector form, $X = X(\alpha,\tau)$. Eq.(2.4) can be written in the form

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$$\frac{2}{c^2}\frac{\partial U_0}{\partial \tau} + \frac{U_0}{c|X_\alpha|}\frac{\partial}{\partial \tau}\left(\frac{|X_\alpha|}{c}\right) = 0$$

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On the Ray Method of Calculating the Intensity of Wavefronts.

$$|U_0| = \frac{1}{\sqrt{|X_\beta| \rho b}} f(\beta)$$ (Eq.4.3)

In the three-dimensional case a ray is characterized by
the two parameters α_1 and α_2, and Eqs.(4.2) and (4.3)
have their analogies in:

$$|U_0| = \frac{1}{\sqrt{J_a \rho a}} f(\alpha_1, \alpha_2)$$ (Eq.4.5)

and:
$$|U_0| = \frac{1}{\sqrt{J_b \rho b}} f(\beta_1, \beta_2)$$ (Eq.4.7)

where $J = \left[X_{\alpha_1} X_{\alpha_2} \right]$. The authors conclude by consider-

ing three examples: (1) The reflection of waves from a
curvilinear boundary; (2) Media whose inhomogeneity de-
pends on 1 coordinate; (3) The diffraction of a cylindri-

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49-1-2/16

On the Ray Method of Calculating the Intensity of Wavefronts.
cal wave at a wedge.
There are 3 figures and 28 references, 21 of which are
Slavic.

ASSOCIATION: Ac. of Sciences of the USSR, Leningrad Branch of the
Mathematical Institute imeni V.A.Steklov (Akademiya nauk
SSSR, Leningradskoye otdeleniye Matematicheskogo instituta
im. V.A. Steklova)

SUBMITTED: July 29, 1956.

AVAILABLE: Library of Congress.

Card 9/9

AUTHORS: Alekseyev, A. S., Gel'chinskiy, B. Ya.   20-118-4-10/61

TITLE: On the Determination of Head Wave Intensity by the Method
                of Rays in the Theory of Elasticity (Ob opredelenii
                intensivnosti golovnykh voln v teorii uprugosti luchevym
                metodom)

ABSTRACT: The present paper investigates the intensity and the shape
                of the head waves occurring at the planar boundary of elastic
                media in the case of a linearly polarized wave with an
                arbitrarily shaped head wave striking this boundary. In
                rectangular coordinates x,y,z let $z > 0$ and $z < 0$ be two half-
                -spaces, and v_{p1} and v_{s1}, respectively be the propagation
                velocities of the longitudinal and the transverse waves,
                respectively, in the half-space $z > 0$ containing the elastic
                medium, ρ_1 denoting the density. The elastic properties of
                the medium taking up the half-space $z < 0$ are denoted by v_{p2},
                v_{s2} and ρ_2. The conditions of continuity of the displacements
Card 1/3   and of the stresses are supposed to be satisfied at the

On the Determination of Head Wave Intensity by   20-118-4-10/61
the Method of Rays in the Theory of Elasticity

boundary z = 0. The vectors of the displacements of the
waves propagating in this system are represented by series
expansions. Such a series expansion represents an unsteady
analog to the classical expansions with respect to inverse
frequencies. The application of the fields of the incident
wave and of the fields newly generated at the boundary must
satisfy the conditions of continuity of the displacements
and of stresses at z = 0. Using the boundary conditions it
is easily possible to determine the amplitudes of all waves
newly generated on the plane z = 0. The present communication
is limited to the determination of the first terms different
from zero of the initially mentioned series expansion. The
vector of the displacements of the incident wave is decomposed
into two vectors. The boundary conditions corresponding to
this case for z = 0 are put down and discussed. A formula is
deduced for the intensity of the diffracted wave of the
highest order at an arbitrary point of the medium. In the
case investigated here waves of the surface type are missing.
Such waves only occur, when a number of more than three
fronts of head waves are colliding at the point A. There are

Card 2/3   1 figure, and 6 references, 5 of which are Soviet.

51

88870

S/044/60/000/007/024/058
C111/C222

/6.7300

AUTHOR: Alekseyev, A.S.

TITLE: "Problems of the type of Lamb for the wave equation in the linear-inhomogeneous halfspace

TEXT: With the aid of the method of the incomplete separation of variables the author constructs the solution of two instationary boundary problems for the wave equation in a halfspace in which the speed of propagation of the waves increases with the distance from the boundary. On the free surface the sought function or its normal derivative is prescribed. Vanishing initial conditions are assumed. The solution is represented by Fourier-Bessel integrals of the Mellin integrals. With the aid of asymptotic relations for Hankel functions of a complex index, from the solution the author obtains the singularities of the wave field in the neighborhood of the fronts. It is remarked that the type of the discontinuity of the solution changes in the neighborhood of the caustic surfaces (e.g. in the case of three spatial coordinates, a finite jump goes over in a logarithmic discontinuity after having passed

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Problems of the type of Lamb...

the caustic region).

[Abstracter's note: The above text is a full translation of the original
· Soviet abstract.]

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C111/C222

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ALEKSEYEV, A.S.

On the paper "Asymptotic representation of cylindrical functions."
Uch.zap. LGU no.246:352-364 '58.   (MIRA 12:2)
                    (Functions)

S/141/60/003/004/015/019
E031/E335

AUTHOR: Alekseyev, A.S.

TITLE: The Method of Point Transformation in the Problem of
            Constructing the Optimum Graph of the Rhythmical
            Production of Two Types of Articles on one Set of
            Equipment

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
            Radiofizika, 1960, Vol. 3, No. 4, pp. 706 - 715

TEXT: The production process is regarded as the motion of
some non-linear dynamical system. Then the construction of
the graph leads to the determination of a stable fixed point
of some point transformation corresponding to a stable limit
cycle of the dynamical system and to the choice of the optimum
set of system parameters for minimum volume of incomplete
production. For $i = 1, 2$, we define X_1 and X_2 -

quantitative characteristics of the first and second article
which are in the production shop at the given moment, are
manufactured by the same equipment and are continuously
required by the consumer at the rates U_1 and U_2 determined

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The Method of Point Transformation in the Problem of
Constructing the Optimum Graph of the Rhythmical Production
of Two Types of Articles on one Set of Equipment

by the programme R_1 and R_2 for the planned period T ,
i.e. $U_1 = R_1/T$ and $U_2 = R_2/T$; V_1 and V_2 - difference
between the productivity and the rate of consumption;
$\widetilde{\tau}_1$ and $\widetilde{\tau}_2$ - resetting times; Q_1 and Q_2 - maximum
permissible of the two articles determined by the limit
imposed on incomplete production and on storage facilities.
Further, for $i = 1, 2$, we introduce new variables
$x_i = X_i/TU_i$ and parameters $p_i = \tau_i/T$, $v_i = V_i/U_i$,
$q_i = Q_i/TU_i$ (where T is the planning period. A new time
variable $t = t_{start}/T$ is also introduced. The problem is
then that of finding, for the new variables, a periodic
process which minimises q_1 and q_2 or minimises v_1 and v_2 ,

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The Method of Point Transformation in the Problem of
Constructing the Optimum Graph of the Rhythmical Production
of Two Types of Articles on one Set of Equipment

or maximises p_1 and p_2 . Motion of the system is discussed
in the phase space $x_1 x_2$. Various segments of the trajectories
and point transformations of them into each other are defined.
These transformations can have two fixed points corresponding
to the stable and unstable limit cycles of the dynamical system.
The coordinates of the unstable point and the conditions for its
existence and instability are expressed. The corresponding
expressions for the stable point are also given. There is
always a stable limit cycle if the system has an unstable limit
cycle. The choice of optimum parameters is discussed. Values
for q_1 and q_2 are given (Eq. 3.2). Various generalisations
of the problem are possible. All possible motions in the phase
space, and not only those touching the boundary, as assumed
above, can be considered. The generalisation to the case of
n articles with one set of equipment is also indicated.

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E031/E335

The Method of Point Transformation in the Problem of
Constructing the Optimum Graph of the Rhythmical Production
of Two Types of Articles on one Set of Equipment

There are 4 figures and 3 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-tekhnicheskiy
institut pri Gor'kovskom universitete
(Scientific Research Physico-technical Institute
at Gor'kiy University)

SUBMITTED: April 5, 1960

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S/169/62/0C0/009/031/120
D228/D307

AUTHORS: Alekseyev, A. S., Babich, V. M. and Gel'chinskiy,
             B. Ya.

TITLE: Radial method of calculating the wave front intensity

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 29-30,
             abstract 9A192 (·In collection: Vopr. dinamich. teo-
             rii rasprostr. seysmich. voln, 5, L., Leningr. un-t,
             1961, 3-24)

TEXT:· Equations are derived for successive approximations of the
radial method in the case of an inhomogeneous elastic medium with
smoothly changing parameters. It is shown that the reflection and
the refraction of waves at the boundaries of elastic media should
be considered in the limits of the radial method. When a wave is
.reflected from boundaries, at which the parameters change with a
jump, the isolated element principle is correct for the radial
method's zero approximation. At each point of the boundary the in-
cident wave is reflected at the same angle of incidence on the

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Radial method of ...

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flat interface of homogeneous semispaces, whose parameters coin-
cide with the corresponding parameters of contiguous media around
the reflection point. In the case of so-called weakly reflecting
boundaries -- at which the actual environmental parameters and
their (n-1) derivatives are continuous, and the n derivative has
a final jump -- radial expansion terms, starting with the n-th,
are present in the reflected wave. On this occasion the reflected
wave has a smoother character than the incident wave (the reflec-
ted wave's form can be obtained by integrating n times the func-
tion representing the incident wave's form). It is pointed out
that diffracted waves must arise at points, where the radii of
the boundary's curvature or their derivatives undergo rupture.
/¯Abstracter's note: Complete translation._/

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ALEKSEYEV, A.S.; GEL'CHINSKIY, B.Ya.

Radial method of calculating the intensity of refracted waves.
Vop. din. teor. raspr. seism. voln no.5:54-72 '61. (MIRA 14:11)
(Seismic waves)

43343

8/049/62/000/011/002/006
D218/D308

AUTHOR: Alekseyev, A.S.

TITLE: Some converse problems in the theory of
            wave propagation. I. The spatial problem
            for SH waves (preliminary results)

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya
            geofizicheskaya, no. 11, 1962, 1514-1522

TEXT: The general problem is the determination of
the geometrical and physical characteristics of a medium from
observations on wave propagation in the medium. The paper reports
the solution of the direct problem for SH waves. The analysis is
given for the half-space $z > 0$ in cylindrical coordinates r, ϑ
z. Lame' parameter λ is an arbitrary function of r, ϑ z; μ and ρ
depend on z only. The half-space is filled with an elastic medium
at rest. At time $t = 0$ a surface moment

$$\sigma_z = 0, \quad \tau_{rz} = 0, \quad \tau_{\vartheta z} = a(t)b(r) \quad \text{when } z = 0$$

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Some converse problems .....

is applied to the surface z = 0. This gives rise to SH waves only,
and the elastic displacement vector is

$$U (r, \vartheta, z, t) = U_\vartheta (r, \vartheta, z, t) \underline{\vartheta}_1$$

where U_ϑ is the component of the displacement vector in the
direction of the unit vector $\underline{\vartheta}_1$. The r and z components
are identically zero. The differential equation for U_ϑ is

$$\frac{\partial^2 U_\vartheta}{\partial r^2} + \frac{1}{r} \frac{\partial U_\vartheta}{\partial r} - \frac{U_\vartheta}{r^2} + \frac{\partial^2 U_\vartheta}{\partial z^2} + \frac{\mu'(z)}{\mu(z)} \frac{\partial U_\vartheta}{\partial z} = \frac{\rho(z)}{\mu(z)} \frac{\partial^2 U_\vartheta}{\partial t^2}$$

subject to the boundary condition

(3)

$$\frac{\partial U_\vartheta}{\partial z} \bigg|_{z = 0} = \frac{1}{\mu(0)} \, a(t) \, b(r)$$

(4)

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Some converse problems ...

, and the initial condition

$$U_{\text{ft}} \Big|_{t < 0} = 0$$

The development of these equations is considered in greater detail in a previous paper (Doklady AN SSSR, v. 103, no. 6, 1955). It is assumed that $a(t) = \delta(t)$ (Dirac delta function) and

$$b(r) = \frac{1}{4\pi} \int_0^\infty k^2 J_1(kr)dk = -\frac{1}{4\pi} \frac{d}{dr} \frac{\delta(r)}{r}$$

where J_1 is the first-order Bessel function. It is shown that the problem may be reduced to a standard Sturm-Liouville boundary value problem and that the final solution may be written in the form

$$U(r, z, t) \frac{\sqrt{\sigma(z)\sigma(0)}}{4\pi} \int_0^\infty \Phi'(x,t,k)k^2 J_1(kr)dk$$

(36)

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Some converse problems ...   S/049/62/000/011/002/006
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$$\Phi'(x,t,k) = \int_0^\infty \frac{\sin\sqrt{\lambda}\,t}{\sqrt{\lambda}}\,\varphi_k(x,\lambda)\,d\,\rho_k(\lambda)$$

$$x = \int_0^z \sqrt{\frac{\rho(\zeta)}{\mu(\zeta)}}\,d\zeta, \quad \sigma(z) = \sqrt{\mu(z)\,\rho(z)}$$

(37)

where λ is the Lamé parameter. This solution is used in the following paper (Izv. AN SSSR. S. geofiz., 1962, no. 11, 1523 - 1531) to formulate the converse problem.

ASSOCIATION: Matematicheskiy institut im. V.A. Steklova,
                 Leningradskoye otdeleniye (Mathematical
                 Institute im. V.A. Steklov, Leningrad Division)

SUBMITTED: April 20, 1962

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43344

S/049/62/000/011/003/006
D218/D308

AUTHOR: Alekseyev, A.S.

TITLE: Some converse problems in the theory of wave
               propagation. II. The spatial problem for SH
               waves (the converse problem in an overdeter-
               mined formulation)

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geo-
               fizicheskaya, no. 11, 1962, 1523 - 1531

TEXT: This paper is a continuation of the paper on
pp. 1514-1522 of this journal. It is required to determine $\mu(z)$
and $f(z)$ in such a way that

$$U_{\vartheta}(r, 0, t) = G(r, t) \qquad (4)$$

where $G(r, t)$ is a function known in the range $0 \leq t \leq T$, $0 \leq r \leq R$
and $U_{\vartheta}(r, 0, t)$ is a special solution of the problem defined by
(3) - (5) of the preceding paper. The function $G(r, t)$ is assumed
to satisfy the following conditions: (1) there exists a curve

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Some converse problems ...

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$r = r_1(t)$ on the plane (r,t) such that $U_\Phi(r, 0, t) = 0$ for $r > r_1(t)$; (2) the function $\rho_k(\lambda)$ vanishes for $\lambda < 0$ and does not decrease with increasing λ for any k in the range $(0, \infty)$; (3) if the condition

$$\sigma_k(\lambda) = \rho_k(\lambda) - \frac{2}{\pi}\sqrt{\lambda} \qquad \text{where } \lambda > 0 \quad (11)$$

is satisfied, then the function

$$a_k(x) = \int_1^\infty \frac{\cos\sqrt{\lambda}x}{\lambda}\, d\sigma_k(\lambda) \qquad (12)$$

has continuous derivatives up to the fourth order inclusive for any $k > 0$; and (4) in the range $0 \leqslant t \leqslant T$ the function $\Phi(0.0,k)$ has three continuous derivatives with respect to t for any $k \geqslant 0$ and may be written in the form

$$\Phi(0, t, k) = \int_0^\infty \frac{1 - \cos\sqrt{\lambda}t}{\lambda}\, d\rho_k(\lambda)$$

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Some converse problems ...

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where $\beta_k(\lambda)$ is a function which does not decrease with increasing λ. Subject to these restrictions, it is shown that there exist doubly differentiable functions $\mu(z)$ and $\rho(z)$ which in a certain interval $[0, z(T)]$ define the medium uniquely for the above form of $G(r,t)$. The minimum conditions for the problem will be considered in a future paper.

ASSOCIATION: Matematicheskiy institut im. V.A. Steklova, Leningradskoye otdeleniye (Mathematical Institute im V.A. Steklov, Leningrad Division)

SUBMITTED: April 20, 1962

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S/141/62/005/002/018/025
E140/E435·

AUTHOR: Alekseyev, A.S.

TITLE: The method of point transformations applied to the
            cyclical   production of an arbitrary number of
            articles on a single equipment in the presence of
            varying backlogs

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika·
            v.5, no.2, 1962, 370-384

TEXT: The author presents algorithms based on the method of
point transformations (known from the theory of nonlinear automatic
control systems) for planning the production cycle in a system
where different articles are to be produced on a single machine
or group of machines or, rather, to select among various possible
such plans an optimal one.   The system is considered to be a
nonlinear dynamic system with continuous parameters, the
differential equations are set up and stable limit cycles sought.
These limit cycles must start from some known initial conditions
and arrive at carrying the process: ·cyclically · through certain
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43401

8/141/62/005/005/010/016
E140/E135

AUTHORS: Mishina, K.A., and Alekseyev, A.S.

TITLE: The use of certain special operations in the analysis
and synthesis of linear electric networks

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
v.5, no.5, 1962, 1009-1016

TEXT: The operations introduced are of the form inversion

$$\overline{Y} \equiv Y^{-1} \ (= Z), \quad \overline{Z} \equiv Z^{-1} \ (= Y)$$ (1.1)

and harmonic addition

$$Y_1 \oplus Y_2 = \overline{\overline{Y}_1 + \overline{Y}_2} \quad \left(= \frac{Y_1 Y_2}{Y_1 + Y_2} \right) \ ;$$ (1.2)

$$Z_1 \oplus Z_2 = \overline{\overline{Z}_1 + \overline{Z}_2} \quad \left(= \frac{Z_1 Z_2}{Z_1 + Z_2} \right) \ .$$

If ordinary addition corresponds to the series combination of
impedances or parallel combination of admittances, the harmonic

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....e apparatus
.... the logical
matrix operations if
...... the inverse matrix.

The use of certain special ...   S/141/62/005/005/010/016
                                        E140/E135

Then in the parallel connection of two n-poles, their admittance
matrices are added, and their impedance matrices added harmonically.
The use of the new operations is illustrated by the analysis of a
simple bridge circuit. In conclusion, the author notes that in
general, digital computers must be used for even mildly complicated
circuits.

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

SUBMITTED: December 29, 1961

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ALEKSEYEV, A.S.; VOL'VOVSKIY, I.S.; YERMILOVA, N.I.; KRAUKLIS, P.V.;
RYABOY, V.Z.

Physical nature of certain waves recorded in hodographic seismic
sounding. Part 1. Izv. AN SSSR. Ser. geofiz. no.11:1620-1630 N
'63.   (MIRA 16:12)

1. Kontora "Spetsgeofizika", Leningradskoye otdeleniye
Matematicheskogo instituta imeni Steklova AN SSSR.

GOL'TSMAN, Fedor Markovich; ALEKSEYEV, A.S., nauchn. red.

[Principles of the theory of interference reception of
regular waves] Osnovy teorii interferentsionnogo priema
reguliarnykh voln. Moskva, Nauka, 1964. 283 p.
                                        (MIRA 17:12)

ACCESSION NR: AP4014023   S/0049/64/000/001/0003/0019

AUTHORS: Alekseyev, A. S.; Vol'vovskiy, I. S.; Yermilova, N. I.; Krauklis, P. V.;
Ryaboy, V. Z.

TITLE: The physical nature of some waves recorded during deep seismic sounding.
2. Theoretical analysis of models of the earth's crust for regions of Central Asia

SOURCE: AN SSSR. Izv. Seriya geofizicheskaya, no. 1, 1964, 3-19

TOPIC TAGS: deep seismic sounding, earth's crust, Central Asia, head wave,
reflected wave, refracted wave, kinematic characteristic, dynamic characteristic,
Turkmenia, shot point, apparent wave velocity

ABSTRACT: The authors present results on theoretical comparisons of the kinematic
and dynamic characteristics of the earth's crust in southeastern Turkmenia. They
have considered possible laws governing changes in apparent wave velocity with
distance from shot point in layered inhomogeneous media with plane-parallel inter-
faces. Three different models of the earth's crust were used, based on different
velocity values, densities, rates of change with depth, and combinations of these.
Results show that in layered, inhomogeneous media the following relations always
hold for the different kinds of waves: for head waves $dV^*/dx = 0$ and $d^2V^*/dx^2 = 0$;

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ACCESSION NR: AP4014023

for reflected waves $dV*/dx < 0$ and $d^2V*/dx^2 > 0$; and for refracted waves, if $dV*/dx < 0$, $d^2V*/dx^2 > 0$, but if $dV*/dx > 0$, then either $d^2V*/dx^2 > 0$ or $d^2V*/dx^2 < 0$. These relations may be used for control in the correlation of waves. From these results it follows, in particular, that there are no waves in inhomogeneous layered media for which the relations $dV*/dx < 0$ and $d^2V*/dx^2 < 0$ may be fulfilled simultaneously. Thus, in such inhomogeneous layered media, changes in apparent velocity of head, reflected, or refracted waves with increase in distance from shot point may take place according to but one of the laws illustrated in Fig. 1 on the Enclosure. Orig. art. has: 13 figures and 10 formulas.

ASSOCIATION: Kontora Spetsgeofizika GGK SSSR (Office of Spetsgeofizika GGK SSSR); Akademiya nauk SSSR (Academy of Sciences SSSR); LOMI im. Steklova (LOMI)

SUBMITTED: 26Mar63   DATE ACQ: 14Feb64   ENCL: 01

SUB CODE: AS   NO REF SOV: 005   OTHER: 000

Card 2/3

ACCESSION NR: AP4023372   S/0049/64/000/002/0184/0195

AUTHORS: Alekseyev, A. S.; Vol'vovskiy, I. S.; Yermilova, N. I.; Krauklis, P. V.;
Ryaboy, V. Z.

TITLE: The physical nature of some waves recorded during deep seismic sounding.
Comparison of theoretical computations with experimental data. 3

SOURCE: AN SSSR. Izv. "Seriya geofizicheskaya, no. 2, 1964, 184-195

TOPIC TAGS: seismic wave, deep seismic sounding, head wave, refracted wave,
reflected wave, supercritical wave, "granite" layer, "basaltic" layer, wave group,
Mohorovicic discontinuity

ABSTRACT: The authors have used theoretical computations and experimental data
from two earlier papers (K voprosu o prirode voln, registriruyemy*kh pri GSZ, II.
Teoreticheskiy analiz nekotory*kh modeley zemnoy kory*, Izv. AN SSSR, ser. geofiz.,
No. 1, 1964; K voprosu o prirode voln, registriruyemy*kh pri GSZ I. Kharakteristika
eksperimental'ny*kh danny*kh. Izv. AN SSSR, ser. geofiz., No. 11, 1963). They
conclude that the first waves of the P_h^0 group are head or weakly refracted waves,

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ACCESSION NR: AP4023372

corresponding to the upper part of the "granitic" layer. The wave group $T(P*)$ is a complex wave formation. The first wave of the group consists of a head (weakly refracted) $P*_h$ wave (up to a distance of 120-130 km from the shot point) and a supercritical reflected wave from the surface of the "granite" layer (P^o_{refl}) or "basaltic" layer ($P*_{refl}$), depending on the relative thickness and velocity of the crustal layers. The P_{refl} and P_h waves are the supercritical reflected and head (weakly refracted) waves, respectively, corresponding to the subcrustal boundary (Mohorovicic discontinuity). /The nature of the P_1 wave group is not uniquely determined. It may represent a complex group of waves consisting of supercritical reflected and head waves formed at a discontinuity below the Mohorovicic discontinuity or refracted in the subcrustal layer (if it is assumed that velocity increases with depth in this layer). The P_1 group, which is apparently recorded in other regions, may become the source of very valuable information on the structure of the upper part of the mantle. The principles of wave-group correlation in deep seismic sounding may lead to a combination of waves of different physical nature into a single group. To test correlation it is necessary to make preliminary

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ACCESSION NR: AP4023372

detailed analysis of theoretical views concerning amplitude and attenuation of waves of different physical types. Orig. art. has: 8 figures.

ASSOCIATION: Kontora "Spetsgeofizika" MG i ON SSSR (Office of "Spetsgeofizika" MG and ON SSSR); Akademiya Nauk SSSR (Academy of Sciences SSSR); Leningradskoye Otdeleniya matematicheskogo instituta im. Steklova (Leningrad Department of the Mathematical Institute)

SUBMITTED: 26Mar63   DATE ACQ: 27Mar64   ENCL: 00

SUB CODE: AS   NO REF SOV: 013   OTHER: 000

Card 3/3

MATVEYEVA, N.N.; ALEKSEYEV, A.S.

Machine search for variations of the rapid cross sections of the upper
mantle from the totality of the hodographs of deep focus earthquakes.
Vop.din.teor.raspr.seism.voln no.7:130-143 '64.

(MIRA 17:12)

... shake wave velocity ... impulse holograph, velocity profile cal...

... thicker layer, and it is compara...
... during the first ...

the errors of measurement, the spread of oscillation phases, and the inaccuracies in the determinations of the time at the source, the depth of the earthquake, and its coordinates.

ACCESSION NR: AT501_712

and Kurile islands" by T.B. Yanovskaya, R.V. Tarknnov, and N.N. Matveyeva. "The authors thank L.V. Polina for a large volume of computer calculations carried out on the BESM-2 and G.I. Petrashen' for his constant interest in the work." Orig. art. has: 9 formulas and 8 figures.

...studied are those when either the "swit...
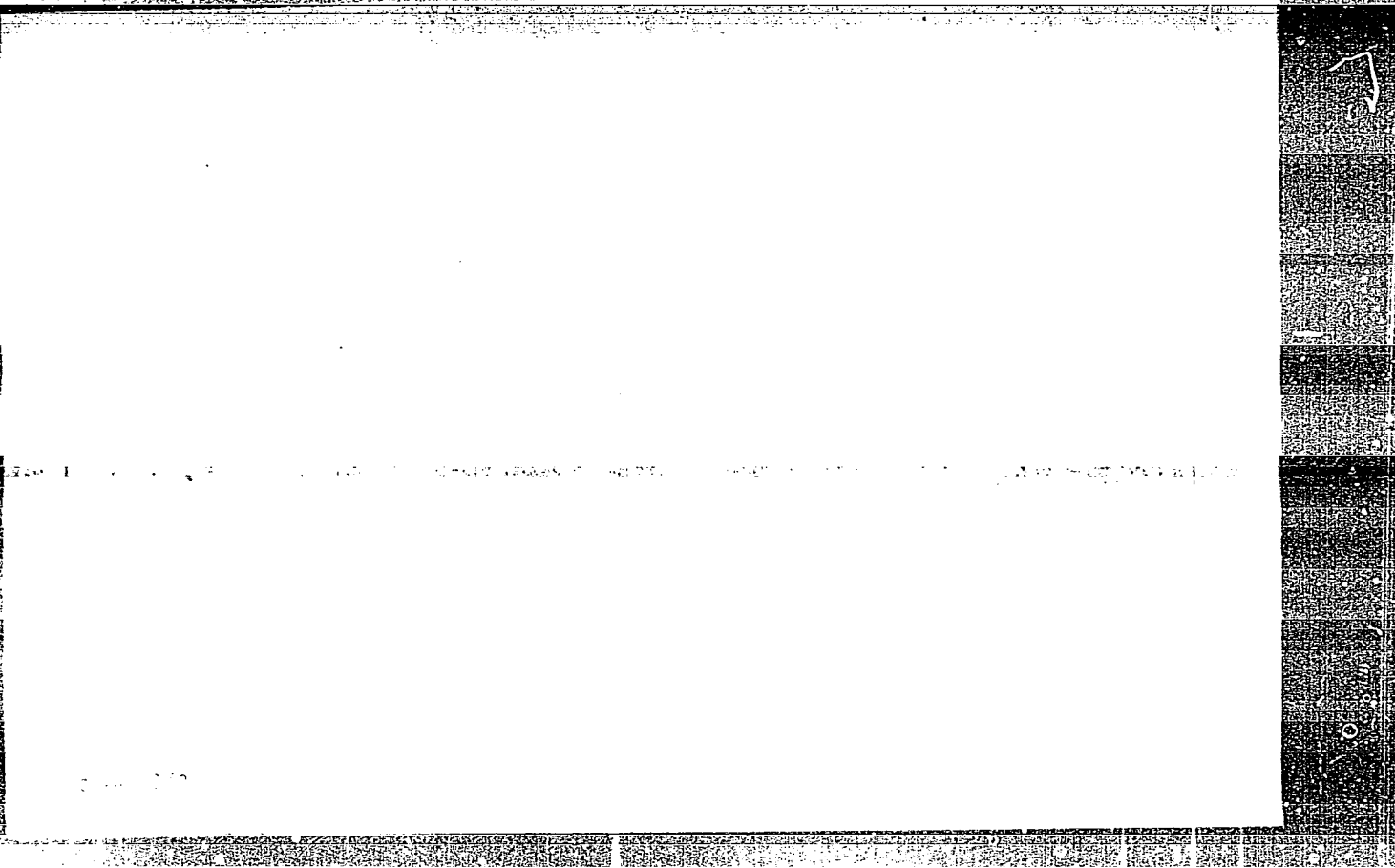
SOV/111-59-6-26/32

6(7)

AUTHOR: Alekseyev, A.S., Supervisor

TITLE: A Device for Signaling the Break or the Stop of the
            Perforated Tape in the "STA" Telegraph Apparatus

PERIODICAL: Vestnik svyazi, 1959, Nr 6, p 31   (USSR)

ABSTRACT: The author gives a diagram and a detailed description
            of the subject device designed by himself. The device
            was tested under operational conditions with positive
            results. It is of a simple design and can be made in
            any telegraph workshop. The device is especially
            useful when concurrently servicing several communica-
            tion lines, as it eliminates the necessity of controlling
            the movement of the perforated tape. There is 1 dia-
            gram.

ASSOCIATION: Mogilevskiy tsentral'nyy telegraph (Mogilev Central
             Telegraph)

Card 1/1

ALEKSEYEV, A.S.

Method of point transformations in setting an optimum schedule for
the rythmic production of two types of articles using one piece of
equipment. Izv.vys.ucheb.zav.; radiofiz. 3 no.4:706-715 '60.
                                                    (MIRA 13:9)

1. Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut pri
Gor'kovskom universitete.
              (Automatic control)

S/044/62/000/004/068/099
C111/C222

AUTHORS: Alekseyev, A.S., Babich, V.M.,
            Gel'chinskiy, B.Ya.

TITLE: The ray method for calculating the intensity of wave fronts

PERIODICAL: Referativnyy zhurnal, Matematika, no. 4, 1962, 62,
            abstract 4B289. (Vopr. dinamich. teorii rasprostr. seysmich.
            voln" 5. L., Leningr. un-t, 1961, 3 - 24)

TEXT: The author briefly describes the fundamentals of the ray
method for calculating the intensity of wave fronts in non-stationary
problems for the wave equation and the system of dynamic equations of
elasticity theory. He also discusses the formulation of individual
problems arising from the formal development and mathematical proof of
the ray method. The principal results of the paper have been published
by the authors in various preceding papers.

[Abstracter's note : Complete translation.]

Card 1/1

S/141/61/004/002/013/017
E031/E313

AUTHORS: Alekseyev, A.S. and Dozorov, V.A.

TITLE: Self-excited Oscillations of a Two-position
             Temperature-control System With Thermal
             Proportional-plus-floating Device

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
             Radiofizika, 1961, Vol. 4, No. 2, pp. 330 - 338

TEXT: The equations of the system in non-dimensional form
can be represented as

$$\dot{x} + x = z(t - \tau) ;$$

$$\dot{y} + \alpha y = a\dot{z}(t - \nu) ; \qquad\qquad (1.4) .$$

$$z = \begin{cases} 1 & (x + y < c) \\ 0 & (x + y > c) \end{cases}$$

The cases when the constants τ and ν satisfy the
inequality $\tau > \nu \geqslant 0$ and when $\alpha > 1$ and $\alpha = 1$ are of
Card 1/4

Self-excited Oscillations ....

S/141/61/004/002/013/017
E031/E313

particular interest. For $\alpha > 1$ the case is studied when the motion of the system is determined up to an arbitrary moment t_o by initial states $x(t)$ and $y(t)$ such that in the interval $t_o - \tau \leqslant t \leqslant t_o$ there are no switchings. Switching takes place for values of x and y lying on the line $x + y = c$. The dynamics of the system is analysed by the method of point transformations when, in addition to the above conditions, we have $a \leqslant \min(a_1, a_2)$, where:

$$a_1 = c(1 - e^{-\alpha \nu}) - x(e^{-\nu} - e^{-\alpha \nu})$$

for $c \leqslant 1/2$ and $x \leqslant \alpha c/(\alpha - 1)$

and:

$$a_2 = (1 - c)(1 - e^{-\alpha \nu}) - (1 - x)(e^{-\nu} - e^{-\alpha \nu}).$$

Card 2/4

Self-excited Oscillations S/141/61/004/002/013/017
E031/E313

T_1 and T_2 denote the transformations of the half-lines $u = x - (\alpha c - 1)/(\alpha - 1)$ and $v = \alpha c/(\alpha - 1) - x$ into each other. The uniqueness and stability of the invariant point of these transformations is proved by considering the behaviour of the function $v_2 = T_2 T_1(v_1)$. From this it follows that the system has a unique stable limit cycle. The case when $\alpha = 1$ is dismissed briefly. The amplitude and period of the self-excited oscillations are given. By way of an example the case of a system with $\alpha = 1$ and $2n\nu \leqslant \tau \leqslant (2n + 1)\nu$ with $2n$ switchings of the relay in the interval $-2n\nu \leqslant t \leqslant 0$. The unique stable limit cycle has period 2ν and amplitude $2A - (e^{\nu} - 1)/(e^{\nu} + 1)$.
There are are 3 figures and 4 Soviet references.

Card 3/4

elf-excited Oscillations S/141/61/004/002/013/017
                                  E031/E313

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

SUBMITTED: November 1, 1960

Card 4/4

ALEKSEYEV, A.S.; DOZOROV, V.A.; TAY, M.L.

Use of analog computers for obtaining nonlinear functions. Izv.
vys. ucheb. zav.; radiofiz. 4 no.4:782-783 '61.   (MIRA 14:11)

1. Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut pri
Gor'kovskom universitete.
(Electronic analog computers) (Differential equations)

ALEKSEYEV, A.S.; SAVIN, G.P.

Device for determining the duration of starting periods in the
rythmical production of several articles by the use of the same
equipment. Izv.vys.ucheb.zav.;radiofiz. 5 no.1:199-200 '62.
                                            (MIRA 15:5)
1. Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut
pri Gor'kovskom universitete.
                    (Production control)
                       (Oscillometer)

ALEKSEYEV, A.S.

Method of point transformations in the problem of setting up
an optimal schedule for rhythmical production of an arbitrary
number of types of articles, using the same equipment, in the
case of a change in working plans. Izv. vys. ucheb. zav.;
radiofiz. 5 no.2:370-384 '62.   (MIRA 15:5)

1. Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut
pri Gor'kovskom universitete.
                        (Automatic control)

L 38523-66

ACC NR: AP6029156   SOURCE CODE: CZ/0023/66/010/002/0172/0176

AUTHOR: Alekseyev, A. S.; Nersesov, I. L,

ORG: Computer Center, Siberian Department, AN SSSR, Novosibirsk (Vychislitel'nyy tsentr Sibirskogo otd. AN SSSR); Institute of Geophysics, AN SSSR, Moscow (Institut Fiziki Zemli AN SSSR)

TITLE: Travel times and amplitudes of waves in Central Asia -- theory and   44
experiments   B

SOURCE: Studia geophysica et geodaetica, v. 10, no. 2, 1966, 172-176

TOPIC TAGS: seismic wave, shock wave analysis

ABSTRACT: The article presents a new interpretation of the results of observations of body waves, obtained in deep seismic sounding and in observations of earthquakes in Central Asia. Orig. art. has: 4 figures. [Orig. art. in Eng.] [JPRS: 36,844]

SUB CODE: 08 / SUBM DATE: 28Aug65 / SOV REF: 005

Card 1/1

L 24546-66   EWT(d)/FSS-2

ACC NR: AP6006323   SOURCE CODE: UR/0413/66/000/002/0043/0044

AUTHORS: Martynov, V. S.; Alekseyev, A. T.; Bauman, E. D.

ORG: none

TITLE: A method of separating tone-noise signals Class 21, No. 177939

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1966, 43-44

TOPIC TAGS: voice identification, voice communication, signal noise separation

ABSTRACT: This Author Certificate presents a method of separating tone-noise signals in devices with "conpanding" (contraction-expansion) of the voice signal. The method is based on the difference in structure of the spectrum of the tone sound and of the noise. It separates the main tone from the spectrum with the help of groups of narrow band filters of the low frequency region in the voice range, and then selects the maximum and the minimum of the signal. The method increases the reliability of the separation in conditions when the present spectrum of the noise does not have sharp dips. The voltages obtained from each group of filters (the band of frequencies of which is equal to the width of the

Card 1/3   UDC: 621.395.1.01--534.4

L 24546-66

ACC NR: AP6006323

first formant of the sounds), after being separated by the diodes of the minimum values, are fed to the other diodes for selection of the amplitude maximum. The rectified voltages from all narrow band filters (after the appearance of the maximum values) are fed simultaneously through three groups of diodes to the functional unit. The output signal of the functional unit is inversely proportional to the maximum voltage of the groups. The latter voltage is fed to one of the inputs and is directly proportional to the maximum voltage of all narrow band filters (see Fig. 1). A binary tone-noise signal is obtained at the output of the cutoff unit based on the selected ratios of the two voltages.

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L 24546-66

ACC NR: AP6006323

Fig. 1. 1 and 2 - groups of narrow band
filters; 3 to 10 - diodes for the
selection of minimum values;
11 and 12 - diodes for the selection
of the amplitude maximum; 13 to 20 -
three groups of diodes; 21 - functional
output unit; 22 - cutoff unit.
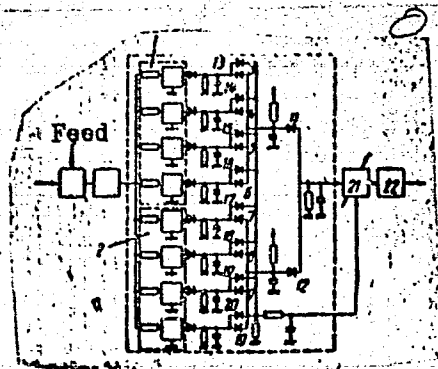
Orig. art. has: 1 figure.

SUB CODE: 09/ SUBM DATE: 02Jan64

Card 3/3

UTYUZH, A.T., inzh.; ALEKSEYEV, A.V., inzh.

     Blunt turnouts with automatic locks. Put' i put. khoz. 8 no.10:
28-30 '64.   (MIRA 17:12)

     1. Stantsiya Bryansk, Moskovskoy dorogi.

Alekseyev, A.V.
ALEKSEYEV, A.V.

A semiconductor duplex telephone repeater. Avtom., telem. i sviaz'
2 no.1:30-31 Ja '58.   (MIRA 11:1)

1. Glavnyy inzhener sluzhby signalizatsii i svyazi Moskovsko-Kiyevskoy
dorogi.
              (Telephone--Equipment and supplies)

ALEKSEYEV, A.V.

Network for the reservation of electric power supply for a.c. block
systems. Avtom., telem. i sviaz' 5 no.12:33 D '61. (MIRA 14:12)

1. Nachal'nik otdela signalizatsii i svyazi Bryanskogo otdeleniya
Moskovskoy dorogi.
                (Railroads--Signaling--Block system)

ALEKSEYEV, A.V.

3610. ALEKSEYEV, A.V. Termosvarka Provodov Na Vvodakh. (Predlozheniye
t. Kapralova B. F., Yelektromekhanika st. Orenburg). Chkalov, Tekhn.
otd. upr Orenburgskoy zh. D. i Dor NITO, 1954. (3) s. 20sm. (Mps SSSR.
Signalizatsii i Svyazi) B. ts.--Sost. Ukazan Na Oborote Tit.cl.--(54-
15476zh) 656.25+ 621.391.6

SO: Knizhnaya Letopis', Vol. 3, 1955

ALEKSEYEV, A.V.

3611.   ALEKSEYEV, A.V. Universal'nyy Klyuch Dlya Stolbovykh Liniy Svyazi
so Smeshannym Profilem. (Predlozheniya T. Yermakova V.F., Tekhnika
Aktyub. Distantsii Signalizatsii i Svyazi) Chkalov, Tekhn. otd. upr.
Orenburgskoy zh. D. i Dor NITO, 1954. 4s. s Chert 20sm (Mps SSSR
Orenburgskaya zh. d. obmen opytom. Inform. pis'mo No1 15 (32) Sluzhba
Signalizatsii i Svyazi) B. ts.--Sost. Ukazan Na Oborote Tit l.--(54-
15479zh) 656:254.1 ⨏ 621.883

SO: Knizhnaya Letopis', Vol. 3, 1955

POPILOV, L.Ya.; ALEKSEYEV, A.V., kand.tekhn. nauk, retsenzent;
ZAYTSEVA, L.P., kand.tekhn.nauk, retsenzent; POPOV, V.F.,
inzh., retsenzent; ARENKOV, A.B., inzh., red.; DENINA,
I.A., red.izd-va; KAPLANSKIY, Ye.F., tekhn. red.

[Manual on electric and ultrasonic methods of processing
materials] Spravochnik po elektricheskim i ul'trazvukovym
metodam obrabotki materialov. Moskva, Mashgiz, 1963. 478 p.
(MIRA 17:3)

BOROKHOVICH, Ya.P.; ALEKSEYEV, A.V.; TIKHONOVA, Ye.M., red.;
    MAKHOVA, N.N., tekhn. red.; BALLOD, A.I., tekhn. red.

[Computers and programming] Matematicheskie mashiny i prog-
rammirovanie. Moskva, Sel'khozizdat, 1963. 299 p.
                                              (MIRA 17:3)

ALEKSEYEV, A.V., metodist

Experimental work of student brigades from the Stavropol Territory
schools. Biol. v shkole no.4:39-43 Jl-Ag '61.   (MIRA 14:7)

1. Programmno-metodicheskoye upravleniye Ministerstva prosveshcheniya
RSFSR.
       (Stavropol Territory--Agriculture--Experimentation)

4454 3
S/020/62/147/006/028/034
B144/B186

15.2100

AUTHORS: Alekseyev, A. V., Filimonov, V. N., Terenin, A. N.,
             Academician

TITLE: Infra-red spectra of nitrous oxide adsorbed on synthetic
             zeolites

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 6, 1962, 1392 -
             1395

TEXT: The adsorption of NO on synthetic A and X type zeolites, in Na
and Ca forms with pore diameters of 4 and 5 Å and on natural zeolites
such as natrolite and desmine, was studied by IR spectroscopy. The pre-
sence of adsorption centers and the formation of intermediate products
needs clearing up. The spectra were recorded in the 2400 - 1200 cm^{-1}
range on powdered zeolites placed between fluorite plates with inter-
mediate aluminum foils, and subjected to a vacuum pretreatment of
4 - 8 hrs at 400°C. The final gas pressure of 40 mm Hg excluded the
recording of gaseous NO which has a band at 1876 cm^{-1}. A comparison
between the spectra of the pure zeolites and those resulting after NO
adsorption showed bands shifted by more than 300 cm^{-1} to the right and

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S/020/62/147/006/028/034
B144/B186

Infra-red spectra of nitrous oxide ...

to the left of the NO band, revealing the formation of other nitrogen oxides. This was verified by recording the IR spectra of N_2O and NO_2 adsorbed on a CaA zeolite. The bands at 2250, 1300 and all low-frequency bands belong undoubtedly to N_2O forming by the reaction:

$$2NO_{ads} \rightarrow N_2O_{ads} + O_{ads}.$$

Unlike the 1616 and 1322 cm^{-1} bands of gaseous NO_2, the IR spectrum of the adsorbed NO_2 shows bands at 1350 - 1490 cm^{-1} due to the formation of the NO_3^- group, and bands at 1940 and 2110 cm^{-1} resulting from a decomposition of the NO_2 molecule with formation of chemisorbed NO. This agrees with published data on the ionic form $NO^+(2100 - 2400$ $cm^{-1})$ and the coordination bond of NO with electrophilic centers (1940 cm^{-1}). Thus the presence of electrophilic and electron-acceptor centers can be assumed on the surface of these zeolites. There are 3 figures.

Card 2/3

Infra-red spectra of nitrous oxide ...   S/020/62/147/006/028/034
                                          B144/B186

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningrada-
              kogo gosudarstvennogo universiteta im. A. A. Zhdanova
              (Scientific Research Physics Institute of the Leningrad
              State University imeni A. A. Zhdanov)

SUBMITTED: July 30, 1962

Card 3/3

ALEKSEYEV, Aleksandr Vasil'yevich

[Methods of conducting theoretical and laboratory work
on the fundamentals of stockbreeding and feed production]
Metodika provedeniia teoreticheskikh i laboratorno-
prakticheskikh zaniatii po osnovam zhivotnovodstva i kormo-
proizvodstva. Moskva, Vysshaia shkola, 1964. 97 p.
(MIRA 18:5)

ALEKSEYEV, A.V.; BOROKHOVICH, Ya.P.; RAKITINA, Ye.D., red.;
            TIKHONOVA, Ye.M., red.

      [Calculating machines and their use in acounting] Schet-
      nye mashiny i ikh primenenie v uchete. Moskva, Izd-vo
      "Kolos," 1964. 326 p.   (MIRA 17:5)

ALEKSEYEV, A.V.; ZANEMONETS, V.F.

Determination of the efficiency of the steam-gas cycle of
a gas turbine system. Energ. i elektrotekh. prom. no.1:23-25
'62.   (MIRA 15:6)

1. Kiyevskiy politekhnicheskiy institut (for Alekseyev).
2. Institut ispol'zovaniya gaza AN USSR (for Zanemonets).
                    (Gas turbines)

ALABOVSKIY, A.N., kand.tekhn.nauk; ALEKSEYEV, A.V.; KONDAK, M.A., doktor
tekhn.nauk

Study of the front-end devices of sectionalized combustion chambers
of gas turbine systems. Energ. i elektrotekh. prom. no.2:26-29
Ap-Je '62.   (MIRA 15:6)

1. Kiyevskiy politekhnicheskiy institut.
                        (Gas turbines)

ALEKSEYEV, A.V.; STOLYAR, V.S.

Investigating a frontal device with preliminary mixing for the
combustion chamber of a GT-6-750 gas turbine assembly. Gaz.
prom. 7 no.2:27-30 '62.   (MIRA 17:6)

ALEKSEYEV, A.V., starshiy inzhener; DMITRIYEV, A.Ya., assistent

Coupling of coaxial resonators through small holes. Izv. LETI
no.52:57-73 '64.   (MIRA 18:9)

ALEKSEYEV, A.V.

Magnetothermic treatment of high-speed tool steel as a new method of improving quality of tools. A. V. Alek-seev.—*Vestnik Metalloprom.* 1937, No. 10-17, 118-28.—A magnetic field of 20,000 gausses was used. After exposing hardened or annealed tool steel in this field for a short period the curve of transformation of austenite into martensite, i. e., the curve obtained by plotting hardness against time has a wave-like appearance similar to the one obtained without the magnetic treatment, except that it has a smaller amplitude. Magnetic treatment increases resistance of the metal to corrosion. Alternating magnetic and thermal treatment increases somewhat the hardness of the metal. The following procedure is recommended: holding the object in the magnetic field and giving it one complete rotation during 1.5-2 min.; after 5-10 hrs. the object is kept in boiling H_2O for 60 min., then, while the object is still hot it is again given a complete rotation in the magnetic field during 1.5-2 min.; the steel object is immediately placed in boiling H_2O and kept there for 1 hr. — S. L. Madorsky.

METALLURGICAL LITERATURE CLASSIFICATION

ALEKSEYEV, A. V.

The cutting of hardened steels at high speeds. A. V. Alekseev. *Vestnik Metalloprom.* 19, 59-61 (Jan., 1939); *Chem. Zentr.* 1939, II, 514.—The cutting of quenched stainless steel contg. C 0.32, Si 0.59, Mn 0.0, Cr 17.07 and Ni 2.12% of varying hardness (200, 330, 375 and 415 Brinell) was investigated in relation to the lead (0.05-0.75 mm.) and the rate of cutting (14.5-240 m./min.). It was found that the rigidity of the cutting steel was reduced with increase in the speed of cutting. The stainless steel could not be machined at very high speeds. With increase in the hardness of the steel being machined the possibility of using a greater lead was reduced.

M. G. Moore

ALEKSEYEV, A.V.; POPILOV, L.Ya.; GUSEV, V.N., laureat Stalinskikh premiy, inzh., red.; SLONIMSKIY, V.I., kand. tekhn.nauk, red.; SOKOLOVA, L.V., tekhn. red.

[Electric hardening of tools] Elektrouprochnenie instrumenta. Moskva, Mashgiz, 1952. 67 p. (Bibliotechka elektrotekhnologa, no.9)   (MIRA 16:6)
        (Tool steel—Hardening)

ALEKSEYEV, A   V

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Elektrouprochnyaiye instrumenta (Electrical hardening equipment, by) A. V.
Alekseyev i L. Ya. Popilov. Moskva, Mashgiz, 1952.
67 p. illus., diagrs. (Bibliotechka elektrotekhnolo a, WP. 9)

ALEKSEYEV, A. V.

USSR/Metallurgy - Welding, Equipment   Dec 52

"Electric Riveting Heads With Impulse Feed,"
Docent B. S. Nikol'skiy, Cand Tech Sci; Engr
A. V. Alekseyev

Avtogen Delo, No 12, pp 14-16

Describes portable riveter, designed by authors
with following major characteristics: arc
excitation by automatic break of electrodes;
feeding electrode before welding by number of
impulses; interruption of welding due to natural
arc break over flux; supplying electrode feeding

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electromagnet through motor interrupter which
gives intermittent impulse current. Kinematic
diagram is presented and discussed.

ALEKSEYEV, A. V., and Nikol'skiy, B. S.

"An Electric Riveting Head with Impulse Feed" (Avto. Delo, 1952, 23, Dec., p. 14)

These three papers describe various aspects of an interesting new semi-automatic welding process, and are amply provided with drawings of the equipment and illustrations of electric rivets. The equipment and its method of use are reminiscent of stud-welding, but instead of special studs, ordinary steel welding wire is used. An arc is struck on the upper surface of two plates which have to be joined, under a blanket of granular flux in a retaining ring. The molten pool extends and deepens until it reaches the upper surface of the lower plate, and extends into this also. The arc is then extinguish-ed and the molten metal cools under the flux blanket, producing the "electric rivet," which resembles a spot weld with the fusion zone extending through to the outer upper surface. The "electric rivet" is thus a substitute for spot welding, applicable to heavy plate, and requiring no expensive machinery for applying pressure in addition to welding current.

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ALEKSEYEV, Aleksey Vasil'yevich; LYAMIN, Valentin Ivanovich; GOLUBEVA,
T.M., inzh., red.; FREGER, D.P., red. izd-va; BELOGUROVA, I.A.,
tekhn. red.

[Attachments to the TchPA-2 and TchPA-3 automatic saw-grinding
machines for electric contact hardening of sawteeth] Prisposoble-
niia dlia elektrokontaktnoi zakalki zub'ev pil k pilotochnym av-
tomatam TchPA-2, TchPA-3. Leningrad, 1961. 14 p. (Leningrad-
skii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom
Seriia: Derevoobrabatyvaiushchaia promyshlennost', no.4)
(MIRA 14:12)

(Steel--Hardening) (Grinding machines--Attachments)

ALEKSEYEV, A.V.

Distinctions between the larvae of Phaenops cyanea F. and Phaenops
guttulata Gebl. (Coleoptera, Buprestidae). Ent. oboz. 43 no.3:647-
650 '64.

(MIRA 17:10)

OVECHKIS, Ye.S., kandidat tekhnicheskikh nauk; ALEKSEYEV, A.V., inzhener.

Strandards of flexibility and wear-resistance for Russian leather.
Leg.prom. 15 no.12:17-20 D '55.
(MLRA 9:5)
(Leather--Standards)

SOV/124-57-7-8511

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 157 (USSR)

AUTHORS: Ovechkis, Ye. S., Alekseyev, A. V.

TITLE: The Tensile Strength of Top-grain Cow-hide Leather for Shoe Uppers Under Stretching and Elongation in Various Directions (Predel prochnosti pri rastyazhenii i udlinenii obuvnoy yalovoy yufti v raznykh napravleniyakh)

PERIODICAL: Nauch. issled. tr. Ukr. n.-i. in-ta kozh.-obuv. prom-sti, 1956, Nr 8, pp 109-118

ABSTRACT: Bibliographic entry

USCOMM-DC-60,890

Card 1/1

ALEKSEYEV, A.V.

ALEKSEYEV, A.V.

Method of evaluating the resistance of inner soles and counters.
Leg.prom. 17 no.7:35-37 Jl '57.   (MLRA 10:9)
                (Shoe industry)   (Leather--Testing)

KHRIPIN, A.G., inzh.; ALEKSEYEV, A.V., inzh.

Distribution characteristics of physical and mechanical indices for leather. Izv.vys.ucheb.zav.; tekh.leg.prom. no.4:29-35 '58.
(MIRA 11:12)

1. Ukrainskiy nauchno-issledovatel'skiy institut kozhevenno-obuvnoy promyshlennosti.
(Leather--Testing--Graphic methods)

ALEKSEYEV, A.V., inzh.

Investigating the strength of glued seams for footwear uppers.
Izv. vys. ucheb. zav.; tekh. leg. prom. no.4:62-68 '59.
(MIRA 13:2)

1.Kiyevskiy ekstraktovo-lesoobrabatyvayushchiy kombinat.
(Shoe manufacture)

ALEKSEYEV, A.V., glavnyy inzhener

Introducing conveyers on the assembly lines manufacturing wedge-type heels. Kozh.-obuv.prom. no.6:35 Je '59. (MIRA 12:9)

1. Kiyevskiy ekstraktovo-lesoobrabatyvayushchiy kombinat.
   (Shoe machinery) (Conveying machinery)

ALEKSEYEV, A.V., inzh.

Investigating the strength of glued seams in shoe uppers.   Izv.
vys.uchob.zav.; tekh.leg.prom.   no.6:77-82   '59.
(MIRA 13:5)

1. Kiyevskiy ekstraktovo-lesoobrabatyvayushchiy kombinat.
        (Gluing) (Shoe manufacture)

ALEKSEYEV, A.V., inzh.; DUBINSKIY, Ye.A., inzh.

Expedient distribution of holes in shoe lasts. Kozh.-obuv.prom. 5 no.3:
28-29 Mr '63.   (MIRA 16:3)
                        (Boots and shoes)

ALEKSEYEV, Aleksey Vasil'yevich; MELEKHIN, Leonid Fedorovich;
BUNIMOVICH, L.D., red.

[Optimal conditions and cutting tools for working bent and
glued parts] Optimal'nye rezhimy i rezhushchii instrument pri
obrabotke gnuto-kleenykh detalei. Leningrad, 1964. 22 p.
(MIRA 18:2)

SOV/137-57-1-1101

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 142 (USSR)

AUTHOR: Alekseyev, A. V.

TITLE: On Certain Methods of Increasing the Wear Resistance of Wood-
            working Tools (O nekotorykh sposobakh povysheniya iznosostoy-
            kosti derevoobrabatyvayushchego instrumenta)

PERIODICAL: V sb.: Novoye v tekhnike ekspluatatsii derevorezhushchego
              instrumenta. Moscow-Leningrad, Goslesbumizdat, 1956, pp 155-177

ABSTRACT: The following methods of hardening are recommended for the pur-
          pose of increasing the wear resistance of woodworking tools:
          Electric-spark hardening, electric-arc hardening, which produces
          a surface layer characterized by a better finish, and electric con-
          tact hardening employed wherever it is necessary to harden individ-
          ual sections of a tool. Electrochemical polishing produces a good
          surface finish which affords a significant reduction of friction forces
          during cutting. Electropolishing of tools is favorably reflected by
          the surface quality of the components being worked. The employment
          of hard alloys of the grades T15K6, T30K4, 85KhF, ShKh15, and

Card 1/2   other alloys of the W-Co group is advisable for a number of tools

SOV/137-57-1-1101

On Certain Methods of Increasing the Wear Resistance of Wood-working Tools

(primarily milling cutters and disk saws). Diagrams of the equipment and attachments are given, and the technology of the processes indicated is described.

M. Ch.

Card 2/2

ALEKSEYEV, A. V. Cand Tech Sci -- (diss) "Study of the Wear and Dulling of Planing Knives and the Methods of ~~IMPROVING~~ Improving Their Resistance to Wear." Len, 1957. 20 pp with diagrams, 21 cm. (Min of Higher Education USSR, Len Order of Lenin Forestry Engineering Academy im S. M. Kirov), 100 copies (KL, 28-57, 110)

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ALEKSEYEV, A.V., inzhener.

Increasing the wear resistance of planer cutter heads. Der.prom. 6 no.7:13-16 Jl '57.   (MIRA 10:8)

1.Leningradskaya lesotekhnicheskaya akademiya imeni S. M. Kirova. (Planing machines) (Hard facing)

ALEKSEYEV, A.V.

ALEKSEYEV, A.V., inzh.

Tool eroding effect of electric phenomena occurring in the cutting
of wood. Der.prom. 6 no.8:15-16 Ag '57.   (MIRA 10:11)

1. Leningradskaya lesotekhnicheskaya akademiya im. S.M.Kirova.
   (Woodworking machinery)   (Corrosion and anticorrosives)

GRUBE, A.E., doktor tekhn.nauk; ALEKSEYEV, A.V., kand.tekhn.nauk

Specific cutting work in the cutting of particle boards. Der.prom.
10 no.2:7-8 F '61.   (MIRA 14:3)

1. Leningradskaya lesotekhnicheskaya akademiya im. S.M.Kirova.
        (Hardboard)   (Woodworking machinery)