SOV/126- — -7-5-6/25

AUTHORS: Giterman, M. Sh., and Kontorovich, N.P.

TITLE: On the Dependence of Parameters of a Semiconductor on the Density of Impurities (O zavisimosti parametrov poluprovodnika ot kontsentratsii primesey)

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, Nr 5 pp 673-676 (USSR)

ABSTRACT: S.V. Vonsovskiy and his co-workers developed recently a multi-electron theory of semiconductors (Refs 3,4) in which the interacting electrons were represented as a dynamically equivalent ideal quasi-particle gas. Properties of this gas are determined by the properties of the multi-electron assembly, and in the case of an impurity semiconductor should depend on the impurity density. The present authors used Vonsovskiy's theory to discuss the energy spectrum of an n-type atomic semiconductor with impurities, such as germanium with arsenic (Vonsovskiy's theory can be used also to study the energy spectrum of a semiconductor with acceptor impurities). The authors deduced dependence of the activation energy and the effective mass of current carriers on the impurity density. [The paper is

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On the Dependence of Parameters of a Semiconductor on the Density
of Impurities

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entirely theoretical.] Acknowledgements are made to
S.V. Vonsovskiy, Yu.P. Irkhin and I.M. Tsidil'kovskiy
for their advice.
There are 8 references, 5 of which are Soviet and
3 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet
(Urals State University)

SUBMITTED: March 30, 1958

SOV/126-8-2-3/26

AUTHORS: Giterman, M. Sh. and Moskalenko, S. A.

TITLE: On the Structure of Energy Bands in Ionic Crystals

ABSTRACT: The interaction between electrons in crystals was taken into account in the Shubin-Vonsovskiy polar model (Ref 1). On the basis of this model Vonsovskiy and his collaborators (Ref 2) have considered a large number of static and kinetic effects in metals and semiconductors and have obtained good agreement with experimental data. The method of second quantization turned out to be a convenient mathematical apparatus and was developed by Bogolyubov (Ref 3) for application to crystals. However, in Ref 3 only the simpler case of s-electrons was considered and excited states were not taken into account. Seidov and Galishev (Ref 4) have taken into account one non-degenerate p-state which gave an overlap of energy bands in the spectrum of elementary excitations even in the zero-order approximation. The fact that degeneracy with respect to the magnetic quantum number was neglected in all the above papers means that it was not possible to

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On the Structure of Energy Bands in Ionic Crystals

obtain, for example, the anisotropy of the effective masses of current carriers and certain other effects. The present authors have generalised the polar model to the case of ionic crystals (NaCl, KCl) in Ref 5. The present paper is also concerned with the problem and gives special attention to the degeneracy of the electron states at the Cl points, and the possibility of the motion of current carriers of each sign over both cations and anions. The first of these effects has an important influence on the energy spectrum of the "holes", and in particular, on the anisotropy of their effective masses. The second effect leads to a change in the form and position of the energy bands, i.e. it has an influence on the properties of the current carriers. The work reported in Refs 6 and 7 may be considered as the zero-order approximation of the solution now given. For simplicity, lattice vibrations are not taken into account. An ideal cubic lattice is considered with two types of points g and h occupied by positive and negative ions respectively, the ions being considered as fixed. In the ground state, the electron

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density distribution exhibits maximum non-uniformity. Near the g-points (Na, K) there are no valence s-electrons, while at the h-points (Cl) there are six electrons in the p-state having $m = 0, \pm 1$ and $\sigma = \pm 1/2$. The excitation of the system is connected with a reduction in the non-uniformity in the charge distribution and the appearance of elementary excitations of different signs. These excitations are called electrons and holes, by analogy with the one-electron theory and, correspondingly, the authors refer to electron and three-hole energy bands. The energy operator for the problem is of the form given by Eq 1 (N.N. Bogolyubov - Ref 3). The results obtained are substantially in agreement with those reported by Howland in Ref 9, except that in the present paper the interaction between the valence bands and the conduction band is taken into account. It is shown that the spin orbit interaction is not an essential factor leading to the anisotropy in the effective masses of the current carriers. An approximate diagonalization of the Hamiltonian for the many electron problems is carried

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out and a group theory is used in studying the structure
of the bands in some directions in K-space.
There are 1 figure and 9 references, of which 8 are Soviet
and 1 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni
          A.M. Gor'kiy (Ural State University imeni A.M. Gor'kiy)

SUBMITTED: July 8, 1958

Card 4/4

S/181/60/002/01/28/035
P008/B014

AUTHORS: Giterman, M. Sh., Irkhin, Yu. P.

TITLE: Theory of Electrical Conductivity of Antiferromagnetic
Polar Crystals

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 144-152

TEXT: The authors calculated the energy spectrum of the carriers of
antiferromagnetic polar crystals with intrinsic and extrinsic conducti-
vity, taking account of the electron - background interaction and the
effect of the magnetic order. The latter determines the change in
activation energy and effective mass near the Néel temperature. The
results obtained were compared with experimental data. The theoretical
results contain the quantity of the s-d exchange interaction I and the
quantity $|Q'(a)|$ as parameters. The latter is proportional to the width
of the conduction band. As usual, these quantities are parameters of the
theory and are determined from a comparison with the experiment. They
are related to the experimental quantities ΔE and $\Delta \ln \delta$ by equations

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, 1/3

Theory of Electrical Conductivity
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S/181/60/002/01/28/035
B008/B014

(22) and (25). Strictly speaking, it would be necessary for a quantitative confirmation of the theory to calculate galvanomagnetic, thermoelectric, and thermomagnetic phenomena according to the scheme suggested in this article. This would lead to additional equations relating the quantities I and $Q^1(a)$ to the quantities observed. The "jump" of activation energy was found by several research workers in numerous experiments. From equation (19) it follows that in addition to the "jump" of activation energy also a "jump" of the logarithm of conductivity occurs at the Néel point. In the case of $\Delta E > 0$, $\Delta \ln \sigma$ consists of two terms with reverse sign, so that it may have any value and sign. When $\Delta E < 0$, $\Delta \ln \sigma$ must be positive and not smaller than $\dfrac{|\Delta E|}{kT_N}$. The latter fact may also be used to verify the theory suggested. More detailed experimental data are available on the conductivity of NiO. Several research workers obtained both positive (Ref. 10) and negative (Ref. 11) values for ΔE. The "jump" $\Delta \ln \sigma$ is mentioned only in one publication (Ref. 12). The existence of a "jump" alone is striking and necessitates further

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B008/B014

experimental studies. The authors thank Professor S. V. Vonsovskiy for
his discussion of the article under review. There are 3 figures and
13 references, 5 of which are Soviet.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet (Ural State University).
Institut fiziki metallov AN SSSR, Sverdlovsk (Institute of
Metal Physics, AS USSR, Sverdlovsk)

SUBMITTED: January 11, 1959

Card 3/3

84814

S/181/60/002/008/049/052/XX
B006/B070

24.4500

AUTHORS: Vonsovskiy, S. V., Giterman, M. Sh.

TITLE: Many-electron Theory of Ion Crystals

PERIODICAL: Fizika tverdcgo tela, 1960, Vol. 2, No. 8, pp. 1793-1805

TEXT: Ion crystals are characterized by strong inhomogeneities of the
electron density at neighboring lattice points. The binding forces have,
therefore, essentially an electrostatic character The interaction of
electrons with one another and with lattice vibrations must be taken into
account in the theory of ion crystals. Such studies were made earlier by
S. I. Pekar (Ref. 1). In the present paper, the authors describe the
investigation of ion crystals (phenomenological and model treatment)
within the framework of a many-electron theory by means of the method of
elementary excitations. The approximation used here is valid only for
weakly excited states of the many-electron system A consistent handling
of the problem by quantum mechanics is possible only under this limitation.
When the excitation is weak and an energy gap exists, it is possible to
separate the energy spectrum in good approximation into individual branches

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84814

Many-electron Theory of Ion Crystals

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B006/B070

representing different aspects of the collective motion of the many-electron system. The theoretical studies are made on the basis of the Hamiltonian of the ion crystal in second quantization representation:

$$H = \sum_{\alpha\alpha'} L(\alpha\alpha') a_\alpha^+ a_{\alpha'} + \sum_{\alpha_1\alpha_2\alpha'_1\alpha'_2} F(\alpha_1\alpha_2|\alpha'_1\alpha'_2) a_{\alpha_1}^+ a_{\alpha_2}^+ a_{\alpha'_1} a_{\alpha'_2} + \sum_{\alpha\alpha'\varkappa} \left[K(\alpha\alpha'\varkappa) a_\alpha^+ a_\alpha \right] \xi_\varkappa + \ldots]$$

$$+ \sum_\varkappa \hbar\omega_\varkappa \xi_\varkappa^+ \xi_\varkappa.$$ Here, a_α^+ and a_α are Fermi's annihilation and production operators of the electrons in the state α; $\xi_\varkappa^+$ and $\xi_\varkappa$ are Bose's production and annihilation operators of the phonons with momentum $\varkappa$ and energy $\hbar\omega_\varkappa$. The functions L, F, and K may be determined either phenomenologically, or in the microscopic model representation as given in (2) H can be represented by: $H = E_0 + H^{Fermi} + H^{Bose} + H^{Fermi-Bose}$ The Hamiltonian H^{Fermi} for an alkali-halide crystal is represented by (4) and the Fermi branch of elementary excitations are studied for the following special cases: 1) a very simplified model neglecting the electron-phonon interaction and the electron degeneracy; 2) neglecting the electron-phonon interaction but taking account of the degeneracy; 3) weak electron-phonon interaction; 4)

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Many-electron Theory of Ion Crystals

S/181/60/000/008/049/052/XX
B006/B070

strong electron-phonon interaction in adiabatic approximation; 5) impurity conductivity; 6) ion crystal whose one component is a transition metal. In the last section of the paper, the Bose branch of elementary excitations is briefly discussed. There are 24 references: 22 Soviet, 1 US, and 1 British.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im Gor'kogo (Ural
               State University imeni Gor'kiy)

SUBMITTED: December 24, 1959

Card 3/3

S/126/60/009/03/002/033
E032/E414

AUTHORS: Petrov, A.N., Taluts, G.G. and Giterman, M.Sh.

TITLE: On the Theory of the Stark Effect for Excitons in Ionic
            Crystals

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3,
            pp 327-331 (USSR)

ABSTRACT: In a previous paper (Ref 1) the authors considered the
            interaction of excitons with lattice vibrations. The
            aim of the present note is to generalize that calculation
            to the case when an external electric field is present.
            The shift of the energy levels of the exciton in the
            external field was considered by Korenblit (Ref 2),
            Samoylovich and Korenblit (Ref 3) and Gross et al (Ref 4),
            using the single particle approach but they did not
            include electron-electron and electron-phonon
            interactions which, in general, will have an effect on
            the dependence of the energy level shift on the external
            field. In the present note, the excitons are looked upon
            as Bose-type collective excitations of a many-electron
            system. Using the Hamiltonian given by Eq (2) it is shown
            that if the electron-electron and electron-phonon

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8426

S/056/60/039/004/044/048
B006/B056

24.5400

AUTHORS: Voronel', A. V., Giterman, M. Sh.

TITLE: The Hydrostatic Effect Near the Critical Point of a Liquid

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 4(10), pp. 1162 - 1163

TEXT: Near the critical point of a pure substance, its compressibility
increases to an unlimited extent; therefore, already a slight change of
pressure, caused by the pressure of the upper layers of the liquid upon
the lower ones, may be of essential importance. For this case, the
authors theoretically investigated the curves of state $p(V)$ and $T(V)$. The
change in pressure with height is given by $dp = (\mu g/V)dh$, where V is the
specific volume at the height h, and μ is the molecular weight. If p and
V deviate only little from the critical values, then, if $T = T_c$.

$dh/dV = (B/2\mu g)V(V-V_c)^2$ and $V = V_c - \alpha(h-h_0)^{1/3}$ with $\alpha = (6\mu g/BV_c)^{1/3}$,

where h_0 denotes the integration constant which gives the height at which

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The Hydrostatic Effect Near the Critical   S/056/60/039/004/044/046
Point of a Liquid   B006/B056

the critical conditions are satisfied; $B = (\partial^3 p/\partial V^3)_{T_c}$. The mean specific

volume in the entire vessel is experimentally measurable, and so is the
pressure at a certain level. If p_c predominates at $h \to 0$, one obtains

$V_{mean} = \frac{1}{H} \int_0^H V(h)dh = V_c - \frac{3}{4H}\left[(H-h_o)^{4/3} - h_o^{4/3}\right]$. A numerical estimate shows

that for all substances at $0 < h_o < H$ and $H \sim 10$ cm, $(p_o-p_c)/p_q \sim 10^{-4}-10^{-5}$,

i.e., p_o may be put equal to p_c. As B is very small, V_{mean} may be ex-

pected to deviate considerably from V_c at $p_o \approx p_c$. $\left|V_{mean}-V_c\right|$ attains its

maximum value at $h_o=0$ and $h_o=H$. In the case of coexistence of liquid and

vapor, the $p(V)$ and $T(V)$ curves, respectively, show a straight part of

the width $\Delta = \frac{3}{2}(6\mu g H/BV_c)^{1/3}$. This curve is, besides the ordinary curve,

shown in a diagram. Such a shape has actually been observed in the case
of xenon, ethane, and ethylene. For xenon, the ratio of the vessel

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The Hydrostatic Effect Near the Critical
Point of a Liquid

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B006/B056

heights in two experiments was H_1/H_2 = 19 cm/13 cm = 1.46 and
$(\Delta_1/\Delta_2)^3$ = 1.57, and for ethylene H_1/H_2 = 2.5 and $(\Delta_1/\Delta_2)^3$ = 2.56; these
data agree well with the formula for Δ. From an experimental determina-
tion of Δ it is possible to determine B from this formula. Thus, one
obtains for xenon, if H = 19 cm, Δ = 0.20 g·cm^{-3}, B$\approx$ -4.10^{-5}atm/cm^9. The
authors thank M. Ya. Azbel' for discussions. There are 1 figure and
5 references: 2 Soviet and 3 Canadian.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh
izmereniy (Institute of Physics, Technology, and Radio
Engineering Measurements)

SUBMITTED: July 26, 1960

Card 3/3

27195

9.3700

S/056/61/041/002/017/028
B111/B112

AUTHOR: Giterman, M. Sh.

TITLE: A mechanism of energy absorption in anisotropic bodies

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,
             no. 2, 1961, 507 - 511

TEXT: The author attempts to study the absorption of the energy of an
electromagnetic field whose frequency lies in the audiofrequency range.
This absorption is due to an anisotropic magnetic susceptibility or
electric polarizability of a solid in a viscous liquid. Such a body
contains a magnetic (or electric) moment in an external variable field.
Since this moment does not coincide with the direction of the field this
may lead - under certain conditions - to a periodic motion of the body and
to a corresponding energy absorption. The author considers the magnetic
moment of a spherical nucleus of the solid phase in a liquid. An undamped
motion of this nucleus is possible only with an anisotropy $\Delta \chi = \chi_z - \chi_x \neq 0$

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A mechanism of energy absorption...

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where χ is the susceptibility tensor. If $\omega_z = 0$ and $\varphi_1 \dot{x} + \varphi_2 \dot{y} = 0$ (φ_i - Euler angles), i. e. under the effect of an external magnetic field, the nucleus can rotate neither in a plane which is perpendicular to the direction of the external field nor in the plane xy in which susceptibility is symmetrical. The characteristics of a continuous motion are obtained from the solution of equation

$$\ddot{\theta} + 2\varkappa\dot{\theta} + \omega_0^2(1 + \alpha\cos 2pt)\theta + V(t, \theta) = 0,$$

$$V(t, \theta) = -\frac{2}{3}\omega_0^2(1 + \alpha\cos 2pt)\theta^3.$$

θ is the Euler angle, $\varkappa = \beta/(2I)$, $\beta = 8\pi R^3\lambda$, R is the radius of the nucleus, λ the viscosity coefficient of the liquid, $I = 8\pi\rho R^5/15$, $\omega_0^2 = F_0^2\Delta\chi/(2I)$, $F = F_0\cos pt$ is the external field, α is a parameter. With neglection of the cubic terms the author obtains the following expression for the frequency dependence of the oscillation amplitude A:

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A mechanism of energy absorption...

$$A^2 = 2\omega_0^{-2}\left[\omega_0^2 - p^2 \pm (\omega_0^2/4 - 4\kappa^2 p^2)^{1/2}\right].$$ A periodic oscillation occurs, however, only if $\omega_0^2 > 4\kappa p$. The absorption coefficient is determined from $\gamma = 8\pi|F|/(pF_0^2 V)$, where $F/V = \beta\dot\Theta^2/(2V)$ is the dissipation function.

D. N. Astrov is mentioned. The author thanks A. V. Voronel' and I. Ye. Dzyaloshinskiy for advice and discussion. There are 1 figure and 6 Soviet references.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmere-
               niy (Institute of Physicotechnical and Radiotechnical
               Measurements)

SUBMITTED: March 2, 1961

Card 3/3

37952

24.7700

AUTHORS: Kovarskiy, V. A., Krol', L. Ya., Medvedev, Yu. L.,

TITLE: Impurity band conductivity in n-type PbS

PERIODICAL: [illegible], v. 4, no. 5, 1962, 1363–1365

TEXT: Results are given of measurements of the resistivity ρ, the Hall coefficient and the magnetic resistance $\frac{\Delta\rho}{\rho}$ on single crystals of n-type PbS with impurity concentrations of $10^{16} - 10^{17}$ cm^{-3}, at which interaction between the impurities and formation of an impurity band not fusing with the conduction band can be expected. The specimens were produced by zone melting in a horizontal boat of an ingot of chemically pure PbS. Analysis of the data shows that the single crystal specimens at temperatures below 35°K display conductivity in the impurity band. This effect is present in the more contaminated single-crystal and polycrystalline specimens. The Hall mobility in the conduction band

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Impurity band conductivity in ...

is three to four times greater than in the impurity band. The magnetic resistivity of the single-crystal specimens measured in a field of 4000 oe [...] negative at temperatures below 18°K, and for a polycrystal [...] over the whole range of 1.7° – 300°K. The conductivity in the impurity band in n-type GaAs does not lead to a change in the sign of the Hall effect at the lowest temperatures, as might have been expected for holes in the impurity band.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (Institute of Physicotechnical and Radiotechnical Measurements) Moscow

SUBMITTED: November 16, 1961 (initially)
February 14, 1962 (after revision)

Card 2/2

GITERMAN, M.Sh.; KROL', L.Ya.; MEDVEDEV, V.A.; ORLOVA, M.P.; PADO, G.S.

Conductance in the impurity zone in n-GaAs. Fiz. tver. tela
4 no.5:1383-1385 My '62.   (MIRA 15:5)

1. Institut fiziko-tekhnicheskikh i radiotekhnicheskikh
izmereniy, Moskva.
          (Gallium arsenide--Electric properties)

ACCESSION NR: AP4019235   8/0056/64/046/002/0673/0676

AUTHOR: Azbel', M. Ya.; Voronel' A. V.; Giterman, M. Sh.

TITLE: Contribution to the theory of the critical point

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 673-676

TOPIC TAGS: critical point, free energy, equation of state, co-
existence curve, phase equilibrium, free energy, specific heat,
singularity, critical volume

ABSTRACT: In view of the discrepancy with ordinary theory dis-
played by the experimental results of the VNIIFTRI Thermodynamics
Laboratory (M. I. Bagatskiy, A. V. Voronel', V. G. Gusak, ZhETF,
v. 43, 728, 1962; A. V. Voronel', Yu. R. Chashkin, V. A. Popov,
V. G. Simkin, ZhETF, 45, 828, 1963), where a logarithmic singular-
ity was observed for the temperature dependence of the specific
heat C_V near the critical volume, the authors propose a new theory
in which the form of the free energy near the critical point agrees
with these experimental data. In both the existing and modified
theories the order of the smallest nonvanishing derivative of the
pressure with respect to the volume at the critical point determines

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ACCESSION NR: AP4019235

uniquely the form of the phase-equilibrium point near the critical
point, namely proportionality of the relative temperature to the
relative volume quared. Several ways of chedking the consequences
due to the presence of the singularity at the critical point will
be treated in a future article. Orig. art. has: 6 formulas.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh
izmereniy (Institute of Physicotechnical and Radio Technical
Measurements)

SUBMITTED: 12Jul63   DATE ACQ: 27Mar64   ENCL; 00

SUB CODE: PH   NO REF SOV: 004   OTHER: 001

Card 2/2

GITERMAN, M.Sh.

Form of the coexistence curve of liquid and gas near the critical point. Zhur. fiz. khim. 39 no.4:989-993 Ap '65.

(MIRA 18:1)

1. Nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy. Submitted Feb. 17, 1964.

L 27159-66   EWT(1)   IJP(c)

ACC NR: AP6014049   SOURCE CODE: UR/0056/66/050/004/1084/1094

AUTHOR: Giterman, M. Sh.; Gertsenshteyn, M. Ye.   21
                                                                                20
ORG: Institute of Physicotechnical and Radiotechnical Measurements (Institut   B
fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy)

TITLE: Theory of the Brownian motion and the possibility of application of the
theory for investigating the critical point of a pure substance

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 4, 1966,
1084-1094

TOPIC TAGS: Brownian motion, critical point

ABSTRACT: By virtue of the fluctuation and dissipation theorem, the characteristic
features of Brownian motion near the critical point of a pure substance were defined
by the particular dependence of the moving particle on frequency of the force
acting on it.   For a macroscopic particle, the determination of mobility is a hydro-
dynamic problem.   To solve this problem near the critical point, the high compres-
sibility of the liquid and the possible effect of the large radius of the density
correlations should be taken into account.   General formulas for mobility and
Brownian displacement were obtained, and the characteristic frequencies which are
important in the critical region were evaluated.   It was found that for displacements
occurring during periods exceeding the characteristic time $\tau_1 = |\omega_{01}|^{-1}$ (ω_{01} is the

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ACC NR: AP6014049

characteristic frequency), the mean square displacement of a Brownian particle is
determined by the usual Einstein equation. For times less than τ_1, the equation
also contains a coefficient dependent on the ratio of the displacement and the
volume of viscosities. The presence of a large correlation radius for the density
fluctuations near the critical point does not significantly modify the nature of the
Brownian motion, and, in essence, reduces to a certain degree the Brownian particle
radius. These conclusions are based on the assumption that the absence of a strong
frequency dependence of viscosity (for periods of fluctuation of the order of the
Brownian particle displacement times involved). The authors thank Academician
M. A. Leontovich for his advice and discussions. Orig. art. has: 43 formulas.
[Based on authors' abstract.]

[NT]

SUB CODE: 20/ SUBM DATE: 11Nov65/ ORIG REF: 008

Card 2/2 BK

GITERMAN, R.Ye.

Some data on the history of the vegetation of the lower reaches of the
Chusovaya River during the Quaternary period. Biul.Kom.chetv.per. no.17:
91-100 '53.   (MLRA 6:11)
        (Chusovaya valley--Paleobotany) (Paleobotany--Chusovaya valley)

KHOREVA, I.M.; GITERMAN, R.Ye.

Recent data on stratigraphic correlation of deposits in the lower
course of the Aldan River. Dokl.AN SSSR 138 no.3:659-662 My '61.
(MIRA 14:5)

1. Geologicheskiy institut AN SSSR. Predstavleno akademikom V.N.
Sukachevym.

(Aldan Valley—Paleobotany, Stratigraphic)

GITERMAN, Roza Yevseyevna; ZAKLINSKAYA, Ye.D., otv.red.; PEYVE, A.V.,
    glavnyy red.; MARKOV, M.S., red.; MENNER, V.V., red.; TIMOFEYEV, P.P.,
    red.; RABINOVICH, L.A., red.izd-va; DOROKHINA, I.N., tekhn.red.

[Stages in the development of Quaternary vegetation in Yakutia
and their stratigraphic significance] Etapy razvitiia chetvertichnoi
rastitel'nosti IAkutii i ikh znachenie dlia stratigrafii. Moskva,
Izd-vo Akad. nauk SSSR, 1963. 191 p. (Akademiia nauk SSSR.
Geologicheskii institut. Trudy, no.78).   (MIRA 16:8)

1. Zaveduyushchaya laboratoriyey sporovo-pyl'tsevogo analiza Otdela
chetvertichnoy geologii Geologicheskogo instituta AN SSSR (for
Zaklinskaya). 2. Chlen-korrespondent AN SSSR (for Peyve).
                    (Yakutiya—Paleobotany, Stratigraphic)

LAVRUSHIN, Yu.A.; GITERMAN, R.Ye.

Principal stages in the development of vegetation in the lower
Indigirka Valley during the Quaternary period. Dokl. AN SSSR
139 no.3:681-684 Jl '61.
(MIRA 14:7)

1. Geologicheskiy institut AN SSSR. Predstavleno akademikom
V.N. Sukachevym.
(Indigirka Valley--Paleobotany, Stratigraphic)

LAVRUSHIN, Yu.A.; DEVIRTS, A.L.; GITERMAN, R.Ye.; MARKOVA, N.G.

Primary data on the absolute chronology of principal events in
the Holocene of the northeastern part of the U.S.S.R. Biul.Kom.
chetv. per. no. 28:112-126 '63.   (MIRA 17:5)

GITERMAN, R.Ye.; GOLUBEVA, L.V.; ZAKLINSKAYA, Ye.D.; KORENEVA, Ye.V.;
MATVEYEVA, O.V.

Features of the vegetation cover of Kazantseva Interglacial
Siberia. Dokl. AN SSSR 152 no.4:937-940 O '63.   (MIRA 16:11)

1. Geologicheskiy instutut AN SSSR. Predstavleno akademikom
V.N. Sukachevym.

GITERMAN, R. YE.; GOLUBEVA, L. V.

"Developmental history of the vegetation of eastern Siberia during the Anthro-pogene Period."

report submitted for the 7th Intl Cong, Intl Assoc for Quaternary Research, Boulder & Denver, Colorado, 30 Aug-5 Sep 65.

GITERMAN, R.Ye.; GOLUBEVA, L.V.; KORENEVA, Ye.V.; MATVEYEVA, O.V.

Characteristics of the vegetative cover of the Zyryanka glacial period in Siberia.   Izv. AN SSSR. Ser. geol. 30 no.3:115-128 Mr '65.   (MIRA 18:3)

1. Geologicheskiy institut AN SSSR, Moskva.

DAVANKOV, A.B.; APTOVA, T.A.; GITERMAN, Z.M.

Oxidation-reduction processes and silver concentration on
electron-exchange polymers. Zhur.prikl.khim. 34 no.8:1852-
1857 Ag '61.   (MIRA 14:8)
                (Silver)
                (Oxidation—Reduction reaction)
                (Ion exchange resins)

AUTHORS: Gitgarts, D. A., Polyakov, A. Yu., Rudneva, A. V.

TITLE: Concentration of vanadium slags with high phosphorus content

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 22, abstract 3G144
             (V sb. "Fiz.-khim. osnovy proiz-va stali", Moscow, AN SSSR, 1961,
             271 - 276)

TEXT: The process of concentrating poor V-slags was studied in a laboratory.
For this purpose a fine-crushed slag specimen was processed in a water bath for
one hour with a HCl solution at 70 - 75°C, by stirring periodically. An amount of
5 - 10 ml gelatin was added to the solution, 5 - 10 minutes before removing it from
the bath, to bring about coagulation of silica. The non-dissolved precipitate was
then filtered off and boiled for 1 hour in a 10% soda solution, in order to bring
SiO_2 into a soluble state. At silica contents exceeding 20%, the concentrates may
contain $\leq$ 10 - 12% V_2O_3. Slags containing 14 - 18% SiO_2, make it possible to ob-
tain concentrates with 10 - 15% V_2O_3 at a consumption of 2.5 - 3.0 g HCl per 1 ton
of slag. Extraction of V is then 80 -85%. In such a manner, the chemical concen-
tration method makes it possible to obtain V concentrates whose V content is prac-

Card 1/2

Concentration of vanadium slags with...

S/137/62/000/003/046/191
A006/A101

tically similar to that of V-slags used in the USSR, at sufficiently high values
of V extraction into concentrates.

0. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

GITGARTS, D.A., inzh.; KOLGANOV, Ye.P., inzh.

Automatic control of the power factor of an induction melting
apparatus. Elektrotekhnika 35 no.4:36-38 Ap '64. (MIRA 17:4)

GITGARTS, Dmitriy Abramovich; POLISHCHUK, Yanina Aleksandrovna;
EDEMSKIY, V.M., red.

[Automatic control of induction-heated melting furnaces]
Avtomaticheskoe regulirovanie induktsionnykh plavil'nykh
ustanovok. Moskva, Energiia, 1965. 78 p. (Biblioteka
elektrotermista, no.24)   (MIRA 18:7)

GITGARTS, D.A., inzh.; POLISHCHUK, Ya.A., inzh.; KOLGANOV, Ye.P., inzh.

Automatic regulator for induction smelting systems using commercial
frequencies. Elektrotekhnika 36 no.5:30-32 My '65.

(MIRA 18:5)

S/126/61/011/004/011/023
E021/E435

AUTHORS: Arbuzov, M.P. and Gitgarts, M.I.

TITLE: Study of the State of the Solid Solution of ЭИ437A
             (EI437A) alloy During Ageing

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.4,
             pp.568-574

TEXT: The kinetics of the decomposition of the solid solution
were studied by X-ray analysis.   The composition of the alloy
EI437A was Cr 20.82, Ti 2.45, Al 0.91, Fe 0.57, Si 0.32,
Mn 0.25, Cu 0.05, C 0.04, P 0.008, S 0.004, Pb 0.0003%
and remainder Ni.   Samples were heated at 1095°C for eight hours
and air-cooled.   They were then aged at 600, 700, 750, 800, 850
and 900°C for up to 150 hours.   Copper radiation was used
together with nickel and aluminium filters.   The lattice
parameter could be measured with an accuracy of ± 0.0001 Å.
Fig.1 shows the change in lattice parameter with time at different
temperatures.   The most intensive decomposition occurred at 800 to
850°C and the biggest change occurred in the first 5 to 10 hours
of ageing.   At low temperatures the decomposition of solid
solution is retarded because of the low diffusion mobility of the
Card 1/7

Study of the State of ...

S/126/61/011/004/011/023
E021/E435

atoms.   At higher temperatures the diffusion is much greater and
decomposition takes place much more rapidly.   At 900°C, however,
the solubility of Al and Ti is considerably higher than at 850°C.
Therefore, after a few hours ageing, the composition approaches
equilibrium for that temperature.   Fig.2 shows the change in the
width of the (420) line with ageing time at various temperatures.
Further X-ray photographs were taken with non-moving samples.
Fig.3 shows some of these photographs after 150 hours ageing.   The
reflections from the quenched sample show that the specimen was
very homogeneous.   In the samples aged at 750, 800 and 850°C
there was considerable dispersion of the reflections and an
increase in their number.   At 600 and 700°C changes were noted
after long ageing times.   At 900°C the dispersion of the
reflections is seen but their number and dimensions differ little
from that of the quenched sample.   The increase in the width of
the line at 800 to 850°C is caused in the main by marked
concentration inhomogeneities which occur during the ageing process.
At 750°C decomposition is accompanied by continuously growing
concentration inhomogeneities.   At the same time, the regions of
coherent reflections are breaking up.   At 900°C, concentration
Card 2/7

Study of the State of ...

S/126/61/011/004/011/023
E021/E435

inhomogeneities arise and the regions of coherent reflection are
relatively large.   At 700°C, there are slight concentration
inhomogeneities.   The finely dispersed character of this probably
leads to the formation of a fine mosaic structure with small
misorientated regions of coherent reflection.   There are
3 figures and 6 references: 5 Soviet.and 1 non-Soviet.

ASSOCIATION: Kiyevskiy institut GVF
             (Kiyev Institute GVF)

SUBMITTED: May 14, 1960 (initially)
             December 10, 1960 (after revision)

Card 3/7

18.9200

22956
S/126/61/011/005/001/015
E193/E183

AUTHORS: Arbuzov, M.P., and Gitgarts, M.I.

TITLE: X-ray investigation of the phase precipitated during
             ageing of the EI437A (EI437A) alloy

PERIODICAL: Fizika metallov i metallovedeniye, Vol.11, No.5, 1961,
             pp 664-669

TEXT: The investigation described in the present paper was
conducted in continuation of the earlier work (Ref.1; FMM, 1961,
Vol.11, 568) concerned with the constitution and structure of aged
alloy EI437A, consisting of (wt.%): 20.82 Cr, 2.45 Ti, 0.91 Al,
0.57 Fe, 0.32 Si, 0.25 Mn, 0.05 Cu, 0.04 C, 0.008 P, 0.004 S,
0.0003 Pb, remainder Ni.   Cylindrical specimens 26 mm in diameter
and 6 mm thick were solution-treated (eight hours at 1095 °C,
followed by air-quenching) after which they were aged at 600, 700,
750, 800, 850 and 900 °C for periods ranging up to 150 hours.
The kinetics of the growth of the γ' precipitates was studied by
studying the variation of the size of the regions of coherent
scattering, this parameter being considered to be a sufficiently
accurate criterion of the size of the γ'-phase particles, owing to
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S/126/61/011/005/001/015
X-ray investigation of the phase   E193/E183

the fact that these particles usually consist of single blocks.
The X-ray diffraction analysis was carried out on cylindrical
specimens 0.8 mm in diameter prepared from a'-phase particles
which had been extracted from the aged specimens by electrolytic
dissolution in an electrolyte containing 10 g ammonium sulphate
and 10 g of citric acid in 1200 cc of water. Some X-ray work was
also carried out on massive aged specimens. The dimension, D_x.
of the mosaic blocks was determined from the width of the (111)
and (420) lines, the (420) lines being used to determine the
lattice parameter of the a' phase. Hardness of the aged specimens
was also determined. The results are reproduced graphically in
Figs. 1 and 2. In Fig. 1 D_x (10^{-6} cm) is plotted against ageing
time (hours) at temperatures indicated by each curve. (The size
of the a'-phase particles in specimens aged at 600 °C was too small
to be determined by the method employed). It will be seen that
with increasing time and/or temperature of ageing, the size of the
a' particles increases the process being relatively slow at 700
and 750 °C, and very fast at 900 °C, so much so that the size of
the a' particles after 25 hours' ageing at 900 °C is too large to
be determined by X-ray diffraction. The lattice parameter of the
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X-ray investigation of the phase ...   E193/E183

α' phase at 800-900 °C was found to be practically constant, which indicated that the composition of this phase in this temperature range is also practically constant. The X-ray diffraction patterns obtained on specimens aged for 100 hours at 900 °C showed side by side with the lines of the disordered f.c.c. lattice of the α' phase, the presence of weak (100), (210), (211), (221) + (300), (310) and (321) lines indicating the existence of a superstructure. The fact that long-range order can exist in the α phase in a wide temperature range indicates its relatively high stability. The lattice parameter of the α phase determined on massive specimens was on average 0.008 Å smaller than that determined on α particles extracted by electrolytic dissolution. This indicated that the α' particles in an aged alloy are subjected to tri-axial compression in the elastic range. Fig.2 shows hardness H_V of the aged specimens plotted against the ageing time at temperatures indicated by each curve. It will be seen that hardness of specimens aged at 600, 700 and 750 °C continuously increased with time, reaching after 150 hours the value of 223, 289 and 286 kg/mm^2 respectively. H_V of the solution-treated alloy being 155-160 kg/mm^2. The rate of hardening is at its maximum in the initial stages of the process. Card 3/7

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X-ray investigation of the phase   E193/E183

and slows down after the first 5-10 hours. This character of the
hardness curves can be explained on the basis of kinetics of the
decomposition of solid solutions, illustrated in Fig.3 (Ref.1),
where the lattice parameter a (Å) of the solid solution is
plotted against the ageing time (hours). It will be seen that the
rate of decomposition in the initial stage of the process is fast
as a result of which a large quantity of the α' phase is
precipitated, although the particle size of the precipitate is
relatively small hence the rapid increase in hardness of the
alloy during this stage. On further ageing, the rate of
decomposition decreases and the size of the precipitated α'-phase
particles increases at a rate which increases with the ageing
temperature (see Fig.1), as a result of which the rate of
hardening decreases. Low hardness of alloy aged at 600 °C is due
to the small quantity of the α' phase present. The differences in
hardness attained by ageing at various temperatures for various
times can be explained by the difference in the quantity of the α'
phase and/or in the size of the particles of the phase.
V.I. Arkharov is mentioned for his contribution in this field.
There are 3 figures, 1 table and 9 references: 8 Soviet and 1
Card 4/7   non-Soviet
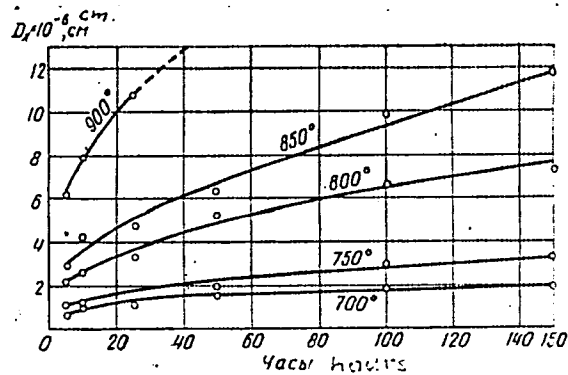
22956

S/126/61/011/005/001/015
X-ray investigation of the phase E193/E183

ASSOCIATION: Kiyevskiy institut GVF (Kiyev Institute GVF).
SUBMITTED: June 25 1960 (initially),
              February 1 1961 (after revision)

Fig. 1

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AUTHORS   Arbuzov, M.P. and Gitgarts, M.I.

TITLE   A study of thermal expansion of the solid solution
             [matrix] and the precipitated phase in the
             ЭИ437A (EI437A) alloy

PERIODICAL   Fizika metallov i metallovedeniye v.12, no. 5,
             1961, 693 - 696

TEXT   In the case of pure metals the thermal expansion
coefficient, λ, decreases with increasing magnitude of inter-
atomic forces and the object of the present investigation was
to check whether the same applied to solid solutions and inter-
mediate phases   To this end the temperature-dependence of λ
of pure Ni and of both the solid-solution matrix and the
precipitated α'-phase in solution-treated and aged alloy EI437A
was determined.   Instead of the usual dilatometric method
X-ray diffraction was used to determine λ , which was calculated
from data on the lattice parameter of the materials studied.
Since the results of X-ray diffraction analysis of the α'-phase
could have been affected by the fact that particles of this phase

Card 1/2

S/126/61/012/005/009/028

A study of thermal expansion E193/E383

in the actual alloy were subjected to compression the lattice
parameter of this phase was determined on specimens obtained by
electrolytic dissolution of the aged alloy EI437A. The X-ray
diffraction measurements were taken at 20 100 200 300 400 and
500 °C. The results are reproduced in a graph where the
lattice-parameter increment $\triangle a$ $\overset{\circ}{A}$ is plotted against tempera-
ture (°C), Curves 1-3 relating, respectively to pure Ni solid-
solution matrix in alloy EI437A and the a'-phase. The
calculated values of λ are given in a table The results
indicated that the atomic bond forces were lower in pure Ni,
greater in the solid-solution matrix and greater still in the
precipitated a'-phase. These findings were in agreement with
previously established data (Ref. 4: G.V. Kurdyumov and
N.T. Travina - Problemy metallovedeniya i fiziki metallov
1955, no. 4 402) on the characteristic temperature of these
materials which was 350 °C for Ni 500 °C for the solid-
solution matrix and 300 °C for the a'-phase. There are
1 figure 1 table and 12 Soviet-bloc references.

ASSOCIATION: Kiyevskiy instute GVF (Kiyev Institute GVF)
SUBMITTED: May 3, 1961
Card 2/4,2

S/126/62/013/003/012/023
E021/E180

AUTHORS: Arbuzov, M.P., and Gitgarts, M.I.

TITLE: The problem of quantitative separation of phases by the method of anodic dissolution

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.3, 1962, 411-414

TEXT: The commercial alloy ЭИ 437А (EI437A) of great high-temperature-strength was used in the investigation. Disc-shaped samples (26 mm diameter, 6 mm high) were prepared and cooled in air after holding at 1095 °C for 8 hours. Ageing at 600, 700, 750, 800 and 900 °C for up to 150 hours was carried out. The electrolyte used for the electrochemical separation of the α'-phase – Ni_3(Al,Ti) – consisted of 10 g ammonium sulphate, 10 g citric acid and 1200 ml water. One of the end surfaces of the samples was cleaned of oxides by polishing and preliminary anodic dissolution to a depth of 0.8-1 mm. The samples were then freed from precipitate, washed in ethyl alcohol, dried in air and weighed. Anodic dissolution was carried out using a current

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The problem of quantitative ...   S/126/62/013/003/012/023
                                     E021/E180

density of 0.06 A/cm^2, at 0 °C for 1.5 hours. Afterwards the
sample and the precipitate produced were removed, washed with
ethyl alcohol, dried in air and weighed. The quantity of α'-
phase was determined as a percentage of the total part of the
sample dissolved. The quantity of α'-phase produced increased
with increasing time. On increasing the temperature from 600 to
750 °C the quantity also increased, but on increasing the
temperature further to 900 °C the quantity decreased.   These
results did not agree with the amount of precipitate calculated
from measurements of the lattice parameter of the solid solution.
The results, however, are explained as follows. At 600 °C the
particles have very small dimensions and their free energy will
be large. Thus, during anodic dissolution, they will dissolve
to a marked degree. With increased ageing time the quantity of
particles and their size increase. At 700-750 °C there is much
fuller precipitation and the particle size reaches 100-300 Å.
With increase in ageing temperature to 800 °C and higher, the
particles are much larger, the rate of their dissolution
increases but the separation is less complete.
Card 2/3

The problem of quantitative ...   S/126/62/013/003/012/023
                                       E021/E180

There are 4 figures.

ASSOCIATION: Kiyevskiy institut GVF
             (Kiev Institute GVF)

SUBMITTED: May 26, 1961

Card 3/3

GITGARTS, M.I.

Nature of the broadening of diffraction lines during the aging
of alloys. Fiz. met. i metalloved. 19 no.3:380-388 Mr '65. (MIRA 18.4)

1. Institut mashinovedeniya i avtomatizatsii, Minsk.

EXCERPTA MEDICA Sec 17 Vol 5/1   Public Health   Jan   59

250. INFLUENCE OF CLIMATE AND WEATHER ON THE INCIDENCE OF
      PNEUMONIA AND ITS COURSE DURING THE YEAR (Russian text) -
      Gities I.I. - GIGIENA 1957, 2 (58-60) Graphs 1 Tables 1
Meteorological factors have a prominent influence on the incidence of pneumonia.
The continental climate causes greater peaks of pneumonic illnesses in months
with changing air 'fronts'. The incidence of pneumonia in Lwow and Leningrad
(sea climate) was more evenly distributed through the year than in Stalino and
Samarkand (continental climate). The importance of preventing colds in prophyl-
axis of pneumonia is stressed.   Makower - Wroclaw

GITILIS, V. S.

Cand Biol Sci - (diss) "Land mollusks of the Soviet Bukovina.
(Distribution, ecology, and economic evaluation)." L'vov, 1961.
22 pp; (Ministry of Higher and Secondary Specialist Education
Ukrainian SSR, L'vov State Univ imeni I. Franko); 150 copies;
price not given; (KL, 7-61 sup, 227)

15(8)

AUTHOR: Gitin, A.M.

TITLE: Conference on Questions of Precision and Interchange-
            ability of Articles Fashioned From Plastic

PERIODICAL: Standartizatsiya, 1959, Nr 10, pp 60-61 (USSR)

ABSTRACT: In Leningrad, a conference on questions of plastic
            article production accuracy and interchangeability
            was convened. A number of experts delivered reports.
            Engineer V.P. Krivosheyev - Technical Administration of
            Leningrad Sovnarkhoz, Candidate of Technical Sciences
            V.N. Gostev - Leningrad Technological Institute, and
            Engineer N.N. Novikova - Plant imeni "Komsomol'skaya
            Pravda", outlined the need for shrinkage decrease,
            which amounts for some kinds of plastics to 0.6-1.0%.
            Engineer V.A. Braginskiy - Leningrad, and Yu.A. Vorob'-
            yeva - MVTU imeni Bauman, emphasized the importance
            of coordination of allowances, particularly when
            plastic and metal components are conjugated. Engi-
            neer A.S. Smirnov proposed paying special attention
            to the methods of mounting plastic components. Engi-

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SOV/28-59-10-28/36

Conference on Questions of Precision and Interchangeability of Art-
icles Fashioned from Plastic

neer L.F. Gromov spoke about the method of plastic
articles threading practiced over the last 20 years
at the Plant "Soyuz". Engineer D.G. Selivanov dwel-
led on the subject of considering the specific pro-
perties of plastic mass when constructing components.
Candidate of Technical Sciences A.D. Fedorov - MVTU
imeni Bauman, investigated the possibility of using
existing meters for measuring plastic articles. The
conference decided to standardize the technological
processes applied in manufacturing of plastic compo-
nents, and expressed the wish that the GNTK USSR
organize planning and coordination of work in the
field of interchangeability and precision of articles
fashioned from plastic.

Card 2/2

GITIN, E.Sh., inzhener.

New technology for repairing gondola cars. Zheldor.transp. 39
no.6:59-61 Je '57.   (MIRA 10:7)
                (Railroads--Cars--Maintenance and repair)

GITIN, M.A., inzh.

New method for controlling and tuning the video channel of a
television station. Vest. sviazi 24 no.12:9-10 D '64
                                           (MIRA 18:2)

1. Estonskiy respublikanskiy radiotsentr.

SOV/110-59-4-21/23

AUTHORS: Balyberdina S.P., Gitin V.Ya., Greysukh M.A., Dobrer Ya.K., and Messerman G.T.   (Engineers)

TITLE: Accelerated Methods of Drying 35 - 220 kV Current Transformers (Metody uskorennoy sushki transformatorov toka na napryazheniye 35 - 220 kv)

PERIODICAL: Vestnik Elektropromyshlennosti,1959,Nr 4,pp 71-75(USSR)

ABSTRACT: The drying of current transformers takes up about 40% of the total manufacturing time. This article considers methods of reducing that time. The process of drying insulation is then considered and is sub-divided into the processes of vapourisation of moisture, its displacement within the insulation and its evaporation from the surface of the insulation. To accelerate the drying process it is very desirable to heat the transformer conductors by electric current so that the flow of heat is in the same direction as the flow of moisture. It is often also necessary to heat the outside layers of insulation so that the evaporation is rapid enough. In investigating the process of drying insulation of current transformers the following methods of supplying the windings with current were tried: a.c. supply to the primary with the secondary short circuited, with this method the heat

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Accelerated Methods of Drying 35 - 220 kV Current Transformers
        evolved in the secondary winding is much less than that
        in the primary and so the secondary does not dry quickly
        enough; a.c. supply to the secondary winding with the
        primary winding connected to an inductance, by this
        method suitable currents can be obtained in both windings
        and drying is quick; a.c. supply to the primary, with
        additional d.c. supply to two secondaries connected in
        series, if they are third and fourth secondary windings
        they are short circuited and by this means it is possible
        to accelerate drying of the secondary windings through
        which d.c. is passed. Both of the last two methods meet
        the main requirements; the first of the two is simpler
        but not always applicable when the secondary windings are
        for a rated current of 1 A, since dangerously high
        voltages are required. The other method gives uniform
        heating but the simultaneous use of two kinds of current
        creates practical difficulties. A table gives types of
        transformers, rated current, and recommended methods of
Card 2/4 connection before drying. In order to verify the
        calculations and to compare various methods of drying,
        accelerated drying tests were made on current transformers

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Accelerated Methods of Drying 35 - 220 kV Current Transformers

for voltages of 35, 110, 154 and 220 kV under laboratory conditions. Thermocouples were installed at several places in the test transformers. The drying process was followed by measurements of dielectric loss and insulation resistance between secondaries and earth. Drying was considered to be complete when the electrical properties of the insulation reached steady values. Graphs of power factor and insulation resistance for current transformers type TFN-35 and TFND-110 are given in Figs 2 and 3 which also give for comparison the corresponding values when the insulation is dried by the current factory procedures. It will be seen from the graphs that the use of electric current to heat the windings has cut the drying time by a factor of 5. Similar measurements made on other current transformers
Card 3/4   dried by passage of current with the transformer in an

SOV/110-59-4-21/23

Accelerated Methods of Drying 35 - 220 kV Current Transformers

oven are given in Fig 4 and it will be seen that the

Card 4/4 combined method of drying is both quicker and better.
There are 4 figures, no references.

SUBMITTED: June 3, 1958

L 36267-66

ACC NR: AR6016257   SOURCE CODE: UR/0058/65/000/011/H039/H039

AUTHOR: Gitin, V. Ya.

TITLE: Displacement of rectangular waveguides in the plane of polariza-
tion of the fundamental wave H_{10}

SOURCE: Ref. zh. Fizika, Abs. 11Zh264

REF SOURCE: Tr. Uchebn. in-tov svyazi, vyp. 25, 1965, 43-52

TOPIC TAGS: rectangular waveguide, light reflection coefficient,
fundamental wave

ABSTRACT: Equations are obtained for the reflection coefficient and
the conductivity equivalent of the waveguide connection during displace-
ment of waveguides in the plane of polarization of the fundamental
wave H_{10}. [Translation of abstract]   [NT]

SUB CODE: 20

Card   1/1

GITIN, Ye.M.

Production potentials of technological units for increasing the
load of mines in Lugansk Economic Council. Nauch.soob.IGD
14:24-28 '62.   (MIRA 16:1)
        (Donets Basin—Coal mines and mining)

G,T,NH, L. YA.

BEYLINA, TS.O., inzhener; BLAGONADEZHDIN, V.Ye., inzhener; BOGUSLAVSKIY, P.Ye., kandidat tekhnicheskikh nauk: VORONKOV, I.M., professor, GITINA, L.Ya., inzhener; GROMAN, M.B., inzhener; GOROKHOV, N.V., doktor tekhnicheskikh nauk [deceased]; DENISYUK, I.N., kandidat tekhnicheskikh nauk; DOVZHIK, S.A., kandidat tekhnicheskikh nauk; DUKEL'SKIY, M.P., professor, doktor khimicheskikh nauk [deceased]; DYKHOVICHNYY, A.I., professor; ZHITKOV, D.G., professor, doktor tekhnicheskikh nauk; KOZLOVSKIY, N.S., inzhener; LAKHTIN, Yu.M., doktor tekhnicheskikh nauk; LEVENSON, L.B., professor, doktor tekhnicheskikh nauk [deceased]; LEVIN, B.Z., inzhener; LIPKAN, V.F., inzhener; MARTYNOV, M.V., kandidat tekhnicheskikh nauk; MOLEVA, T.I., inzhener; NOVIKOV, F.S., kandidat tekhnicheskikh nauk; OSETSKIY, V.M., kandidat tekhnicheskikh nauk; OSTROUMOV, G.A.; PONOMARENKO, Yu.F., kandidat tekhnicheskikh nauk; RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk; REGIRER, Z.L., inzhener; SOKOLOV, A.N., inzhener; SOSUNOV, G.I., kandidat tekhnicheskikh nauk; STEPANOV, V.N., professor; SHEMAKHANOV, M.M., kandidat tekhnicheskikh nauk; EL'KIND, I.A., inzhener; YANUSHE-VICH, L.V., kandidat tekhnicheskikh nauk; BOKSHITSKIY, Ya.M., inzhener, redaktor; BULATOV, S.B., inzhener, redaktor; GASHINSKIY, A.G., inzhener, redaktor; GRIGRO'YEV, V.S., inzhener, redaktor; YEGURNOV, G.P., kandidat tekhnicheskikh nauk, redaktor; ZHARKOV, D.V., dotsent, redaktor; ZAKHAROV, Yu.G., kandidat tekhnicheskikh nauk, redaktor; KAMINSKIY, V.S., kandidat tekhnicheskikh nauk, redaktor; KOMARKOV, Ye.F., professor, redaktor; KOSTYLEV, B.N., inzhener, redaktor; POVAROV, L.S., kandidat tekhnicheskikh nauk, redaktor; ULINICH, F.R., redaktor; KLORIK'YAN, S.Kh., otvetstvennyy redaktor; GLADILIN, L.V., redaktor;

(Continued on next card)

BEYLINA, TS.O. --- (continued)   Card 2.

RUPPENEYT, K.V., redaktor; TERPIGOREV, A.M., glavnyy redaktor; BARABANOV, F.A., redaktor; BARANOV, A.I., redaktor; BUCHNEV, V.E., redaktor; GRAFOV, L.Ye., redaktor; DOKUKIN, A.V., redaktor; ZADEMID- KO, A.N., redaktor; ZASYAD'KO, A.F., redaktor; KRASNIKOVSKIY, G.V. redaktor; LETOV, N.A., redaktor; DISHIN, G.L., redaktor; MAN'KOV- SKIY, G.I., redaktor; MEL'NIKOV, N.V., redaktor; ONIKA, D.G., redaktor; OSTROVSKIY, S.B., redaktor; POKROVSKIY, N.M., redaktor; POLSTYANOY, G.N., redaktor; SKOCHINSKIY, A.A., redaktor; SONIN, S.D., redaktor; SPIVAKOVSKIY, A.O., redaktor; STANCHENKO, I.K., redaktor; SUDOPLATOV, A.P., redaktor; TOPCHIYEV, A.V., redaktor; TROYANSKIY, S.V., redaktor; SHEVYAKOV, L.D., redaktor; BYKHOV- SKAYA, E.N., redaktor izdatel'stva; ZAZUL'SKAYA, V.F., tekhniche- skiy redaktor; PROZOROVSKAYA, V.L., tekhnicheskiy redaktor.

[Mining; an encuclopedic handbook] Gornoe delo; entsiklopedicheskii spravochnik. Glav.red. A.M. Terpigorev. Chleny glav.red. F.A. Bara- banov i dr. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po ugol'noi promysh]. Vol.1. [General engineering] Obshchie inzhenernye svedeniia. Redkollegiia toma S.Kh.Klerik'ian i dr. 1957. 760 p.
                (Mining engineering)   (MLRA 10:10)

SOV/79-29-7-24/83

5(3)
AUTHORS: Radzhabli-Seidova, N. A., Khromov, S. I., Gitina, R. M.,
            Balenkova, Ye. S., Treshchova, Ye. G., Kazanskiy, B. A.

TITLE: Contact Transformations of 1,1-Dimethyl Cyclohexane and 1-Methyl-
            1-ethyl Cyclohexane in the Presence of an Aluminosilicate
            Catalyst (Kontaktnyye prevrashcheniya 1,1-dimetiltsiklogeksana
            i 1-metil-1-etil-tsiklogeksana v prisutstvii alyumosilikatnogo
            katalizatora)

ABSTRACT: The numerous Russian petroleum types contain among other
            cycloparaffin hydrocarbons 1,1-dimethyl cyclohexane and
            1,1,3-trimethyl cyclohexane (Ref 1). According to reference 2
            also the transformations of 1,1-dimethyl cyclohexane at 540°
            over an aluminosilicate   catalyst are described. For the
            authors it was of interest to investigate the behavior of the
            most simple mixed methyl alkyl cyclohexanes in the catalytic
            cracking process over an aluminosilicate   catalyst. For this
            purpose the behavior of 1,1-dimethyl cyclohexane and 1-methyl-
            1-ethyl cyclohexane over the above catalyst were investigated
            at 500°. In this connection gaseous products, a liquid
            condensate, and coke which separated on the catalyst were
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Contact Transformations of 1,1-Dimethyl Cyclohexane   SOV/79-29-7-24/83
and 1-Methyl-1-ethyl Cyclohexane in the Presence of an Aluminosilicate
Catalyst

obtained. The gaseous products were first fractionated at low
temperatures and then determined. The liquid condensate was
subjected to an accurate rectification, chromatographic
adsorption on silica gel as well as to optical and chemical
investigations. The following per cent composition of the
reaction products of 1,1-dimethyl cyclohexane were found:
hydrocarbon 21.4%, liquid paraffin hydrocarbons 2.6%, naphthene hy-
drocarbons 8.4, aromatic hydrocarbons 45.2%, coke 22.4%. For 1-methyl-1-ethyl
cyclohexane (in wt%): 10.8% gaseous hydrocarbons, 23.0% mixture
of paraffin naphthene hydrocarbons, 40.5% aromatic hydrocarbons,
25.7% coke. Under the chosen conditions of catalysis the
separation of the alkyl groups which are in the quaternary
cyclic carbon atom, hydrocracking process, methylation,
aromatization as well as the isomerization of the six-membered
cycles into five-membered ones take place. The main products
are aromatic hydrocarbons and in small quantities paraffin and

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Contact Transformations of 1,1-Dimethyl Cyclohexane   SOV/79-29-7-24/33
and 1-Methyl-1-ethyl Cyclohexane in the Presence of an Aluminosilicate
Catalyst

                 naphthene-hydrocarbons. The direction of the contact trans-
                 formations of the mixed dialkyl cyclohexanes are illustrated
                 by the scheme in the experimental part. There are 6 tables
                 and 11 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 3, 1958

Card 3/3

SHIROKOVA, N.I.; RUSSKOVA, Ye.F.; ALISHOYEVA, A.B.; GITINA, R.M.; LEVKOYEV,
    I.I.; KOZLOV, P.V.

    Polycarbonates. Part 3: Synthesis of 2, 2-bis(4'-hydroxyphenyl)
    propane polycarbonates in a homogeneous medium and their properties.
    Vysokom.soed. 3 no.4:642-649 Ap '61.   (MIRA 14:4)

    1. Vsesoyuznyy nauchno-issledovatel'skiy kino-foto institut.
                        (Carbonic acid)

GITINA, R.M.

2

JOUR: S/063/62/007/002/012/014
A057/A126

II. 2714

AUTHORS: Zaytseva, Ye.L., Draz, G.I., Yakubovich, A.Ya., Bazov, V.P.,
Petrova, L.G., Gitina, R.M.

TITLE: Synthesis of mixed 2,4,6-trialkyl-1,3,5-triazines and polymer
triazine compounds from iminoesters

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva imeni D.I.
Mendeleyeva, v. 7, no. 2, 1962, 232 - 233

TEXT: In continuation of earlier experiments in which symmetric 2,4,6-
-trialkyl- and 2,4,6-triaryl-substituted 1,3,5-triazines were prepared by cycli-
zation of iminoesters in the presence of catalytic quantities of their salts,
2,4,6-substituted triazines mixed in an analogous way were prepared by combined
cyclization with esters of different iminoacids in the present investigation.
When the paper published earlier was already in press, it was observed, that
F. Schaefer, and G. Peters reported on the same subject [Ref. 2: J. Org. Chem.,
26, 2778 (.961)]. If a mixture of ethyl esters of imino acid and imino butyric
acid are cyclisized in the presence of 6 mole% of the chlorohydrate of iminoesters,
a mixture of four substituted triazines is obtained, namely a) R = R' = CH$_3$

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Synthesis of mixed ......

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(where R = positions 4 and 6, and R' = position 2 in the symmetric triazine), b)
R = CH₃, R' = n-C₃H₇, c) R = n-C₃H₇, R' = CH₃, d) R = R' = n-C₃H₇. The composi-
tion of the mixture depends upon the proportion of the initial iminoesters. By
distillation over metallic sodium the pure esters b) and c) could be separated
and their characteristics determined. 2,4,6-tris-(δ-carboetoxybutyl)-triazine
was synthesized by cyclization of the diethyl ester of mono-iminoadipic acid and
specified. A structurized polymer was prepared by cyclization of the diethylester
of bis-iminoadipic acid. The polymer is a yellow, crumbling substance, not soluble
in common organic solvents, but swelling in benzene. The same polymer can be ob-
tained from dibenzylester of bis-iminoadipic acid. According to the infrared
spectrum the polymer contains triazine rings, and apparently C - NH groups. A
triazine polymer can be obtained also by combined cyclization of diethyl ester of
bis-imino adipic acid and ethyl ester of imino acetic acid. There are 1 table
and 3 references.

ASSOCIATION: Fiziko-khimicheskiy Institut im. L.Ya. Karpova (Physico-chemical
                Institute imeni L.Ya. Karpov)

SUBMITTED: December 22, 1961

Card 2/2

ZAYTSEVA, Ye.L.; BRAZ, G.I.; YAKUBOVICH, A.Ya.; BAZOV, V.P.; PETROVA, L.G.;
GITINA, R.M.

Synthesis of mixed 2,4,6-trialkyl-1,3,5-triazines and polymer
triazine compounds from iminoesters. Zhur.VKHO 7 no.2:232-233
'62.   (MIRA 15:4)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.
(Triazine) (Esters)

ZAYTSEVA, Ye.L.; GITINA, R.M.; YAKUBOVICH, A.Ya.; BRAZ, G.I.; PETROVA, L.G.;
     BAZOV, V.P.

     Synthesis and some properties of unsaturated carboxylic acid
     esters. Zhur. ob. khim. 34 no.4:1314 Ap '64.   (MIRA 17:4)

L 01039-67 FWT(m)/EWP(j)/T IJP(c) WW/JW/RM

ACC NR: AP6019549   (A)   SOURCE CODE: UR/0190/66/008/006/1137/1137

42
39
B

AUTHOR: Yakubovich, A. Ya.; Gitina, R. M.

ORG: none

TITLE: Preparation of fluorinated polyamides by low temperature polycondensation in amide solvents

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 1137

TOPIC TAGS: polyamide, fluorinated organic compound, polycondensation, polymerization kinetics

ABSTRACT: Preparation of polyfluoroglutamides by reacting dichloroglutamides of the perfluoroglutaric acid with 3,3'-dioxybenzidine in diamethylacetamide in dry argon atmosphere at -10° to 0°C is reported. The viscosity of a solution of 0.5 g polymer in 100 ml dimethylfluoroamide at 25°C was: $[n_{log}] \sim 0.10-0.15$. The structure of the polyfluoroglutamides was confirmed by IR spectroscopy. The success of this preparation procedure is explained in terms of the high rate of interaction of the dimethyl-acetamide solvent with both the starting dichloroanhydride of the perfluoroglutaric acid and the active terminal chloroanhydride groups of the macromolecules; the latter interaction leads to chain termination. In order to establish the ratio of the rates of growth and cleavage of the polymer molecules, subsequent syntheses were based on

Card 1/2   U DC: 541.64+678.675

L 01039-67

ACC NR: AP6019549   3

(1) the less reactive dichloroanhydrides of the iso- and terephthalic acids and (2) the
dihydrazide of perfluoroglutaric acid instead of diamide. In this case, the polycon-
densation of an equimolar mixture of the starting components in N-methylpyrrolidone at
0°C led to the previously unreported high molecular fluorinated polyhydrazides: poly-
-1-isophthalyl-2-perfluoroglutarylhydrazide and poly-1-terephthalyl-2-perfluoroglu-
tarylhydrazide. The viscosity of these polymers in dimethylformamide is:
$[\eta_{log}] = 0.6$-0.7.

SUB CODE: 07/   SUBM DATE: 01Feb66/   ORIG REF: 002/   OTH REF: 002

awm

Card 2/2

GITIS, A., inzh.

Erecting modern rolling mills. Prom. stroi. i inzh. soor. 5
no.5:12-16 S-O '63.   (MIRA 16:12)

GITIS, A.I., inzh.

Simultaneous assembling of mixers and casting cranes in a currently operating shop. Nov.tekh.mont.i spets.rav. v stroi. 21 no.10:8-10 O '59.   (MIRA 12:11)

1. Krivorozhskoye upravleniye Prokatmontazh.
        (Metallurgical plants--Equipment and supplies)

GITIS, A.I., inzh.

Inspection of the equipment of rolling mills. Mont. i spets. rab.
v stroi. 24 no.1:12-14 Ja '62.   (MIRA 15:7)
          (Rolling-mill machinery)

GITIS, B.K.

Making pamphlets on large-scale topographic surveys. Geod.i
kart. no.4:48-49 Ap '62.   (MIRA 15:12)
                    (Topographical surveying)

28(1,2); 6(4); 7(7); 9(0)

Gitis, E.I.

Elektroradioavtomatika; elementy avtomaticheskikh i vychislitel'nykh
   ustroystv aviatsionnykh radioustanovok (Radio-Electronic Automa-
   tion; Elements of Automatic and Computing Equipment in Aviation
   Radio Installations) Moscow, Gosenergoizdat, 1959. 422 p. 30,000
   copies printed.

Ed.: V.I. Shamshur; Tech. Ed.: G.Ye. Larionov

PURPOSE: This book was approved by the Ministry of Higher Education,
   USSR, as a textbook for students of aviation vuzes specializing in
   radio engineering. It may also be useful to radio engineers inter-
   ested in the fundamentals of designing automatic and computing equip-
   ment.

COVERAGE: The book contains basic information on automatic control
   and computing systems used in aviation radio installations. The
   construction of antenna drives, of remote angle transmission, and
   of low-power servomechanisms is discussed in the first part of the
   book. The second part describes analog and digital computers. The

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'Radio-Electronic Automation (Cont.)   SOV/1590

    textbook is used for the course "Radio-Electronic Automation" and
is based on lectures delivered by the author from 1946 to 1958 at
the Radio Engineering Department of the Moscow Aviation Institute
imeni S. Ordzhonikidze. Considering the limitations of the book,
problems concerning components and devices covered in other courses
given by the Department are not included in the book. Problems of
designing automatic range- and angle-tracking systems are not in-
cluded since they, too, are presented in other courses. V.K. Grishin
helped to write sections 3 and 5 of Chapter 3 and sections 3,4 and
5 of Chapter 4. N.Ya. Matyukhin helped in writing Chapter 8. The
author thanks Professor G.M. Zhdanov, N.I. Chistyakov, Professor
M.R. Shura-Bura and Candidate of Technical Sciences I.Ya. Lekhtman
for reviewing the manuscript. The author gives a short historical
sketch of the development of automatic control and computer tech-
nique and mentions the following Soviet scientists who made contri-
butions to the field: (automatic control) I.N. Voznesenskiy, V.S.
Kulebakin, A.V. Mikhaylov, A.A. Andronov, N.M. Krylov, N.N. Bogolyubov,
V.V. Solodovnikov, Ya.Z. Tsypkin, A.A. Fel'dbaum, V.I. Kovalenko,
V.K. Arkad'yev, M.P. Kostenko, V.A. Trapeznikov, A.G. Iyosif'yan, and
B.S. Sotskov; (computer technique) I.S. Bruk, V.A. Trapeznikov, V.B.
Ushakov, A.A. Fel'dbaum, G.M. Petrov, L.N. Fintsner, B.Ya. Kogan,
Card 2/7

'Radio-Electronic Automation (Cont.)   SOV/1590

    S.A. Lebedev, Yu.Ya. Bazilevskiy, B.I. Rameyev, L.A. Lyusternik,
A.A. Lyapunov, M.R. Shura-Bura, L.V. Kontorovich, and K.A. Semendyev.
He also mentions the universal digital computers "BESM", "Strela",
M-2 and M-3, and "Ural", which were developed in the USSR. There
are 43 references, of which 30 are Soviet and 13 translations from
the English.

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· Radio-Electronic Automation (Cont.)   SOV/1590

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Radio-Electrical Automation (Cont.)   SOV/1590

AVAILABLE: Library of Congress

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                                5-6-59

Card 7/7

28 (1) 16.6800

AUTHOR: Gitis, Emmanuil Isaakovich, Candidate of   SOV/161-59-1-17/25
Technical Sciences, Docent

TITLE: Principles of Conversion of Analog Quantities Into Digital
Quantities and of Digital Quantities Into Analog Quantities

PERIODICAL: Nauchnyye doklady vysshey shkoly. Elektromekhanika i avtomatika,
1959, Nr 1, pp 139-147 (USSR)

ABSTRACT: The general principles in the construction of analog-to-digital
converters and digital-to-analog converters as well as their
classification are investigated here. It is pointed out that
no satisfactory classification has been made in more than
200 Soviet and foreign publications. A uniform terminology has
to be introduced. In order to assure the proper choice of the
main characteristics for a classification, general laws have
to be established to which the construction of devices and
their properties are subjected. For the selection of the main
principles in analog-to-digital conversion the methods of
measuring the analog quantity are investigated. It is shown
that in principle only 3 measuring methods are possible:
(1) method of calculating the number of the unit increments
Card 1/3   of the analog quantity. (2) Comparison- and subtraction method.

Principles of Conversion of Analog Quantities Into   SOV/161-59-1-17/25
Digital Quantities and of Digital Quantities Into Analog Quantities

(3) Method of one single reading. In digital-to-analog
conversion there are only two measuring methods: that of
addition with reference to weight and that of the addition of
unit analog quantities. All these conversion methods have two
characteristics in common: they are constructed according to an
open cycle, i.e. they have no feedback circuit and permit only
conversion in one direction. Another way of constructing these
converters is shown up. These converters allow conversion in
both directions. They have a feedback circuit and, therefore,
also a reference circuit (a zero instrument). They are termed
universal converters. Two types are mentioned: a universal
converter with comparison of the analog quantities, and a
universal converter with comparison of the digital quantities.
Figures 1 and 2 give the analysis diagram of these types. On
the basis of the conversion principles investigated in the
present paper a block diagram of the converter classification
is given in figure 3. The subdivision of both main groups –
analog-to-digital converter and digital-to-analog converter is
described in detail. The publication of this article was
recommended by the institute mentioned in the "Association".

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Principles of Conversion of Analog Quantities Into   SCV/161-59-1-17/25
Digital Quantities and of Digital Quantities Into Analog Quantities

There are 4 figures and 8 references, 5 of which are Soviet,

ASSOCIATION: Moskovskiy aviatsionnyy institut (Moscow Aviation Institute)

SUBMITTED: October 28 1958

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S/123/61/000/009/017/027
A004/A104

9, 7300

AUTHOR: Gitis, E. I.

TITLE: Suggestions to classify converters of analog magnitudes into digital
              ones

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 9, 1961, 19, abstract
              9D138 (V sb. "Teoriya i primeneniye diskretn. avtomat. sistem".
              Moscow, AN SSSR, 1960, 323-325)

TEXT: The author gives an account of the fundamental principles of convert-
ing analog into digital magnitudes based on the following methods of measuring
the analog magnitude: 1) method of counting the numbers of unit increments of
the analog magnitude; 2) comparison and subtraction method; 3) method of
dimensional coding. The author suggests a classification of converters of analog
magnitudes into digital ones based on the principles of conversion, and presents
a structural diagram of analog-to-digital converter classification. There is
1 figure.

                                                 A. Yevseyeva

[Abstractor's note: Complete translation]

Card 1/1

GITIS, E.I.

A good book requires additions ("Fundamentals of electric measurements, electronic equipment, and electric control used in the manufacture of instruments" by S.F.Korndorf. Reviewed by E.I.Gitis). Priborostroenie no.4:31-32 Ap '60.
(MIRA 13:6)

(Instrument manufacture) (Electric measurements)
(Electric controllers)

NETREBENKO, Konstantin Antonovich; GITIS, E.I., red.; BORUNOV, N.I., tekhn.
     red.

     [Automatic digital compensators; use of compensation methods for
     coding electrical values] TSifrovye avtomaticheskie kompensatory;
     kodirovanie elektricheskikh velichin kompensatsionnymi metodami.
     Moskva, Gos. energ. izd-vo, 1961. 175 p. (Biblioteka po avtomatike,
     no.41)   (MIRA 14:10)
          (Automatic control)   (Electronic calculating machines)
                    (Electric measurements)

PHASE I BOOK EXPLOITATION   SOV/5866

Gitis, Emanuil Isaakovich

Preobrazovateli informatsii dlya elektronnykh tsifrovykh vychislitel'nykh
    ustroystv (Information Converters for Electronic Digital Com-
    puters) Moscow, Gosenergoizdat, 1961.   375 p.   15,000 copies
    printed.

Ed.: V. B. Silin; Tech. Ed.: G. Ye. Larionov.

PURPOSE : This book is intended for engineers and technicians
    concerned with the development and operation of computers,
    control and telemechanics systems, and other systems using
    converters. It may also be used as a textbook by students
    taking courses in computing engineering at schools of higher
    education.

COURSES: Principles of the design, circuitry, and construction
    of analog-to-digital and digital-to-analog converters are
    described. Attention is given to coding methods and to the

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Information Converters for Electronic (Cont.)   SOV/5866

basic elements of encoders and their classification. Ch. VI. was written jointly by the author and N. M. Strogovich, Candidate of Technical Sciences. A. V. Baltrushevich, Engineer, participated in the writing of Secs. 2 and 4 of Ch. VII. The author thanks B. M. Kagan, Doctor of Technical Sciences, V. B. Silin, Candidate of Technical Sciences, and Ye. G. Pronin, V. S. Uritskiy, and Ye. R. Shur-Bur for suggestions and editorrial assistance. There are 175 references: 54 Soviet, 112 English, 2 French, 2 Czech, 3 German, 1 Polish, and 1 Italian.

TABLE OF CONTENTS:

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ZAVOLOKIN, Anatoliy Kuz'mich; GITIS, E.I., red.; SHIROKOVA, M.M.,
      tekhn. red.

      [Series converters of continuous quantities to numerical
      equivalents] Posledovatel'nye preobrazovateli nepreryvnykh
      velichin v chislovye ekvivalenty. Moskva, Gosenergoizdat,
      1962. 70 p. (Biblioteka po avtomatike, no.56) (MIRA 15:7)
              (Electronic calculating machines)
              (Electronic data processing)
              (Automatic control)