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with the problem of the similarity ratio for a wide
range of non-relativistic electron-vacuum devices.
At the section "Electrodynamics of Super-High Fre-
quencies" more than 30 reports were heard on current
problems of investigating theoretically and experiment-
ally shf systems. Theory, calculation and experimental
investigation of delay systems were the topics of the
following reports: G.I. Gladyshev (Kiyev) - "Diaphragm
Waveguides With Additional Coupling Elements"; Z.I.
Taranenko (Kiyev) - "A Wave-Shaped Waveguide as a De-
lay System With Positive Dispersion"; V.D. Ivanov, V.
S. Mikhalevskiy (Rostov) - "A Spiral-Type Delay System
in the Presence of Plasma"; V.A. Slyusarskiy (Khar'-
kov) - "Some Calculation Methods for Delay Systems of
the Type Spiral - Finned Structure"; N.M. Chirkin
(Taganrog) - "A Coaxial Waveguide With a Spiral Slot
in the Internal Conductor" and "The Theory of Delay
Systems"; B.M. Bulgakov (Khar'kov) - "The Influece of
Card 8/27   Properties of a Magnetodielectric on the Propagation

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of Electromagnetic Waves in a Dealy System of the
Type Spiral - Magnetodielectric"; and a number of
other reports. A series of papers was devoted to
theoretical and experimental problems connected with
the application of shf transmission lines: A.G. Sav-
chenko (Moscow) - "Irregular Waveguides"; V.S. Il'in
(Saratov) - "The Variation Method of Calculating Four-
Pole Heterogeneities in Rectangular Waveguides"; V.
V. Tyazhelov (Moscow) - "The Approximated Calculation
of the Heterogeneity Influence on Single-Wire Trans-
mission Lines"; V.M. Sedykh (Khar'kov) - "The Attenua-
tion in H-Shaped Waveguides"; V.M. Sedykh, A.M. Zorkin
- "The Attenuation in Cross-Shaped Waveguides"; and
other reports. Problems of theory and application of
shf resonator systems were considered in the following
papers: B.P. Petrov (Taganrog) - "The Problem of Spa-
tial Obertones in Resonators. Stray Resonance"; A.
I. Tereshchenko, V.A. Korotkin (Khar'kov) "The Possibi-
Card 9/27   lity of Improving Magnetron System Parameters"; A.S.

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Bondarev (Kiyev) - "Deformation of an Electromagnetic
Field in Resonators with Non-Ideal Walls"; A.I.
Tereshchenko (Khar'kov) - "The Dependence of Magnetron
Resonator System Properties on the Resonator Shape";
and other papers. Problems dealing with shf measure-
ments were investigated in the reports of: K.P. Yat-
suk (Khar'kov) -"The Utilization of Slow Surface
Waves for Measuring the Specific Inductive Capacitance
of Materials at Super-High Frequencies"; R.N. Bondar-
enko, Ye.D. Mayboroda, V.I. Strikha (Kiyev) - "The De-
tector Input Impedance Measurements by the Method of
shf Load Characteristics"; M.M. Rayner, I.D. Khmel'-
kov - "A Method of Measuring the Q-Factor"; and others.
Some problems of shf engineering were contained in the
reports of: G.A. Orlovskiy (Kiyev) - "The Possibility
of Utilizing Heterogeneous Lines as Oscillatory Systems
of shf Generators"; V.P. Sazonov (Moscow) - "Wide-
Band Matching of Coaxial Lines With a Spiral"; Ya.
Card 10/27   M. Turover (Moscow) - "Matching of Coaxial Lines With

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Rectangluar Waveguides in the Presence of a Conical
Antenna"; and others. In the section "Quantum Radio
Engineering and Radio Spectroscopy" 18 reports were
heard. The report of V.A. Gaponov (Gor'kiy) titled
"Impact Electromagnetic Waves on Ferrites", was heard
with great interest. The report of L.L. Myasnikov
(Gor'kiy) dealt with "The Quantum Magnetic Acoustic
Effect". The author considered the nuclear magnetic
resonance and the electric paramagnetic resonance with
ultrasound excitation of a crystal lattice. V.M.
Fayn (Gor'kiy) reported on "The Theory of a Coherent
Spontaneous Radiation", considering some problems of
this theory in the radio range and showed that the
interaction thru the common radiation field leads to
a shift of the own frequencies of the system. The
future application of the phenomena in ferrites for
amplification and generation of shf oscillations were
discussed in the reports of V.P. Tychinskiy (Moscow),
Card 11/27   I.A. Deryugin and M.A. Sigala (Kiyev). Yu.S. Konstan-

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tinov (Moscow) reported on "An Apparatus for Measuring
Chemical Shifts of Nuclear Magnetic Resonance". Ya.
M. Shamfarov (Khar'kov) explained the results of the
work "A Highly Sensitive Paramagnetic Radio Spectro-
meter for the Frequency of 900 megacycles", in which
frequency stabilization of the signal klystron by the
measuring resonator and also automatic frequency con-
trol of the local heterodyne were used. The paper of
G.L. Suchkin (Gor'kiy), titled "The Theory of the Para-
metric Mixer With Magnetic Semiconductors" contained
an analysis of a resonance and non-resonance parametric
mixer built with ferrites. The report of I.A. Kalya-
dina, V.P. Laguzov, G.I. Rukman, Ya.A. Yukhvidin (Mos-
cow) dealt with "A Modern Atom Ray Device for shf
Stabilization". The report contained information on
the construction, principle of functioning and tech-
nical application of atom ray frequency standards.
At the section "Propagation of Radio Waves and Radio
Card 12/27   Astronomy" 16 reports were heard. A great number of

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them was devoted to problems of radiation and propaga-
tion of radio waves in plasma and, partially, in the
ionosphere. In the paper of G.G. Getmantsev (Gor'kiy)
titled "The Non-Thermal Cosmic Radio Radiation", the
author explained radio radiation by a plane component
on the principle of magnetic retardation radio radia-
tion of relativistic (cosmic) electrons. The report
of V.V. Zheleznyakov dealt with "The Magnetic Retarda-
tion Radiation and the Resonance Absorption in Plasma".
The author considered the connection of resonance ab-
sorption of ordinary and extraordinary electromagnetic
waves at frequencies close to the multiple of the gyro
frequency with magnetic retardation radiation of plas-
ma electrons. He also discussed the problem of the
radiation intensity of electron flows moving in a
magnetic field. The paper of V.D. Gusev, S.F. Mirkotin
tin, L.A. Drachev, Yu.V. Yuyerezin, M.P. Kiyanovskiy
(Moscow) dealt with "The Results of an Investigation
of the Parameters of the Irregular Ionosphere by the

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Phase Method". Large heterogeneities and their motion
in the ionosphere were investigated by the method of
recording changes of the phase path of a signal re-
flected by the ionosphere. The second paper of the
aforementioned authors dealt with "A Method of Cor-
relation Processing of Fluctuations in the Presence
of Slowly Changing Non-Stationary Components". Inter-
esting results concerning the radio location of the
moon were stated by M.M. Kobrin (Gor'kiy). The report
of B.S. Shapiro, titled "An Investigation of the Ion-
ization Distribution in the Altitude of the Ionosphere
by Means of Vertical Radio Sonding", dealt with a me-
thos suggested by the author for determining the geo-
metric parameters of ionosphere layers by ionosphere
data tables. B.A. Benediktov, N.A. Mityakov (Gor'kiy)
considered "The Calculation of the Influence of the
Earth's Magnetic Field on Radiation". The report of
A.A. Semenov, G.A. Karpeyev (Moscow) dealt with "The
Card 14/27   Connection Between the Frequency Fluctuations of the

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Field Amplitude and the Drift Speed of Heterogeneities".
Du Len-Yao, A.N. Malakhov, V.M. Plechkov, V.A. Razin,
V.A. Rakhlin, K.S. Stankevich, K.M. Strezhneva, Tan
Shou-Pe, V.S. Troitskiy, V.V. Khrulev, N.M. Tseytlin
(Gor'kiy) reported on "The Observation of the Circular
Sun Eclipse on April 18, 1958, on 1.63, 3.2 and 10 cm
Waves". They explained the construction of sun simula-
tors on the principle of intensity measurements of the
solar radio radiation during the eclipse. The reports
titled "The Radio Electronic Part of Solar Magneto-
graphs NIZMIR" by I.D. Gits, E.I. Mogilevskiy, B.A.
Ioshp, and "Electrical Light Modulators of Solar Mag-
netographs NIZMIR" by I.A. Zhulin, were devoted to the
electronics of solar magnetographs. V.Ye. Kashparov-
skiy considered "A New Method of Measuring the Conduct-
ivity of Soil in Regard to Wave Attenuation and the
Results of Comparing the Measurements With Known Me-
thods". Ya.I. Likhter, G.I. Terin reported on "The
Card 15/27   Static Properties of Atmospheric Radio Noise Field

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Intensity". B.N. Gershman (Gor'kiy) delivered the re-
port "The Theory of Low Frequency Wave Propagation in
a Magnetic-Active Plasma". At the section "General
Radio Engineering" 11 reports were heard resulting in
a discussion showing the great interest of the confer-
ence participants in the problems presented in the
reports. V.A. Koval'chuk (Kiyev) reported on "The Fre-
quency Division in Two-Circuit Self-Oscillators". In
connection with obtaining highly stabilized shf oscil-
lations, the author suggests a method for producing
oscillations of the same stability in other radio fre-
quency ranges. V.A. Malyshev (Taganrog) reported on
"The Solution of Problems of the Theory of Self-Oscil-
lators With One Nonlinear Element". In the report of
V.P. Kovalev (Moscow), titled "The Determination of
the Modulus and the Phase of Electrical Field Strength
at Super-High Frequencies by Means of Simultaneous
Time Field Components Measurements", a method is sug-
Card 16/27   gested which is different from the known method of

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simultaneous automatic measurements of time field components. The author also presents a model laboratory device for this purpose. Ye.A. Domanova (Khar'kov) reported on "An Investigation of an Attenuator Based on the Effect of Current Carrier Concentration Changes in a Thin Semiconductor, Located in a Magnetic Field With Electrical Current Passing Thru It". The report of M.M. Gratsianskaya(Moscow), titled "The Visibility of Signals on the Screen of an Electron Ray Tube", was devoted to an investigation of the operational characteristics of electron ray tube screens. A.A. Tyutin (Kiyev) reported on "Elements of a Television Computer for Obtaining Layer and Volume Roentgenograms". He considered one of the possible applications of a new X-ray engineering method suggested in 1956/1957 by the Corresponding Member of the UkrSSR AS, S.I. Tetel'baum. A.A. Bessonov (Leningrad) delivered the report on "The Reliability of Radio Electronic Devices". It was the only report at the

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conference dealing with investigations of the elec-
tronic equipment reliability. The paper of V.P.
Lyannoy (Kiyev), titled "The Investigation of Inte-
grator Errors for Performing the Optimum Amplitude-
Phase Modulation and Their Correction", dealt with an
investigation of integrator errors on behalf of finite
integration limits. The correction method suggested
provides the possibility for obtaining the required
functional conversions for performing the optimum
amplitude-phase modulation. The conference partici-
pants regarded the optimum amplitude-phase modulation
as a new method providing a considerable improvement
in increasing the effectiveness of broadcasting.
The paper of A.G. Kislyakov (Gor'kiy), titled "The
Sensitivity of Measurements of Weak Signals With a
Narrow Spectrum", contained the results of an invest-
igation of different types of receivers for weak sign-
als with narrow spectrums. The section terminated
Card 18/27   its work with the report of I.A. Fastovskiy (Lenin-

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grad), titled "A Device for Radio Noise Analysis".
At the section "Semiconductors and Their Application
in Radio Equipment" 17 papers and reports were read.
A number of papers dealt with the physical properties
of semiconductors. The paper of V.Ye. Lashkarev, R.
M. Bondarenko, V.N. Dobrovol'skiy, V.G. Litovchenko,
G.P. Zubrin, V.I. Strikra (Kiyev) dealt with "Elec-
trical and Recombination Properties of Germanium With
Beryllium Admixtures" in a wide range of concentrations.
V.N. Vertoprakhova (Tomsk), "The Anisotropy of Some
Germanium Monocrystal Properties" showed that the
photomagnetic effects in germanium monocrystals depend
essentially on the state of the specimen surface.
A.P. Vyatkin (Tomsk) reported on "An Investigation of
Germanium Contact Properties With Metals and Alloys".
The author studied the process of producing and shap-
ing an alloy contact between germanium and indium in
dependence on the crystallographic orientation of
germanium surfaces and other factors. "The Investiga-

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tion of the Temperature Dependence of Germanium Noises"
was the subject of the report of V.V. Potemkin and G.
A. Chukira (Moscow) in which they investigated the ex-
cessive noise appearing at low frequencies and which
presents difficulties in the amplification of weak
signals. V.A. Malyshev (Taganrog) reported on "The
Theory of Modulation Properties of Photoresistors and
Luminophores". He explained the results of theoretical
plotting a generalized modulation characteristic in
case of the most simple luminescense photoconductivity
mechanisms. The paper of N.S. Spiridonov (Kiyev) dealt
with "Frequency Properties of Drift Transistors". N.
V. Aleksandrov, L.B. Gorskaya, Ye.M. Gershcnzon, V.
S. Etkin (Moscow) investigated "The Influence of a
Germanium Plate on the Wave Propagation in a Waveguide",
They showed that a current passing thru a germanium
plate in a waveguide may be used for controlling the
amplitude and phase of an electromagnetic wave. The
Card 20/27   other reports in this section were devoted to different

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        applications of semiconductors in radio equipment.
        Ye.F. Doronkin (Kiyev) explained "The Calculation of
        Temperature Compensated Circuits of Semiconductor
        Relaxation Generators". "An Analysis of Phantastron-
        Type Semiconductor Generators of Linearily Changing
        Voltages" was considered by B.V. Voskresenskiy (Kiyev).
        A.N. Yakun'kin (Saratov) reported on "The Problem of
        the Oscillation Excitation Mechanism of a High Fre-
        quency Generator With a Point-Contact Semiconductor".
        S.M. Gerasimov (Kiyev) described the results of "An
        Investigation of Self-Oscillators With Compound
        Transistors". I.N. Migulin (Kiyev) reported on "An
        Investigation of Some Semiconductor Amplifier Cir-
        cuits". S.I. Malashenko (Kiyev) reported on methods
        for increasing the stability of a transistorized dc
        amplifier. G.I. Olifirenko (Moscow), "Transistors in
        a Line Scanning Oscillator", presented the results of
        an theoretical and experimental investigation. B.P.
Card 21/27   Bespalov (Kiyev) performed "An Investigation of Some

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Frequency Stabilization Methods in Semiconductor Self-
Oscillators". The section terminated its work with
the report of Ye.K. Vasil'yev (Moscow), "Phenomena of
Contact Transitions in Transistors and Some of Their
Applications". At the final plenary session on Janu-
ary 27, 1959, Corresponding Member of the AN USSR,
V.I. Siforov delivered the report "Problems of Communic-
ation Channels With Parameters Changing at Random".
I.A. Kukurite, G.I. Rukman, O.Ya. Savchenko, M.K.
Safonov, G.M. Khaplanov (Moscow) presented the review
"The Future Application of Some Optical Radio Physi-
cal Phenomena for Designing New SHF Devices". The au-
thors considered the possible application of optical
physical devices using the low-inertia Faraday, Kerr
and other effects, in which alternating fields influ-
ence the optical properties of matter. The conference
participants approved a number of resolutions concern-
ing the direction of further research work. Inter-
Card 22/27   departmental and specialized conferences on radio phy-

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sics and electronis must be convened. The material
bases of vuzes must be increased in connection with
the introduction of industrial training of students.
The investigations of the optics of charged beams,
plasma and gas discharge must be expanded. The intro-
duction of new radio wave ranges must be emphasized,
as well as the development of new calculation methods
for the design of high-power shf equipment and the
development of shf radio measuring methods. In con-
nection with the development of accurate electrody-
namic calculation methods for shf systems, it is neces-
sary to develop on this basis simplified engineering
calculation methods and to compile their results in
tables, graphs and nomograms. The theoretical and
experimental investigation under consideration of
nonlinear phenomena must be performed on new methods
of amplifying and generating super-high frequencies
on the basic of phasochronous interaction of fast and
Card 23/27   spatial harmonics of electronic beams with fields of

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          parametric interaction. The effectiveness of existing
          devices must be increased. The development of low-
          noise parametric devices and high-power generators for
          communications and other purposes must be speeded up.
          The extent of investigations in the field of radio
          astronomy and propagation of radio waves is inadequate
          and insufficiently coordinated between the vuzes. The
          number of investigation subjects is growing at a too
          slow rate. These conditions are especially noticeable
          when comparing the conference program section of the
          present and the second conference at Saratov. Vuzes
          do not work actively enough in the field of quantum
          radio physics and radio spectroscopy. The conference
          participants agreed that the work in this field at
          vuzes must be continued and requested the MVO SSSR and
          the MVO UkrSSR to cooperate in a commission on ferro-
          magnetics (K.M. Polivanov) and ferrites (A.A. Pistol'-
          kors) and to include the work performed at vuzes in
Card 24/27   the general plan of the AS USSR and the Gosudarstvennyy

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Komitet po radioelektronike (State Committee for Radio
Electronics). The latter and the MVO SSSR and MVO
UkrSSR were requested to cooperate with the vuzes in
the field of quantum radio physics and radio spectro-
scopy. The importance of the investigations of prob-
lems of the interaction of ultrasound with spin waves
effected by the action of ultrasound on ferrites was
emphasized. In the field of general radio engineering
a coordination of the work on the optimum amplitude-
phase modulation is required. The Ministerstvo svyazi
USSR (Ukr Ministry of Communications) was requested to
convert one of the existing radio stations to the op-
timum amplitude-phase modulation for gathering practi-
cal experience for an overall introduction of this
modulation system. In the field of semiconductor
devices and their application it is necessary to deve-
lop the theory of amplification and generation of
oscillations in the latest types of semiconductor de-
Card 25/27   vices. The development of new devices must be intensi-

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fied. The State Committee for Radio Electronics at
the USSR Council of Ministers was requested to pro-
vide further technological improvements of semicon-
ductor devices with a minimum parameter spread. The
conference participants requested the MVO SSSR and the
MVO UkrSSR, to organize courses of radio equipment
reliability at radio engineering faculties not later
than 1959/1960. A number of spacialists must prepare
training aids for the theory of reliability within the
shortest time. Also diploma projects of graduating
students should include theoretical and practical
problems of radio equipment reliability. It is plan-
ned to conduct the Fourth All-Union Conference of the
MVO on Radio Physics at the Khar'kovskiy gosudarstven-
nyy universitet (Khar'kov State University) in Novem-
ber 1960 with sections Radio Measurements, Electro-
dynamics and Electronics of Super-High Frequencies

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The Third All-Union Conference on Radio Electronics of the MVO
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and Reliability of Radio Equipment.

SUBMITTED: February 10, 1959

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S/142/60/000/01/004/022
E140/E463

6,4000

AUTHOR: Lyannoy, V.P.

TITLE: A Study of Integrator Error in the Optimal Amplitude-
            Phase Modulation System and Methods of Correcting It

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika,
            1960, Nr 1, pp 40-48 (USSR)

ABSTRACT: This paper was presented at the Third All-Union
            Conference of the USSR Ministry of Defence on Radio
            Electronics, Kiyev, 1959 *

            The optimal amplitude-phase modulation system described
            in the article is identical with single-sideband systems
            using broadband phase shifters for cancellation of one
            sideband. It is claimed that the system was proposed by
            Tetel'baum in 1938 but no reference is given. The
            article analyses a circuit in which the necessary phase
            shift of $\pi/2$ over the entire modulation spectrum is
            realized by an integrator. Error occurs as a result of
            finite integration limits and discrete summation. Analysis
            shows that these errors influence the amplitude but not
            the phase characteristic of the integrator. The error

Card 1/2   due to finite limits of integration is most strongly

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E140/E463

A Study of Integrator Error in the Optimal Amplitude-Phase
Modulation System and Methods of Correcting It

     expressed at low frequencies. The error due to
     discrete summation is most strongly expressed at high
     frequencies. These errors lead to incomplete
     suppression of the unwanted sideband and non-linear
     distortion of the program. A correction voltage may be
     obtained using supplementary integrators at the input
     and output of the principal delay-line integrator. A
     numerical example indicates that with this correction,
     the amplitude characteristic of the integrator is
     practically independent of frequency from 250 cps.
     This can, of course, be further improved by extending
     the limits of integration. There are 2 figures and
     4 Soviet references.

SUBMITTED: May 20, 1959

※[Annotation: Correctly Third All-Union Conference on Radio Electronics, Kiyev,
       of the Ministry of Higher Education (MVO)]

Card 2/2

82969

6,4000

AUTHOR: Lyannoy, V.P.

TITLE: A Wideband Phase Shifter with an Artificial Delay Line
         for the System of Optimum Amplitude-phase Modulation?

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
         Radiotekhnika, 1960, Vol. 3, No. 2, pp 247 - 253

TEXT: The theory of optimum amplitude-phase modulation shows
that the conditions of optimum modulation are achieved when the
phase of the high-frequency oscillations is varied in accordance
with (Ref. 1):

$$\Theta(t) = -\frac{1}{\pi} p \int_{-\infty}^{\infty} \frac{\ln U(t + x)}{x}\, dx \qquad (1) \ .$$

A system for a continuous evaluation of the functional $\Theta(t)$
is referred to as an integrator and was first prepared by
Tetel'baum (Ref. 2). In the following an attempt is made to
realise a practical circuit of this type. The integrator is
in the form of a wideband phase-shifter which shifts the phases
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A Wideband Phase Shifter with an Artificial Delay Line for
the System of Optimum Amplitude-phase Modulation

of the harmonic components of the logarithm of the modulating
voltage by $\pi/2$.   Such a phase-shifter should meet the
following conditions: ' :   it is necessary to operate with a
standing wave over a required frequency bandwidth, and all
the frequencies should be delayed by an identical amount, i.e.
the phase characteristic should be linear.   The circuit diagram
of the phase-shifter is shown in Fig; 1.   This system can be
regarded as a uniform multi-element network.   This device should
have a constant attenuation across all the elements;   this
condition is expressed by Eq. (2), where R_y is the leakage
resistance of a capacitor;   the significance of the other symbols
in Eq. (2) should be clear from Fig. 1.   The network can be
employed not only in the optimum amplitude-phase modulation but
in other systems where a constant phase-shift of $\pi/2$ is
required.   The main parameters which determine the elements of
the network are the minimum and maximum operating frequencies,
F_{min} and F_{max} .   The upper frequency determines the delay time;
this is given by $\Delta t = 1/2\pi/F_{max}$.   The number of the stages

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A Wideband Phase Shifter with an Artificial Delay Line for the System of Optimum Amplitude-phase Modulation

$2n$ in the network is determined by F_{min} since
$F_{min} = 1/8n\Delta t$. The resistance R_{n+1} is determined by the attenuation coefficient γ as well as R_o ; this is expressed by Eq. (5), where r is the "adding" resistor. The above formulae are employed to evaluate a phase-shifter operating at frequencies between 200 and 12 000 cps. The characteristics of this device are illustrated in Fig. 2, where Curve (a) illustrates the amplitude response of the shifter without a correcting circuit, Curve (a') is a corresponding calculated characteristic, Curve (б) is the amplitude characteristic of the shifter with a correcting network consisting of a differentiating circuit and an integrating circuit, and Curve (б') is the corresponding calculated characteristic. It is seen, therefore, that the calculated results are in good agreement with the experimental data.

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A Wideband Phase Shifter with an Artificial Delay Line for
the System of Optimum Amplitude-phase Modulation

There are 2 figures and 5 Soviet references.

ASSOCIATION: Kafedra radioperedayushchikh ustroystv
               Kiyevskogo ordena Lenina politekhnicheskogo
               instituta (Chair of Radio Transmission Devices of
               the Order of Lenin Kiyev Polytechnical Institute)

SUBMITTED: July 16, 1959

Card 4/4

9,3274

24228
S/142/61/004/001/007/008
E033/E135

AUTHOR: Lyannoy, V.P.

TITLE: The possibilities of utilization of simultaneous
             amplitude and phase modulation methods in high-
             frequency radio broadcasting

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
             Radiotekhnika, 1961, Vol.4, No.1, pp. 84-93

TEXT: To obtain the advantages of single-sideband working
with existing AM receivers, several methods of compatible
amplitude-phase modulation (AFM) systems have been proposed and
investigated. In the general case, the variation of current in the
transmitting antenna with AFM can be written:

$$i = I(t) \sin \left[\omega_0 t + F(t) \right] \tag{1}$$

where $I(t)$ and $F(t)$ are functions determined by the time
function $U(t)$ of the transmitted programme; ω_0 is the carrier
frequency. In general, the modulating function $U(t)$ can be
expressed by the Fourier integral

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The possibilities of utilization of....

$$U(t) = U_0 + \int_{\Omega_{min}}^{\Omega_{max}} U(\Omega) \sin\left[\Omega t + \varphi(\Omega)\right] d\Omega \quad (\Omega_{max} \ll \omega_0)$$

Following the work of Tetel'baum, the optimum manner of modulation to give minimum receiver bandwidth was shown to be simultaneous amplitude-phase modulation and the functions $I(t)$ and $F(t)$ for this condition were determined. The solutions for optimum amplitude-phase modulation (OAPM) are:
1) for OAPM with square-law detection

$$I(t) = a_1 \sqrt{U(t)}; \quad U(t) \geqslant \varepsilon > 0; \quad F(t) = \theta(t)_{nn} =$$

$$= -\frac{1}{\pi} P \int_{-\infty}^{\infty} \frac{\ln\sqrt{U(t+x)}}{x} dx = -\frac{1}{2\pi} P \int_{-\infty}^{\infty} \frac{\ln U(t+x)}{x} dx$$

(the theoretical width of the antenna current spectrum equals Ω_{max})

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The possibilities of utilization of... S/142/61/004/001/007/008
E033/E135

2) for OAPM with linear-law detection

$$I(t) = a_2 U(t); \quad U(t) \geqslant \varepsilon > 0; \quad F(t) = \theta(t)_{\text{ант}} =$$

$$= -\frac{1}{\pi} p \int_{-\infty}^{\infty} \frac{\ln U(t+x)}{x} dx;$$

(the theoretical width of the antenna current spectrum equals
2 Ω_{max}), where: a1, a2 are constants; ε is as small a positive
value as is required; x is a variable independent of time;
p denotes the principle value of the integral. The block diagrams
for the two OAPM systems are produced. The particular features and
possibilities of OAPM are considered with reference to a pure "tone".
It is concluded that: 1) with square-law detection, OAPM enables
the transmitter bandwidth (with 100% modulation) to be halved;
2) the modulated spectrum differs fundamentally from that of
single-side band working in that it can be received without
distortion by square-law detection AM receivers; 3) OAFM for
square-law detection is not compatible with receivers using linear
detection; 4) OAPM for linear detection is compatible with both
transmitting and receiving equipment in present day use;
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The possibilities of utilization of....   S/142/61/004/001/007/008
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5) the reduction in the spectrum under operational conditions is
ensured by the following factors - (a) the displacement of the
spectrum into one sideband,   (b) non-linear change in the
amplitudes of the spectral components when the modulation depth
changes, and (c) the statistical properties of an actual programme.
The compatible single-sideband systems proposed by L.R. Kahn and
others in the U.S.A. are critically examined.
There are 7 figures and 26 references: 14 Soviet-bloc and 12
English. The four most recent English language references read:
Ref.16: L.R. Kahn. Improved compatible single-sideband equipment
     for standard broadcast service. IRE Nat. Convent., Rec. 1958,
     6, No. 7, 55-60.
Ref.17: J.R. Costas. A mathematical analysis of the Kahn compatible
     single-sideband system. Proc. IRE, No.7, July, 1958.
Ref.19: L.R. Kahn. Comment on "A mathematical analysis of the Kahn
     compatible single-sideband system". Proc. IRE, No.7, July
     1958.
Ref.20: Frank Marx and Robert M. Morris (American Broadcasting Co.)
     WABC Field Test of compatible single sideband transmission.
     IRE Nat. Convent. Rec., 1958, 6, No.7, 55-60.

Card 4/5

24228

The possibilities of utilization of...S/142/61/004/001/007/008
E033/E135

ASSOCIATION: Kafedra radioperedayushchikh ustroystv
Kiyevskogo ordena Lenina politekhnicheskogo instituta
(Department of Radio Transmitting Equipment of the
Kiyev Order of Lenin Polytechnical Institute)

SUBMITTED: August 15, 1960

Card 5/5

ACC NR: AR7008647   SOURCE CODE: UR/0372/66/000/012/G006/G006

AUTHOR: Lyannoy, V. P.

TITLE: On the problem of nonlinear functional transformations in a system of optimum amplitude-phase modulation

SOURCE: Ref. zh. Kibernetika, Abs. 12G42

REF SOURCE: Vestn. Kiyevsk. politekhn. in-ta. Ser. radiotekhn. no. 2, 1965, 225-231

TOPIC TAGS: signal modulation, nonlinear automatic control, nonlinear functional operator , phase modulation, amplitude modulation

ABSTRACT: The author considers the requirements for characteristics of devices for finding logarithms in systems of optimum amplitude-phase modulation. It is shown that conventional devices for taking logarithms are not suitable for application in systems of optimum amplitude-phase modulation since the logarithm of the signal is given with respect to levels, while the logarithm of the input signal in optimum amplitude-phase modulation must be given with respect to the instantaneous values of the signal in the audio frequency range. Functional transformations in a phase-modulated AF channel are considered for the case of modulation by a "pure tone" and the static characteristics are found for a logarithmic device capable of implementing these transformations. The author studies the effect which deviations from ideal in the static characteristics of an actual logarithmic device have on errors in finding the logarithm of a signal with respect to the instantaneous value. 2 illustrations, bibliography of 7 titles. B. S. [Translation of abstract] .

SUB CODE: 09

UDC: 62-501.3

Card 1/1

L 24043-66   EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(j)/T/EWP(t)/EWP(k)/EWA(h)/ETC(m)-6

ACC NR: AP6011804   IJP(c)   JD/WW/HM/ SOURCE CODE: UR/0309/66/000/004/0030/0033
                                   EM/RM/JH

AUTHOR: L'yanov, B.   67

ORG: none   B

TITLE: Versatile glue-welded aircraft

SOURCE: Nauchno-tekhnicheskiye obshchestva SSSR, no. 4, 1966, 30-33

TOPIC TAGS: aircraft, aircraft material, aircraft test,
aircraft fuselage, resin, glue-welding, spot welding, aluminum alloy/AN-24 aircraft,
D16T aluminum alloy, V95T aluminum alloy, FL-4S adhesive, KLN-1 resin, VK-1MS resin

ABSTRACT: Discussed briefly are some of the problems which were encountered in the
riveting and welding of D16T and V95T high-strength aluminum aircraft alloys, and
which led to the development of the glue-welding technique used extensively in the
construction of AN-24 aircraft (fuselage -- 6% glue-welded). An 11-month compre-
hensive testing program is described and the successful use of FL-4S adhesive,
cured 7 hrs at 140°, is mentioned. The glue-welding technique is described in
general terms and the subsequent use of KLN-1 and VK-1MS epoxy-thiokol resins (poly-
merized at 145--150°C) is reported. Orig. art. has: 1 figure.   [LB]

SUB CODE: 01, 07, 13/ SUBM DATE: none/

Card 1/1

UVAROV, Yu.P.; PYANOVA, Kh.I.

Characteristics of the photosynthesis of two standard varieties of apple growing in the mountain and piedmont fruit zones of Alma-Ata Province. Trudy Inst.bot.AN Kazakh.SSR 20:103-111 '64.

(MIRA 18:3)

LYANSBERG, L.N., student III kursa; RUDENKO, N.F., prof., doktor tekhn.nauk

Designing the drive of a crosscut-boring machine. Nauch. rab. stud.
GNSO MGI no.7:50-60 1959.   (MIRA 14:5)
(Boring machinery—Electric driving)

LYANTSE,V.Ye., student III kursu

Theory of almost periodic functions of two real variables. Nauk.zap.
L'viv. un. no.5:68-73 '47.   (MIRA 8:11)
                (Functions, Periodic)

LYANTSE, V.E.

Cauchy problem for functions with real variables. Ukr.mat.zhur.
[1] no.4:42-63 '49.   (MLRA 7:10)
    (Functions of real variables)

LYANTSE, V.Ye.; HNYEDENKO, B.V., diysnyy chlen.

On differential equations in unitary space. Dop.AN UBSR no.4:258-262 '52.
(MLRA 6:10)

1. Akademiya nauk Ukrayins'koyi RSR (for Hnyedenko). 2. L'vivs'kyy politekh-
nichnyy instytut (for Lyantse).
(Spaces, Generalized) (Differential equations)

LYANTSE, V.E.

A new method of applying Fourier's integral to the solution of
problems with initial conditions for systems of partial differential
equations. Nauk.zap.L'viv.un. 22:40-49 '53.   (MLRA 10:5)
        (Fourier's series) (Differential equations, Partial)

LYANTSB, V.E. (L'vov)

One boundary value problem for parabolic systems of differential
equations with a strongly elliptic right side. Mat.sbor. 35 no.2:
357-368 S-O '54.   (MLRA 7:9)
        (Differential equations, Partial)

LYANTSE, V.E.

Letter to the editor. Mat. sbor. 39 no.4:525 Ag '56.

(MLRA 10:2)

(Differential equations, Partial)

AUTHOR: Lyantse, V.E.   SOV/20-121-5-9/50

TITLE: Rings of Linear Unbounded Operators With a Decomposition of the
             Unit and Their Representations (Kol'tsa lineynykh neogranichennykh
             operatorov s razlozheniyem yedinitsy i ikh predstavleniya)

ABSTRACT: It is proved that the set $\mathcal{O}l(P)$ of all linear operators of the
             Hilbert space $\mathcal{G}$ which commute in a certain sense with the
             decomposition of the unit P, forms a ring with respect to the
             naturally defined addition and multiplication of operators.
             The ring $\mathcal{O}l(P)$ is closed with respect to the introduced "uniform"
             and "strong" limiting processes. If the decomposition of the
             unit is of finite multiplicity, then every operator $A \in \mathcal{O}l(P)$
             is isomorphic to an operator which in the $L^2_{\mathfrak{G}}$ carries out the
             multiplication with a functional matrix. The $L^2_{\mathfrak{G}}$ is the space
             of vector functions being integrable in the square with respect
             to a distribution matrix $\mathfrak{G}$. Besides, spectral properties are
             considered. Partially the results generalize the results of
             Bade [Ref 2] and Dunford [Ref 1], partially they overlap with them.
             There are 4 references, 2 of which are Soviet, and 2 American.

Card 1/2

Rings of Linear Unbounded Operators With a Decomposition   SOV/20-121-5-9/50
of the Unity and Their Representations

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnical
               Institute)
PRESENTED: March 31, 1958, by S.L.Sobolev, Academician
SUBMITTED: February 18, 1958

Card 2/2

/6. 46ಲಿ

81695

S/020/60/132/05/14/069

AUTHOR: Lyantse, V. E.

TITLE: Conditions for the Closeness of the Contraction of a Self-adjoint Operator

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 5,
             pp. 1023-1026

TEXT: A self-adjoint operator with a simple spectrum is unitary equivalent to the operator Λ_σ which effects the multiplication with the independing variable in a space L_σ^2 , where σ is a non-negative measure defined on the real line;

$$L_\sigma^2 = \left\{ x : \int_{-\infty}^{\infty} |x(\lambda)|^2 d\sigma(\lambda) < \infty \right\}$$

$$\mathfrak{D}_{\Lambda_\sigma} = \left\{ x : x \in L_\sigma^2 , \int_{-\infty}^{\infty} |\lambda x(\lambda)|^2 d\sigma(\lambda) < \infty \right\} , (\Lambda_\sigma x)(\lambda) = \lambda x(\lambda).$$

Let M_σ be the set of all σ -measurable and σ -almost every finite complex-valued functions on the real line; $L_\sigma^2 \subset M_\sigma$. The operation $\perp$ makes correspond a linear manifold $U^\perp \subset L_\sigma^2$ to every subset

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81695

Conditions for the Closeness of the Contraction of a Self-adjoint Operator

$U \subset M_G$ as follows:

$$\mathcal{U}^{\perp} = \left\{ v : v \in L_G^2 \,,\; \int u(\lambda)\,\overline{v(\lambda)}\,d\sigma(\lambda) \right\}$$

exists and is = 0 for all $u \in U$.

Theorem 1: To every operator

$$A \subset \Lambda_G \,,\quad \overline{\mathcal{D}_A} = L_G^2 \,,\quad AA^* = A$$

there exists an $U \subset M_G$ so that

(1) $$\overline{\mathcal{D}_A} = \mathcal{D}_{\Lambda_G} \wedge \mathcal{U}^{\perp}$$

here U contains no functions from L_G^2 (except zero function), i. e.

(2) $$\int_{-\infty}^{\infty} |u(\lambda)|^2\, d\sigma(\lambda) = \infty \,,\quad u \neq 0 \,,\quad u \in \mathcal{U}$$

while for every $u \in U$ it holds

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S/020/60/132/05/14/069

Conditions for the Closeness of the Contraction of a Self-adjoint
Operator

$$(3) \quad \int_{-\infty}^{\infty} \frac{|u(\lambda)|^2}{1+\lambda^2} \, d\sigma(\lambda) < \infty$$

Whether for given A (1) uniquely determines the linear manifold
$U \subset M_\sigma$ remains unsolved, so that (2) and (3) are eventually not
necessary. Under certain additional assumptions the author proves in
theorem 2 and 3 that the conditions (2) and (3) are sufficient and ne-
cessary in a certain sense.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnical
Institute)

PRESENTED: January 21, 1960, by A. N. Kolmogorov, Academician

SUBMITTED: December 28, 1959

Card 3/3

LYANTSE, V.E.

Generalized concept of a spectral operator. Dokl. AN SSSR 142
no.2:278-281 Ja '62.   (MIRA 15:2)

1. L'vovskiy politekhnicheskiy institut. Predstavleno
akademikom A.N.Kolmogorovym.
                         (Operators(Mathematics))
                         (Topology)

LYANTSE, V.E. (L'vov)

Generalization of the concept of a spectral measure. Mat. sbor. 61
no.1:80-120. My '63.   (MIRA 16:5)
            (Operators (Mathematics)) (Hilbert space)

LYANTSE, V.E.

Expansion in eigenfunctions of a nonself-adjoint differential
operator with spectral singularities. Dokl. AN SSSR 149 no.2:
256-259 Mr '63.   (MIRA 16:3)

1. L'vovskiy politekhnicheskiy institut. Predstavleno akademikom
I.M.Vinogradovym.
                    (Operators (Mathematics)) (Eigenfunctions)

L 12658-63   EWT(d)/FCC(w)/BDS   AFFTC   IJP(C) $5 2$
ACCESSION NR: AP3002864   S/0020/63/150/005/0987/0990

AUTHOR: Lyantse, V. E.

TITLE: Inversion formulas originating from boundary-value problems
of the second kind in the class of unbounded functions

SOURCE: AN SSSR. Doklady*, v. 150, no. 5, 1963, 987-990

TOPIC TAGS: inversion formula, boundary-value problem, boundary-
value, function, unbounded function, Fourier representation

ABSTRACT: The work gives necessary and sufficient conditions
that the Fourier l_θ-representation in a class of unbounded functions
is zero, as well as several theorems on the inversion of these
representations. Orig. art. has: 21 equations.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov
Polytechnic Institute)

Card 1/2

LYANTSE, V.E.

Inversion formulae generated by a second-order boundary value
problem on the semiaxia in the class of unbounded functions. Dokl.
AN SSSR 150 no.5:987-990 Je '63.   (MIRA 16:8)

1. L'vovskiy politekhnicheskiy institut. Predstavleno akademikom
L.S.Pontryaginym.
                    (Topology) (Boundary value problems)

LYANTSE, V.E.; SOKOLOV, I.G.
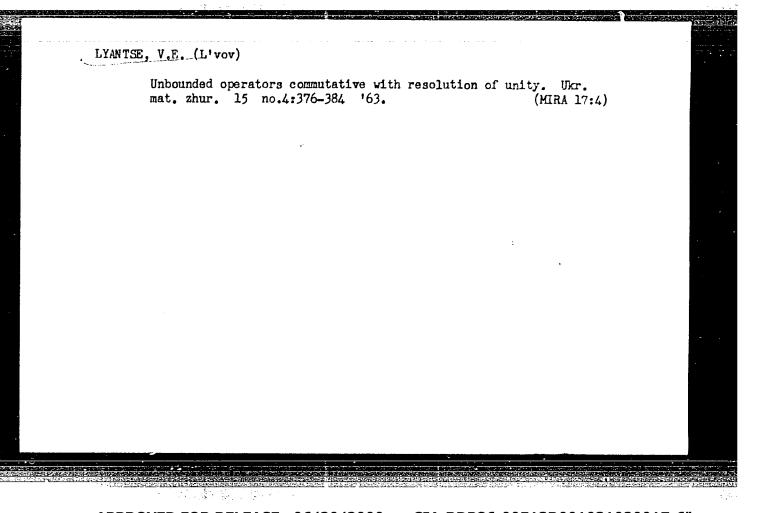
All-city mathematical seminary at Lvov. Usp. mat. nauk 18
no.3:253 My-Je '63.   (MIRA 16:10)

LYANTSE, V.E.

Solving certain boundary value problems by Fourier's method.
Dokl. AN SSSR 152 no.4:816-819 O '63.   (MIRA 16:11)

1. L'vovskiy politekhnicheskiy institut. Predstavleno akademikom
I.M. Vinogradovym.

LYANTSE, V.E. (L'vov)

Unbounded operators commutative with resolution of unity. Ukr.
mat. zhur. 15 no.4:376-384 '63.   (MIRA 17:4)

L 39440-65   EWT(d)/T   IJP(c)
ACCESSION NR: AP4047939   S/0020/64/158/005/1026/1029

AUTHORS: Lyantse, V.E.

TITLE: Extension of the Fourier L-transform to functions with
locally integrable square

SOURCE: AN SSSR. Doklady*, v. 158, no. 5, 1964, 1026-1029

TOPIC TAGS: Fourier L transform, complex analysis, complex continua-
tion, complex extension, Hilbert space, analytic extension, analytic continuation

ABSTRACT: Let L be the operator generated in the Hilbert space
$L^2(R^+)$, $R^+ = (0,\infty)$ by the differential expression $ly = -y'' + p(x)y$

and the boundary condition $y'(0) - \theta y(0) = 0$

$p(x)$ a complex-valued function, θ a complex number, and let L be a
nonselfadjoint operator. It is assumed that one or both of the
following two conditions are satisfied: a) there exists an $\varepsilon > 0$ such
that $p(x)$ exp (εx) is summable on R^+ and b) $p(x)$ is continuous on
R^+ and admits analytic extension to the region
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L 39440-65

ACCESSION NR: AP4047939 O

$$\{x: x = \rho \exp(i\varphi), \, \rho > \rho_0, \, |\varphi| < \varphi_0\}, \, \rho_0 > 0, \varphi_0 > 0,$$
$$O(|x|^{-\alpha}), \, \alpha > 3,$$

for $|x| \to \infty$. Now, let $\omega(x, \lambda)$ be a solution of the equation $ly = \lambda y$ that satisfies the initial condition

Set

$$\omega(0, \lambda) = 1, \, \omega'_x(0, \lambda) = \theta$$

$$\omega(f, \lambda) = \int_0^\infty f(x) \omega(x, \lambda) dx. \qquad (1)$$

The Fourier L-transform of a function $f \in L^2(R^+)$ is the quantity ω^f defined by the function $\omega(f, \lambda), \, \lambda > 0$

(the halfaxis $\lambda \geq 0$ is the continuous spectrum of the operator L) and the numbers

$$j = 0, \ldots, m_k - 1; \, k = 1, \ldots, r \, (\lambda_1, \ldots, \lambda_r)$$

are the characteristic roots of the operator L and $m_1, \ldots, m_r$ are their multiplicities) obtained as the result of (formal) differentiation with respect to λ in the integrand of (1). Prior work has

Card 2/3

L 39440-65
ACCESSION NR: AP4047939

extended the Fourier L-transform from $L^2(R^+)$ to some class F of
exponentially increasing functions under the assumption that condi-
tion a but not condition b is satisfied. Here the author extends
the Fourier L-transform with a more general method that applies
when condition b is satisfied instead of a and makes it possible to
extend the Fourier L-transform from the space $L^2(R^+)$ to the space
$L^2_*(R^+) \supset F$ ($L^2_*(R^+)$ denotes a space of functions with locally inte-
grable square, i.e., the space of functions integrable in square in
each finite interval $(0, a) \subset R^+$). A distinguishing characteristic
of this method is that instead of the ordinary Fourier transforma-
tion, a generalized form of Parseval's equality is the basis for
the construction. Orig. art. has: 15 equations.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnic
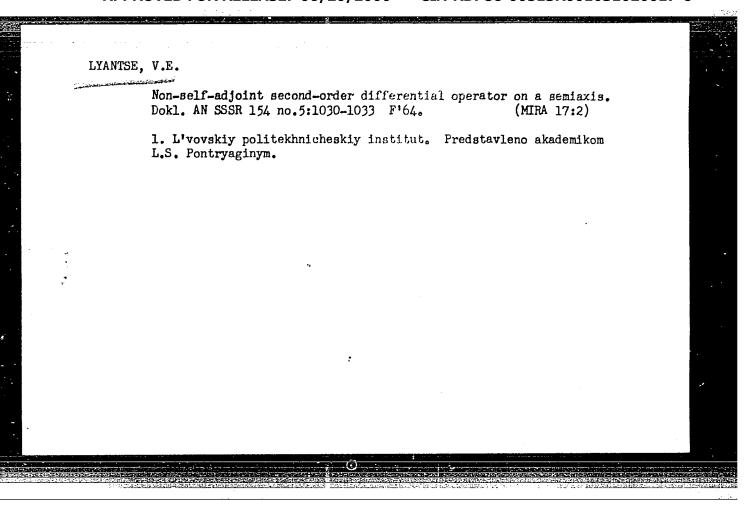   Institute.)

SUBMITTED: 27Apr64   ENCL: 00   SUB CODE: MA

NR REV SOV: 004   OTHER: 000

Card 3/3

LYANTSE, V.E.

Non-self-adjoint second-order differential operator on a semiaxis.
Dokl. AN SSSR 154 no.5:1030-1033 F'64.   (MIRA 17:2)

1. L'vovskiy politekhnicheskiy institut. Predstavleno akademikom
L.S. Pontryaginym.

LYANTSE, V.E.; SOKOLOV, I.G.

All-City Mathematical Seminar at L'vov in 1963. Usp. mat. nauk
19 no.4:234 '64.   (MIRA 17:10)

LYANTSE, V.E. (L'vov)

    Differential operator with spectral singularities. Part 1.
    Mat. sbor. 64 no.4:521-561 Ag '64.   (MIRA 17:11)
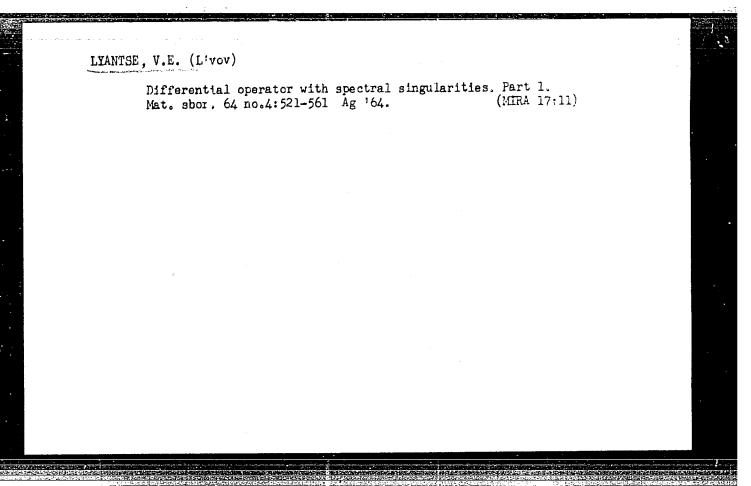
LYANTSE, V.E. (L'vov)

Differential operator with spectral singularities. Part 2.
Mat. Sbor. 65 no.1:47-103 S '64.

(MIRA 17:11)

LYANTSE, V.E.

Inverse problem for a nonself-adjoint operator. Dokl. AN SSSR
166 no.1:30-33   Ja '66.   (MIRA 19:1)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko. Sub-
mitted May 7, 1965.

KOVALEVSKAYA, I.L.; EPSHTEYN-LITVAK, R.V.; DMITRIYEVA-RAVIKOVICH, Ye.M.;
        KURNOSOVA, N.A.; SHCHEGLOVA, Ye.S.; FERDINAND, Ya.M.;
        KHOMIK, S.R.; MAKHLINOVSKIY, L.P.; PETROVA, S.S.;
        GOLUBOVA, Ye.Ye.; GONCHAROVA, Z.I.; SARMANEYEV, A.P.;
        SIZINTSEVA, V.P.; Prinimali uchastiye: MEDYUKHA, G.A.;
        OSOKINA, L.A.; RACHKOVSKAYA, Yu.K.; OSOVTSEVA, O.I.;
        DEDUSENKO, A.I.; KOVALEVA, P.S.; KARASHEVICH, V.P.;
        CHEBOTAREVICH, N.D.; CHIGIR', T.R.; SKUL'SKAYA, S.D.;
        KECHETZHIYEV, B.A.; DEMINA, A.S.; ZUS'MAN, R.T.; YESAKOV, P.I.;
        SYSOYEVA, Z.A.; ZINOV'YEVA, I.S.; FAL'CHEVSKAYA, A.A.;
        DENISOVA, B.D.; TIMOFELEVA, R.G.; SYRKASOVA, A.V.;
        LYANTSMAN, S.G.

Reactivity and immunological and epidemiological effectiveness
of alcoholic typhoid and paratyphoid fever vaccines in school
children. Zhur. mikrobiol., epid. i immun. 33 no.7:72-77
Jl '62.   (MIRA 17:1)

YUROV, V. S.; GLEZER, I. L.; BALANDINA, A. I.;
LYANTSMAN, V. L.

Toprover, G. S., 1894-

Professor G. S. Toprover. Khirurgiia
No. 3, 1952.

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

LYANTSMAN. V. L. Cand Med Sci -- (diss) "Blood supply of accelerated

moving peduncles. (Experimental study) " Stalingrad, 1957. 19 pp

(Stalingrad State Med Inst), 150 copies (KL, 11-58, 121)

LYANUPOV, A.A.

Operations on sets. Alg. i log. 2 no.2:47-56 '63 (MIRA 18:1)

1. Submitted March 27, 1963.

FALDA, Z.; LYAO, M.

Methods of connecting the vascular system of a patient with the hemodialyzer (artificial kidney). Urologiia 28 no.3: 35-40 '63   (MIRA 17:2)

1. Iz 1-y kliniki vnutrennikh bolezney (dir. - prof. A. Bernatskiy [Biernacki,A.]) Meditsinskoy akademii v Varshave.

ACC NR: AP6034917 *(A)* SOURCE CODE: UR/0419/66/000/003/0040/0043

AUTHOR: Lyaonava, T. M.; Svirydaw, V. V.

ORG: none

TITLE: Absorption spectra of some mercury chalcogenides and variations in them as a function of light

SOURCE: AN BSSR. Vestsi. Seryya khimichnykh navuk, no. 3, 1966, 40-43

TOPIC TAGS: absorption spectrum, crystal, mercury halide, halide, light, diffusion reflection, visible region, phototropic halide

ABSTRACT: A study is made of the spectra of diffusional reflection in the visible region of polycrystalline phototropic chalcogen halides $Hg_3S_2Br_2$, $Hg_3Se_2Br_2$, $Hg_3S_2J_2$, and $Hg_3Se_2J_2$ obtained from the interaction between mercury halides and corresponding chalcogenides within the 170—200C temperature range. It was found that the absorption edge in the above compounds shifts toward the longwave region from 420 mμ for $Hg_3S_2Br_2$ to 550 mμ fog $Hg_3Se_2J_2$. Illumination by light from the region of self absorption results in a gradual decrease in the coefficient of

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ACC NR: AP6034917

reflection beyond the absorption edge throughout the entire longwave region.
Kinetic coloration curves are obtained for the above named substances; it is found
that whereas the light sensitivity of the first three substances is approximately the
same, that of $Hg_3Se_2J_2$ is considerably greater. Heating of the colored samples
brings about a gradual restoration of the initial reflection spectrum. [Translation
of abstract]   [SP]

SUB CODE: 07/SUBM DATE: none/ ORIG REF: 004/OTH REF: 004/

Card 2/2

LYAPCHENKOV, L.

      Control the cutting of trees better. Fin. SSSR 23 no.4:52-54
      Ap '62.   (MIRA 15:4)

      1. Starshiy revizor-inspektor gosudarstvennykh dokhodov Ministerstva
      finansov Tatarskoy ASSR.
                (Tatar S.S.S.R.--Lumbering--Accounting)

LYAPENKOV, B.I.; DROZDOVA, K.F., red.; SHEVCHENKO, M.G., tekhn.red.

[At the head of the new movement] Vo glave novogo dvizheniia.
Khar'kov, Khar'kovskoe knizhnoe izd-vo, 1960. 41 p.
(MIRA 14:4)

1. Sekretar' partiynoy organizatsii zavoda "Elektrotyazhmesh"
(for Lyapenkov).
(Efficiency, Industrial)

SOV/112-58-2-2143

AUTHOR: Lyapich, A. V., and Moliboshko, I. K.

TITLE: AC Operation of an Electromagnetic Relay
    (Rabota elektromagnitnogo rele na peremennom toke)

ABSTRACT: The article presents the best results of the utilization of an EP-100
    24-v electromagnetic relay in AC circuits with no time element and with a
    short-circuited turn applied, such relays can endure AC energizing of their
    winding for 10-12 minutes. The thermal durability of the winding is consider-
    ably higher than under DC (the DC 24-v relay can be supplied with 220-v AC).
    Relays with other winding data should be rewound. Operating time on AC is
    0.01-0.02 seconds; i.e., it is less than with DC supply.

V.M.Kh.

Card 1/1

KAZHKINA, A.O.; KOVAL', L.A.; LYAPICHEV, B.I.

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          (Electronic calculating machines) (Geophysics)

LYAPICHEV, Georgiy Filippovich; SERGIYEV, N.G., redaktor, doktor
geologo-mineralogicheskikh nauk; RZHONDKOVSKAYA, L.S.,
redaktor; SUSHCHIKH, I.D.;redaktor; ROROKINA, Z.P., tekh-
nicheskiy redaktor.

[Intrusion complexes of the Pre-Paleozoic and Cambrian in
the Boshchekul region(neartheastern Kazakhstan)] Intruzivnye
kompleksy dopaleozoia i kembriis Boshchekul'skogo raiona
(Severo-Vostochnyi Kazakhstan). Alma-Ata, Izd-vo Akademii
nauk Kazakhskoi SSR, 1955. 134 p.   (MLRA 8:11)
        (Boshchekul region--Rocks, Igneous)

LYAPICHEV, G.F.

BORUKAYEV, R.A.; BANDALETOV, S.M.; LYAPICHEV, G.F.; NIKITIN, I.F.

An instance of the manifestation of tourmaline-ore mineraliza-
tion of the Lower Paleozoic in Central Kazakhstan. Vest. AN
Kazakh. SSR 11 no.6:75-79 Je '54.   (MIRA 7:8)
    (Kazakhstan--Geology, Stratigraphic) (Geology, Strati-
    graphic--Kazakhstan) (Tourmaline)

Lyapichev, G. F.

GP

V Geology of the region of the middle course of the Selet River (Central Kazakhstan). R. A. Borukaev, S. M. Bandaletov, G. F. Lyapichev, and I. P. Nikitin. *Izvest. Akad. Nauk Kazakh. S.S.R., Ser. Geol.* 1955, No. 20, 126–37. A report giving rock analyses. Gladys S. Macy ③

15-57-12-17223

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 12,
                   pp 71-72 (USSR)

AUTHOR: Lyapichev, G. F.

TITLE: Some Peculiar Features in the Geological Mapping of
              the Mafic and Ultramafic Intrusions of Central
              Kazakhstan (Nekotoryye osobennosti geologicheskogo
              kartirovaniya osnovnykh i ul'traosnovykh intruziy
              Tsentral'nogo Kazakhstana)

PERIODICAL: Izv. AN KazSSR, ser. geol., 1956, Nr 24, pp 26-39

ABSTRACT: The ultramafic intrusions of Central Kazakhstan occur
              in Precambrian rocks lying in the axial zones of large
              elongated anticlinoria of the serpentine belt. They
              are commonly in vertical or steeply inclined lenses
              or tabular bodies having an area of 5 to 7 km^2, though
              some masses cover up to hundreds of square kilometers.
              Dike rocks (websterite, diallagite, bronzitite,

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gabbro, diorite, and plagioclase granite) are not abundant. The primary rocks in the ultramafic intrusives are almost completely serpentinized. Contact metamorphism of the host rocks is extremely rare. The principal intrusions represent a single magmatic complex with spilite-keratophyre formations. The majority of these possess well-expressed primary banding. The gabbroic rocks are multi-phase, in advanced stages of differentiation. Two rock branches are differentiated: 1) peridotite, gabbro, quartz diorite, and plagioclase granite, and 2) peridotite, gabbro, microcline gabbro, syenite, and alkalic syenite. The study of the composition of the ultramafic and primary-layered mafic intrusions is effected by observations along profiles transverse to the length of the masses and to the trace of the banding. In studying the uniform or almost uniform gabbroic intrusions, the acid members of the gabbroic series, and the dike rocks, there is no fundamental distinction in method from that used for granitic rocks. At active contacts with ultrabasites, amphibolization and talc formation in mafic effusives have been reliably
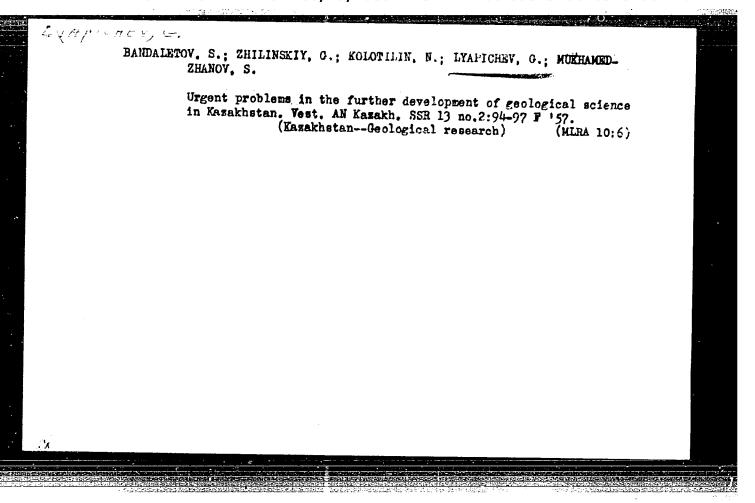
Card 2/3

Some Peculiar Features in the Geological Mapping (Cont.) 15-57-12-17223

noted. Where ultramafic intrusions occur in Paleozoic beds, dike rocks are not observed. This circumstance indicates a fault contact. At present it may be considered certain that the ultramafic in- trusions are confined to regional faults. Some of the intrusive contacts show the effect of hydrothermal solutions of later in- trusions, forming false impressions of active contacts. In order to explain the forms and internal structure of the masses of ultra- basites and gabbroic rocks, it is necessary to study the planar and linear flow structures. The chief method of studying the structures of primary foliated masses is by comparing detailed sections trans- verse to the trend of the banding. In ore-bearing banded intrusions it is necessary to trace the individual layers along the strike. The flow structures of stock-like mafic intrusions rarely have been well mapped.
Card 3/3

S. P. Bryzgalina

BANDALETOV, S.; ZHILINSKIY, G.; KOLOTILIN, N.; LYAPICHEV, G.; MUKHAMED-
ZHANOV, S.

Urgent problems in the further development of geological science
in Kazakhstan. Vest. AN Kazakh. SSR 13 no.2:94-97 F '57.
(Kazakhstan--Geological research)   (MLRA 10:6)

BORUKAYEV, R.A.; LYAPICHEV, G.F.

Pre-Cambrian stratigraphy of central and southern Kazakhstan.
Izv. AN Kazakh. SSR. Ser. geol. no.2:7-19 '59; (MIRA 13:2)
(Kazakhstan--Geology, Stratigraphic)

LYAPICHEV, G.F.; MIROSHNICHENKO, L.A.

Joint scientific commission on the development of mineral resources
of central Kazakhstan. Izv. AN Kazakh. SSR. Ser. geol. no.2:101-105
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          (Kazakhstan--Mines and mineral resources)

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    Eminent geologist of Kazakhstan. Vest.AN Kazakh.SSR 15 no.1:
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            (Borukaev, Ramazan Aslanbekovich, 1899-)

LYAPICHEV, G.F., kand.geologo-mineralogicheskikh nauk

Proterozoic and Salair-Caledonian intrusive complexes in the northeastern part of central Kazakhstan. Sbor.nauch.trud.KazGMI no.18:151-158 '59.   (MIRA 15:2)
            (Kazakhstan--Rocks, Igneous)

SATPAYEV, K.I., Akademik, otv. red.; BOGATYREV, A.S., red.; BORUKAYEV,
        R.A., red.; BOK, I.I., red.; RUSAKOV, M.P., red.; MIROSHNICHENKO,
        L.A., spets.red.; LYAPICHEV, G.F., spets.red.; POGOZHEV, A.S.,
        red.; RZHONDKOVSKAYA, L.S., red.; GASHINA, Ya.A., tekhn. red.

        [Productive capacities of Central Kazakhstan] Proizvoditel'-
        nye sily TSentral'nogo Kazakhstana; trudy. Alma-Ata, Izd-vo
        AN Kaz. SSR. Vol.2. [Minerals and regional geology] Poleznye
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                                                (MIRA 16:7)
        1. Ob"yedinennaya nauchnaya sessiya po problemam razvitiya pro-
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        i okhrany nedr Kaz.SSR (for Bogatyrev). 4. Institut geologiche-
        skikh nauk AN Kaz.SSR (for Rusakov).
                (Kazakhstan--Mines and mineral resources)
                (Kazakhstan--Geology)

ABDULKABIROVA, M.A.; ALEKSANDROVA, M.I.; AFONICHEV, N.A.; BANDALETOV,
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              (Kazakhstan--Geology)

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IL'IN, A.V.; BUZIKOV, I.P.; MASLENNIKOV, V.A.; NEYELOV,
A.N.; NIKITINA, L.P.; NIKOLAYEV, V.A.[deceased]; OBRUCHEV,
S.V.; SAVEL'YEV, A.A.; SEDOVA, I.S.; SUDOVIKOV, N.G.;
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LYAPICHEV, G.F.; NALIVKIN, D.V., glav. red.; VERESHCHAGIN,
V.N., zam. glav. red.; MENNER, V.V., zam. glav. red.;
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KRASNOV, I.I., red.; KRYMGOL'TS, T.Ya., red.; LIBROVICH,
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RENGARTEN, V.P., red.; STEPANOV, D.L., red.;
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O.A., tekhn. red.

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Pre-Cambrian] Stratigrafiia SSSR v chetyrnadtsati tomakh.
Nizhnii Dokembrii. Moskva, Gos. nauchno-tekhn, izd-vo lit-ry po geologii i
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Alma-Ata.

BORUKAYEV, R.A., akademik; KAYUPOV, A.K., doktor geologo-mineralogicheskikh
nauk; LYAPICHEV, G.F., kand.geologo-mineral. nauk; MIROCHNICHENKO,
L.A., kand. geologo-mineral.nauk

Tectonic and metallogenic regionalization of eastern Kazakhstan.
Vest. AN Kazakh. SSR 21 no.11:14-26 N '65.
                                              (MIRA 18:12)

1. Akademiya nauk Kazakhskoy SSR (for Borukayev).

KISELEV, L.I.; SEVRYUGIN, N.A.; BESPALOV, V.F.; ABDRAKHMANOV, K.; MOROZOV,
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(MIRA 18:12)

LYAPICHEV, I. G.

"Automatic Weld Seam of a Cutting Tool." Cand Tech Sci, Tomsk Order of Labor Red Banner Polytechnic Inst imeni S. M. Kirov, Min Higher Education USSR, Tomsk, 1955. (KL, No 10, Mar 55)

SO: Sum. No. 670, 29 Sep 55-Survey of Scientific and Technical Dissertations defended at USSR Higher Educational Institutions (15)

L YápⁱcHⒺ U, I . G .

137-58-1-910

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 130 (USSR)

AUTHOR: Lyapichev, I.G.

TITLE: An Investigation of Automatically Edged High-speed Steel
            (Issledovaniye avtomaticheski naplavlennoy bystrorezhushchey stali)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1956, Vol 88, pp 207-222

ABSTRACT: The cutting properties of an edged tool of grade R9 steel with
supplementary alloying elements was investigated. Seven groups
of alloyed edging substances were employed: 1) C; 2) Ti; 3) V;
4) Mo; 5) Mo and V; 6) V, Mo and Ti; 7) W. The chemical
compositions are presented. Alloying of the edged metal was
accomplished by means of sticks of ferro-alloys. It was found
that double tempering was the most effective for all the groups
of edging materials except the seventh (first tempering at high
temperature, second tempering at low temperature). The red-
hardness of R9 steel is improved most effectively by Mo (2-3
percent). A favorable effect upon structure and cutting proper-
ties is also afforded by Ti (0.3 - 0.4 percent) with a simultaneous
increase in the C content to 1.1 - 1.2 percent. The greater the

Card 1/2   number of elements with which steel is alloyed, the more complete

137-58-1-910

An Investigation of Automatically Edged High-speed Steel

is the utilization of the solvent action of γ Fe, and this facilitates formation of a complex coagulation-resistant carbide. Tests of the cutting qualities of metal edging (except for the fifth) yielded approximately twice the strength of that of analogous tools made of rolled R18 steel.

G.M.

1. Machine tools--Design   2. Machine tools--Test methods   3. Machine tools --Test results

Card 2/2

SOV/137-57-10-19468

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 147 (USSR)

AUTHOR: Lyapichev, I.G.

TITLE: On the Problem of Determination of Chemical Composition of
            Metal Deposited by Means of Automatic Welding or Hardsur-
            facing (K voprosu o raschete khimicheskogo sostava naplav-
            lennogo metalla pri avtomaticheskoy svarke ili naplavke)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1956, Vol 88, pp 223-234

ABSTRACT: The determination of the composition of an alloying, cer-
            amic, unfused flux (F), or of a flux with a mechanical addition
            of ferroalloys, is based upon the following two assumptions:
            1) Introduction of ferroalloys into the slag-forming fraction of
            the F reduces the degree of overheating of the latter but does
            not alter the quantity of molten F; 2) at a constant quantity of
            arc energy per linear unit of weld, the amounts of molten
            parent and electrode metal do not depend on the presence of
            ferroalloys in the F. The composition of the F may be estab-
            lished by determining experimentally the cross-sectional area
            of a bead weld and the consumption of F per 100 g of metal
Card 1/2   deposited, and by computing the quantity of the ferroalloy

SOV/137-57-10-19468

On the Problem of Determination of Chemical Composition of Metal (cont.)

which must be added to the F in order to obtain a required proportion of the alloying element. Experiments confirm the correctness of the computational procedures. No variations in composition were observed along the height of the cross section of the weld, whereas deviations from nominal alloying specifications along the length of the weld did not exceed 3-4%. An analogous procedure is employed in computing the composition of a bar of ferro-alloys. In order to avoid incomplete penetration, a unit length of the bar must be at least 20% lighter than a corresponding unit length of the bead weld. Prospects of employing shavings of alloyed steels for purposes of introducing alloying elements into the weld are outlined. It is recommended that bead-welding operations be performed with welding equipment capable of advancing the welding electrode at a constant rate.

A.B.

Card 2/2

LYAPICHEV, I.G.

Compensating properties of welding baths. Izv.TPI 85:307-320
'57.   (MIRA 10:12)

1.Predstavleno prof. doktorom tekhn.nauk A.N. Dobrovidovym.
          (Electric welding) (Metallography)

135-58-1-5/23

AUTHOR: Lyapichev, I.G., Candidate of Technical Sciences

TITLE: The Alloying of Built-up Metal in the Automatic Surfacing of
              High-Speed Steels (Legirovaniye naplavlennogo metalla pri
              avtomaticheskoy naplavke bystrorezhushchikh staley)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 1, pp 15 - 18 (USSR)

ABSTRACT: The investigation of various methods of weld-metal alloy-
              ing has shown that the preferable method is to use ferro-
              alloy bars and electrode rods of SV-08 type. The chemical
              composition of the weld-metal is given in table # 1. This
              is mainly R9-steel, additionally alloyed with carbon (group
              1) titanium (II) vanadium (III) molibdenum(IV) molybdenum
              and vanadium (V), molybdenum and titanium (VI) and tungsten
              (VII). The investigations were concentrated on the auto-
              matic welding of medium tungsten high-speed steel (9 - 10% W)
              with a variable content of carbon, vanadium, molybdenum and
              titanium, and of high-tungsten steel (17 - 24% W) with a
              variable content of carbon and vanadium. The best cutting
              qualities were found in the following composition: 1.1% C;
              4.6% Cr; 9.5% W; 1.7% V and 2.7% Mo. The addition of ti-
              tanium is useful up to a content of 0.3 - 0.4%. Analytic
              and graphic methods were suggested for computing the chemi-
Card 1/2   cal compositon of the welding bath, to determine the admis-

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The Alloying of Built-in Metal in the Automatic Surfacing of High-Speed Steels

sible heterogeneity of the ferroalloy dosage. Non-fusion
may be considered as a technological indicator of inadmis-
sible heterogeneity in the chemical composition of the
weld metal. There are 5 figures, 2 tables, 2 graphs and
7 Soviet references.

ASSOCIATION: Tomskiy politekhnicheskiy institut (The Tomsk Polytechnical
Institute)

AVAILABLE: Library of Congress

Card 2/2   1. Metal-Alloying   2. Welding materials-Test methods   3. Welding
materials-Test results

ALIMOV, O.D., dots., kand.tekhn.nauk; LYAPICHEV, I.G., kand.tekhn.nauk; SEROV, Ya.A., inzh.

Some results of investigating rotary impact boring. Nauch dokl. vys. shkoly; gor. delo no.3:47-55 '58.   (MIRA 11:9)

1.Predstavlena kafedroy gornykh mashin i rudnichnogo transporta Tomskogo politekhnicheskogo instituta.
                 (Boring--Testing)

ALIMOV, O.D.; LYAPICHEV, I.G.; SEROV, Ya.A.

    Investigating rotary-percussion boring. Izv. TPI 106:51-74 '58.
                                           (MIRA 11:11)
    (Boring machinery)