begin

REEL # 138

FROLOV, A.S.

to

FROLOV, Anatoliy Stepanovich; SOYUZOV, A.A., doktor tekhn. nauk, prof., retsenzent; KRUGLENKO, N.K., dots., nauchnyy red.; KSENOFONTOVA, Ye.F., red. izd-va; USANOVA, N.B., tekhn. red.

[Over-all organization of the merchant marine and harbor operations; theoretical principles]Kompleksnaia organizatsiia raboty flota i portov; teoreticheskie osnovy. Moskva, Izd-vo "Morskoi transport," 1962. 229 p. (MIRA 16:2)
            (Merchant marine--Cost of operation)
                (Cargo handling)

KORYAKIN, Sergey Fedorovich, dotsent, kand.ekon.nauk; BERNSHTEYN, Iosif
L'vovich, dotsent, kand.ekon.nauk; ILLINSKIY, Yuriy Fedorovich,
starshiy prepodavatel'; DOLITSKIY, Ya.I., prof., doktor ekon.nauk,
retsenzent; CHERKESOV-TSIBIZOV, A.A., starshiy prepodavatel',
retsenzent; FROLOV, A.S., dotsent, kand.tekhn.nauk, retsenzent;
KRUGLENKO, N.K., inzh., retsenzent; ZOLOTUKHIN, Yu.A., obshchiy
red.. V redaktirovanii prinimali uchastiye: OGANOV, N.K., dotsent,
red.; DUBCHAK, V.Kh., inzh., red.; MARTIROSOV, A.Ye., inzh., red.;
KHAR'KOV, G.I., starshiy nauchnyy sotrudnik, red.; KRASHENINNIKOV,
V.G., dotsent, kand.ekon.nauk, red.; GEKHTBARG, Ye.A., inzh., red.;
SHCHEGOLEV, G.G., inzh., red.; PRILUTSKIY, M.A., inzh., red.;
KANTOR, L.M., dotsent, kand.ekon.nauk, red.; KUZ'MIN, T.P., inzh.,
red.; FILIPPOV, K.D., red.. KSENOFONTOVA, Ye.F., red.izd-va; TIKHO-
NOVA, Ye.A., tekhn.red.

[Economics of water transportation] Ekonomika morskogo transporta.
Pod obshchei red. IU.A.Zolotukhina. Moskva, Izd-vo "Morskoi transport",
1959. 391 p.   (MIRA 13:3)
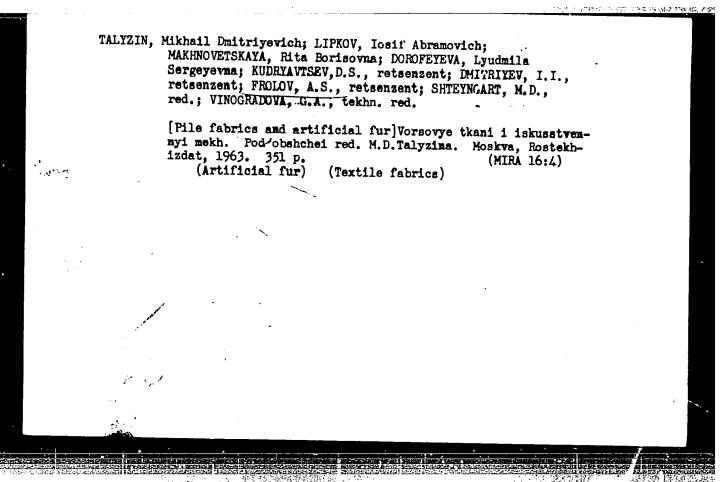   (Shipping--Finance)

FROLOV, A.S.

Finishing of imitation fur fabrics with a knit base. Tekst. prom. 21
no. 4:26-29 Ap '61.   (MIRA 14:7)
        (Fur, Artificial) (Textile machinery)

TALYZIN, Mikhail Dmitriyevich; LIPKOV, Iosif Abramovich;
        MAKHNOVETSKAYA, Rita Borisovna; DOROFEYEVA, Lyudmila
        Sergeyevna; KUDRYAVTSEV,D.S., retsenzent; DMITRIYEV, I.I.,
        retsenzent; FROLOV, A.S., retsenzent; SHTEYNGART, M.D.,
        red.; VINOGRADOVA, G.A., tekhn. red.

        [Pile fabrics and artificial fur]Vorsovye tkani i iskusstven-
        nyi mekh. Pod obshchei red. M.D.Talyzina. Moskva, Rostekh-
        izdat, 1963. 351 p.   (MIRA 16:4)
            (Artificial fur)   (Textile fabrics)

FROLOV, A. S.

MASLENNIKOV, MIKHAIL MIKHAILOVICH, A. G. PANTSKII, and A. S. FIDLOV.

Raschet kilometrovykh raskhodov goriuchego dlia samoleta s motatel'-
nymi dvigateliami. Moskva, 1940. 104 p. (TSAGI. Trudy, no 441)

Title tr.: Calculation of specific fuel consumption per km for aircraft
equipped with booster fuel pumps.

CF

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library
of Congress, 1955

AUTHORS: Gel'fand, I.M., Frolov, A.S. and Chentsov,N.N.   SOV/140-58-5-4/14

TITLE: Calculation of Continuous Integrals With the Monte-Carlo Method
                (Vychisleniye kontinual'nykh integralov metodom Monte-Karlo)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 5,
                pp 32-45 (USSR)

ABSTRACT: This is a survey consisting of 10 paragraphs and a summary.
                The application of the Monte-Carlo method for the calculation
                of integrals of high (even of denumerable) number of variables
                is discussed in many aspects. The Soviet contributions
                (Bakhvalov, Korobov, the authors, Kolmogorov, Sobol') as well
                as the western contributions in this new direction are ap-
                preciated. The authors present some interesting examples
                (diminution of dispersion, determination of the trajectory
                for the Brownian motion etc.). In the text 4 Soviet and 7
                American papers are mentioned.

ASSOCIATION: Matematicheskiy institut imeni V.A.Steklova AN SSSR (Mathe-
                matical Institute imeni V.A.Steklov AS USSR)

SUBMITTED: December 6, 1957 (Date of Lecture, Leningrad)

Card 1/1

85 ...

S/024/60/000/005/007/017
E073/E435

6.9000 (also 1344)

AUTHORS: Timofeyev, D.V. and Frolov, A.S.   (Moscow)

TITLE: A Probability Method of Calculating Non-Symmetric and
               Non-Sinusoidal Regimes in Electrical Systems

TEXT: The authors recommend that the method of probability should
be used for investigating the conditions of operation of electrical
systems in the case of existence of non-symmetric and non-sinusoidal
loads, which vary at random and are practically independent for the
individual phases.   The approach to the solution does not change
when there is a correlation between the phenomena under investigation.
It is stated that this method can be used to obtain the integral
distribution laws for the quantities under investigation from the
given laws of distribution of non-symmetrical and non-sinusoidal
loads and from their maximum values on each phase on the secondary
side of the transformer.   The voltage at any point in a
complicated electrical system and the currents in all its branches
can be determined if the load currents I_k are known for all the
three phases at each point k .   If the system under consideration
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A Probability Method of Calculating Non-Symmetric and Non-Sinusoidal
Regimes in Electrical Systems

has linear parameters, it is sufficient to use the super-position
principle.   Thus, for example, using the matrix notation, the
voltage at a point   j   is in general given by

$$\overset{\circ}{U}_j = \left(\sum_{i=1}^{m} \overset{\circ}{E}_i \overset{\circ}{S}^{-1} \overset{\circ}{C}_{sij} + \sum_{k=1}^{n} \overset{\circ}{I}_k \overset{\circ}{S}^{-1} \overset{\circ}{Z}_{skj} \right) \overset{\circ}{S}$$

where $\overset{\circ}{E}_i$ is the system of emf's in the i-th branch, G_{sij} is the
matrix of the distribution coefficients for the symmetric voltage
components for the point   j   with respect to the symmetric emf
components in the i-th branch, $\overset{\circ}{Z}_{skj}$ is the matrix of the total
resistances for the points   k   and   j   with respect to the
symmetrical components of the currents and voltages of any
frequency, $\overset{\circ}{S}$ and $\overset{\circ}{S}^{-1}$ are the coefficients which ensure
conversion from phase quantities into symmetric components and vice
versa,   n   and   m   are the number of given currents and emf's.
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A Probability Method of Calculating Non-Symmetric and Non-Sinusoidal Regimes in Electrical Systems

For a three-phase system with equal parameters for each element of all the phases and equal mutual parameters for each pair of phases, the matrices C_{sij} and Z_{skj} will be diagonal. Therefore, for any frequency the calculation can be carried out separately for the currents and voltages for each of the three sequences, using the appropriate equivalent circuit. In the general case we obtain for the circuit of each sequence g :

$$\overset{\circ}{U}_j = \sum_{i=1}^{m} \overset{\circ}{E}_i \overset{\circ}{C}_{gij} + \sum_{k=1}^{n} \overset{\circ}{I}_k \overset{\circ}{Z}_{gkj}$$

However, if the system of positive sequence of the basic frequency is not considered, the voltage of the appropriate sequence is determined from the following expression:

$$\overset{\circ}{U}_j = \sum_{\ell}^{m} \overset{\circ}{I}_\ell \overset{\circ}{Z}_{ej}$$

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A Probability Method of Calculating Non-Symmetric and Non-Sinusoidal Regimes in Electrical Systems

Non-symmetric loading can be constant or variable with time. The solution is considered for the general case when, in addition to constant loads of the system, there are loads which vary at random with time independently of each other. The following two possible cases are considered: the active and the reactive components of the current of each single phase load ℓ vary independently; the active and the reactive components of the load current $I_{\ell}u$ relative to the voltage does not vary when this current changes. On the basis of this method, calculations were carried out at VNIIE which enabled elucidating the dependence of the voltage and the current of the positive and the negative phase sequence in the presence of random single-phase traction loads in electrical systems. It proved possible to carry out these calculations in a short time on the "Strela" computer, for complicated electrical systems with a large number of widely spaced traction loads. Comparison of this method of calculation for the expression without the imaginary part (which can be calculated graphically) showed

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E073/E435

A Probability Method of Calculating Non-Symmetric and Non-Sinusoidal Regimes in Electrical Systems

satisfactory agreement for a relatively small number of investigations. The here described method can be used successfully not only for calculating non-symmetrical and non-sinusoidal load conditions but also for symmetrical conditions in electrical systems and also for other calculations of a similar nature. Acknowledgments are made to N.A.Kartvelishvili and N.N.Chentsov for their interest in this work. There is 1 Soviet reference.
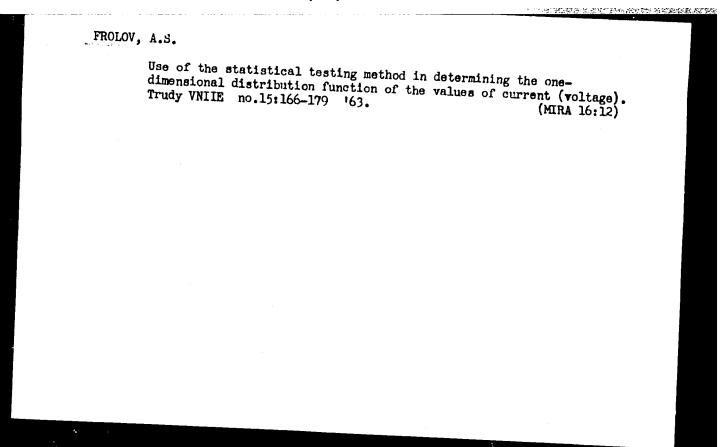
SUBMITTED: May 14, 1960

Card 5/5

FROLOV, A. S.

Transactions of the Sixth Conference (Cont.)   SOV/6371

Transactions of the Sixth Conference (Cont.)   SOV/6371

TIMOFEYEV, D.V.; FROLOV, A.S.

More about the probability method for calculating nonsymmetircal
and nonsinusoidal operating modes of electrical systems. Izv. vys.
ucheb. zav.; energ. 5 no.9:116-117 S '62.
                    (Electric networks)   (MIRA 15:10)

FROLOV, A.S.

Use of the statistical testing method in determining the one-
dimensional distribution function of the values of current (voltage).
Trudy VNIIE no.15:166-179 '63.
(MIRA 16:12)

FROLOV A.S.

21(8)

PHASE I BOOK EXPLOITATION   SOV/2583

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernyye reaktory i yadernaya energetika. (Reports of Soviet Scientists: Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed.

General Eds.: M.A. Dollezhal, Corresponding Member, USSR Academy of Sciences; A.K. Krasin, Doctor of Physical and Mathematical Sciences, A.I. Leypunskiy, Member, Ukrainian SSR Academy of Sciences; I.I. Novikov, Corresponding Member, USSR Academy of Sciences; and V.S. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: Yu. I. Mazel'; Tech. Ed.: Ya. I. Mazel.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

COVERAGE: This is the second volume of a six-volume collection on the peaceful uses of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to atomic power plants under construction in the Soviet Union; the second to experimental and research reactors; the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Yu. I. Koryakin is the science editor of this volume. See Sov/2581 for titles of all volumes of the set. References appear at the end of the articles.

Mostovoy, V.I., V.S. Dikarev, M.B. Yegiazarov, and Yu. S. Saltykov. Measuring Neutron Spectra in Uranium Water Lattices (Report No. 2152)   546

Krasin, A.K., B.G. Dubovskiy, N.M. Lantsov, Yu.Yu. Glazkov, B.G. Goncharov, A.V. Kamayev, L.A. Geraseva, V.V. Vavilov, Ye. I. Inyutin, and A.F. Senchenkov. Studying the Physical Characteristics of a Beryllium-moderator Reactor (Report No. 2146)   555

Galanin, A.D., S.A. Mesilovskaya, A.F. Rudik, Yu. G. Abov, V.P. Belkin, and P.A. Krupchitskiy. Critical Experiment on an Experimental Heavy-water Reactor (Report No. 2036)   570

Marchuk, G.I., V. Ya. Pupko, Ye. I. Pogudalina, V.V. Smelov, I.P. Tyuterev, S.T. Platonova, and G.I. Druzhinina. Certain Problems in Nuclear Reactor Physics and Methods of Calculating Them (Report No. 2151)   588

Slyutin, G.V. and V.M. Semenov. Determination of Control Rod Effectiveness in a Cylindrical Reactor (Report No. 2469)   613

Gel'fand, I.M., S.M. Feynberg, A.S. Frolov, and N.N. Chentsov. Using the Monte-Carlo Method of Random Sampling for Solving the Kinetic Equation (Report No. 2141)   628

Laletin, N.I. Neutron Distribution in a Heterogeneous Medium (Report No. 2189)   634

Kazarnovsky, M.V., A.V. Stepanov, and P.L. Shapiro. Neutron Thermalization and Diffusion in Heavy Media (Report No. 2148)   651

Vernik, A.L., V.S. Yermakov, and A.V. Lykov. Using the Onsager Theory for Studying Neutron Diffusion in the Absorbing Media of Nuclear Reactors (Report No. 2224)   668

Broder, D.L., S.A. Burdin, A.A. Butusov, V.V. Levin, and V.V. Orlov. Studying the Spatial and Energy Distribution of Neutrons in Different Media (Report No. 2147)   674

Dmitriyev, A.B. Boron Ionization Chambers for Work in Nuclear Reactors (Report No. 2058)   690

Kirillin, V.A., and S.A. Ulybin. Experimental Determination of Specific Volumes of Heavy Water in a Wide Temperature and Pressure Range (Report No. 2471)   696

L 17336-63
ASD/IJP(C)/SSD   Pr-4/Ps-4/Pc-4/Pu-4   EPR/EWP(j)/EWT(d)/EPF(c)/EPF(n)-2/EWT(m)/FCC(w)/BDS   AFFTC/
RM/WW

ACCESSION NR: AP3004886   S/0120/63/000/004/0039/0045

AUTHOR: Avayev, V. N.; Yegorov, Yu. A.; Orlov, Yu. V.; Frolov, A. S.;
Chentsov, N. N.

TITLE: Fast-neutron spectrometer with borane scintillator   85

SOURCE: Pribory*i tekhnika eksperimenta, no. 4, 1963, 39-45

TOPIC TAGS: spectrometer, fast-neutron spectrometer, borane scintillator,
scintillator

ABSTRACT: Fundamental characteristics of the fast-neutron spectrometer with
one primary detector were calculated on a computer by the Monte-Carlo method.
Detailed calculating procedure is illustrated by a chart. "Pseudo-random
numbers of the type suggested by N. M. Korobov were used in the calculations."
The accuracy of the calculations is held to be 15% or better. Made for three
scintillators, the calculations permitted determining efficiency, proper energy

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ACCESSION NR: AP3004886

resolution, etc. Analysis of the results permits selecting the optimum delay time in the control channel, resolution time of the coincidence circuit, permissible loading of the spectrometer, and its block scheme. A comparison of several versions of the spectrometer showed that the best composition is a mixture of equal amounts of xylol (or phenylcyclohexane) and trimethylborate with B^{10} enriched to 80%. The resolution time of the coincidence circuit must be 1.5 microsec. Orig. art. has: 7 figures, 6 formulas, and 2 tables.

ASSOCIATION: none

SUBMITTED: 31Aug62   DATE ACQ: 28Aug63   ENCL: 00

SUB CODE: NS   NO REF SOV: 005   OTHER: 007

Card 2/2

26.2246

22877
S/089/61/010/005/005/015
B102/B214

AUTHORS: Leypunskiy, O. I., Strelkov, A. S., Frolov, A. S., Chentsov, N. N.

TITLE: The propagation of the γ-radiation of a prompt point source in air

PERIODICAL: Atomnaya energiya, v. 10, no. 5, 1961, 493-500

TEXT: The present paper gives a calculation of the propagation of an infinitely short gamma radiation pulse (δ pulse) in air space considered as infinite. The calculation is made by the Monte-Carlo method. The initial gamma radiation energy is assumed to be 1 Mev and the density of air to be $1.29 \cdot 10^{-3}$ g/cm^3. The point source considered emits isotropically. The direction of motion of one of the quanta emitted by the source and suffering collision is described by the Klein Nishina indicatrix. A special method is developed for the solution of the transcendental equation obtained. The absorption of the quanta is taken into account by a weight factor. A quantum packet thus moves along a trajectory; each trajectory is followed till the weight is only just 10^{-4} times the initial weight.

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The propagation of the .radiation of a...

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B102/B214

The object of the calculations is to determine the quantity Φ_{kjim} i.e. the energy transferred at a distance R_k from the source in the time t_j-t_{j+1} through a unit area perpendicular to the flux by gamma quanta of energy $E_i - E_{i+1}$ whose directions of motion make an angle $\Theta_m - \Theta_{m+1}$ with the radius vector of the point of observation. The intensities $I^o_{kjim} = \Phi_{kjim}/\Delta t_j \Delta E_i \Delta\Omega_m$ can be determined from Φ_{kjim}. The following numerical values are taken as the basis of the calculations: 1) $R_k = 250$, 500, and 1000 m corresponding to $\mu_o R_k = 2.03$, 4.08, and 8.12 free paths; 2) $t_j = 0$, 0.125, 0.250, 0.500, 1.00, 1.50, 2.00, 3.00, 4.00, ∞ µsec; 3) $E_i = 0$, 0.0625, 0.125, 0.250, 0.500, 1.00 and 2.00 Mev; 4) $\Theta_m = 0$, 10, 40, 90, 180°. The applicability of the method was checked by comparison of the build-up factors obtained by integration of I^o_{kjim}. The result is

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The propagation of the γ-radiation of a...   S/089/61/010/C05/005/015
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R_k, m ($\mu_0 R_k$)	250 (2.03)	500 (4.06)	1000 (8.12)
Monte-Carlo method	3.69	7.57	21.8
method Ref. 6	3.6	7.5	18.6

(Ref. 6: H. Goldstein, J. Wilkins. Rept. U. S. Atomic Energy Comm., No. 40, 3075 (1955)). The investigation of the time dependence of the pulse of the gamma source (scattered quanta) for observation points at different distances showed that the pulse became broader with increasing distance. The duration of the decrease of energy amounts to 0.5, 1.0, and 1.5 μsec, respectively, for R = 250, 500, and 1000 m. The unit of intensity is taken to be the intensity during 0 - 0.125 μsec. The absolute values of the intensity in this interval over the whole spherical surface for these three R values are 1.43, 0.41, and 0.0088 Mev/μsec, respectively. The investigation of the time energy spectra for different distances showed that for a given time interval at R > 250 m the form of the spectra remain practically unchanged. The investigation of the time dependence of the energy for different R values showed that for t > 1-1.5 μsec the mean hardness of the radiation remains practically unchanged (50-60 kev). From

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The propagation of the γ-radiation of a...   S/089/61/010/005/005/015
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a comparison of the $I(t)$ curves in given solid angles for different R values it is found that the decrease of intensity at $\theta < 90°$ is delayed with increasing distance. With increasing t and θ and a given R_k the spectra become softer. Table 2 gives the numerical data for the angle distribution of the scattered gamma radiation; Table 3 gives the same for the total intensity. An estimate of the accuracy of the calculation of the time dependence of the intensities gives for $t = 1$ μsec 15-20 %, and for $t > 1$ μsec 40-50 %. For the time dependence of the energies the situation is analogous. The authors thank I. M. Gel'fand for collaboration. There are 6 figures, 3 tables and 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc.

SUBMITTED: July 7, 1961

Legend to the Tables: 1) θ in degrees, 2) R in meters; the intensities are given in %.

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The propagation of the γ-radiation of a...   S/089/61/010/005/005/015
B102/B214

① Угол θ, градусы	② Расстояние от источника, м		
	250 ($\mu_0 R = 2,03$)	500 ($\mu_0 R = 4,06$)	1000 ($\mu_0 R = 8,12$)
0—10	16,9	13,5	10,4
10—40	37,1	37,7	32,0
40—90	27,8	32,3	28,9
90—180	17,0	10,5	27,7

① Угол θ, градусы	② Расстояние от источника, м		
	250 ($\mu_0 R = 2,03$)	500 ($\mu_0 R = 4,06$)	1000 ($\mu_0 R = 8,12$)
0—10	39,3	24,9	14,5
10—40	27,1	32,7	31,4
40—90	20,7	28,0	27,6
90—180	12,8	14,3	20,5

Table 2

Table 3

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AVAYEV, V.N.; YEGOROV, Yu.A.; ORLOV, Yu.V.; FROLOV, A.S.; CHENTSOV, N.N.

Fast neutron spectrometer with a boron hydride scintillator.
Prib. i tekh. eksp. 8 no.4:39-45 Jl-Ag '63.   (MIRA 16:12)

ACCESSION NR: AT4019064   S/0000/63/000/000/0289/0303

AUTHOR: Avayev, V. N., Yegorov, Yu. A., Orlov, Yu. V., Frolov, A. S., Chentsov, N.N.

TITLE: Computation and analysis of the characteristics of a spectrometer with a boron-hydrogen scintillator

SOURCE: Voprosy* fiziki zashchity* reaktorov; sbornik statey (Problems in physics of reactor shielding; collection of articles). Moscow, Gosatomizdat, 1963, 289-303

TOPIC TAGS: nuclear reactor, reactor shielding, spectrometer efficiency, xylene borate scintillator, phenylcyclohexane borate scintillator, radiation dosimetry, scintillation spectrometer, boron hydrogen scintillator, neutron energy, yield nucleus method, twin sensor spectrometer, neutron spectrometer

ABSTRACT: Among the methods for determining the energy of fast neutrons, the authors call particular attention to the yield nucleus method, noting that a special position in this method is occupied by scintillation spectrometers. Twin-sensor fast-neutron spectrometers are described and their operational principles are briefly analyzed. It is pointed out that fast-neutron spectrometers with two sensors can operate only with collimation of the neutron stream. The limitations imposed by this circumstance, particularly with reference to the study of fast-neutron spectra behind shielding, are noted. The subject of spectrometers

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with one hydrogen-containing sensor is introduced. The discrimination of the gamma-back-ground in these spectrometers is accomplished through the difference in the glow time of the scintillator when excited by protons and electrons. It is further noted that spectrometers with a single hydrogen-containing sensor are capable of operating without a collimation device. The lower boundary of the measured neutron energy levels is normally not less than 0.7 Mev. While such instruments have been used for a wide variety of test purposes, the author observes that spectrometers with a hydrogen-containing sensor cannot be used for measurements against a high gamma-background. The single-sensor scintillation spectrometer, the scintillator of which contains hydrogen and boron, and which was proposed by Marshall (Bull. Amer. Phys. Soc., 27, 11 (1952)), is described in detail and its advantages are analyzed. It is noted, however, that the data necessary to permit the actual construction of such a spectrometer are lacking in the available technical literature. The following values in particular, are unknown: 1) the efficiency of the spectrometer as a function of the energy of the neutrons; 2) the efficiency as a function of the volume of the scintillator and the ratio of the hydrogen and boron concentrations in it; 3) the time distribution of the pulses from the alpha-particles (with the time read from the moment of the first scattering of the neutron); 4) the energy resolution of the spectrometer as a function of the energy of the neutrons. Noting that attempts have been made to supply this lacking information manually by means of the Monte Carlo method, the results of which have made it

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possible to draw certain useful conclusions leading to an initiation of work on the design of a spectrometer, the author calls attention to the failure of the manual method of calculation to provide a complete picture of the required characteristics and the great amount of time such computation techniques necessarily consume. The present article, therefore, reports detailed computations of the characteristics of a bornn-hydrogen scintillation-type spectrometer, conducted with the aid of an electronic computer. In individual sections of the paper the author discusses the formulation of the problem, the actual computation of the spectrometer characteristics, the fundamental block-diagram of the program used to carry out the spectrometer characteristic computation described in the article and, finally, an analysis of the results of the computation, on the basis of which all the laws characteristic of a spectrometer with a boron-hydrogen scintillator are explained. The author learned, among other things, that: 1) Spectrometer efficiency as a function of the resolving time of the coincidence circuit has a maximum value, the position of which (on the various graphs and curves plotted in the article) is different for scintillators of different dimensions and composition; 2) Spectrometer efficiency is directly proportional to the concentration of boron nuclei; 3) The efficiency maximum is more distinctly expressed for scintillators with a higher concentration of boron nuclei; 4) The efficiency maximum is less clearly expressed for large volume scintillators; 5) The efficiency maximum is less clearly expressed for a cylindrical scintillator than for a spherical one with identical diameters of the sphere and

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cylinder base, and is shifted in the direction of greater coincidence circuit resolving time. The results of the computation and analysis of the characteristics of a scintillation spectrometer with a boron-hydrogen scintillator showed that, of all the compositions, considered, the most suitable is a mixture of equal parts of xylene (dimethylbenzene), or phenylcyclohexane with trimethyl borate with boron B^{10} enriched to 80%, poured into a vessel 80 mm in both diameter and height. The resolving time of the coincidence circuit in this case should be equal to approximately 1.5 microseconds. On the basis of the study, the block-diagram of the spectrometer shown in Figure 1 of the Enclosure was adopted for development. In order to reduce the number of random coincidences, a single-channel pulse amplitude analyzer was introduced into the spectrometer control circuit. Orig. art. has: 11 figures and 13 formulas.

ASSOCIATION: None

SUBMITTED: 14Aug63   DATE ACQ: 27Feb64   ENCL: 01

SUB CODE: NP, OP   NO REF SOV: 010   OTHER: 008

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ACCESSION NR: AT4019064   ENCLOSURE: 01

Fig. 1 - Proposed block diagram of a boron-hydrogen scintillation spectrometer:
1) C - scintillator; 2) K Γ - cathode follower; 3)ΦЭУ photomultiplier;
4) ПУс - preamplifier; 5) Yс - amplifier; 6) ЛYс - linear amplifier;
7)ЛЗ - delay line; 8) CC - coincidence circuit; 9) ББ - blocking unit;
10) ЭK - electronic key; 11) OA - single-channel pulse amplitude analyzer;
12) PO - regulating monovibrator; 13) O - limiter; 14) AA - multichannel
pulse amplitude analyzer.

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GRECHIN, V.P.; CHUPRIN, K.K.; FROLOV, A.V.; SONYUSHKINA, A.P.

Vacuum metallurgy of nickel alloys. Issl.po zharopr.splav.
8:224-229 '62.   (MIRA 16:6)
         (Nickel alloys--Metallurgy)   (Vacuum metallurgy)

S/133/60/000/006/001/002

AUTHORS: Frolov, A. V., Grechin, V. P.

TITLE: Lining of Vacuum Induction Furnaces

PERIODICAL: Stal', 1960, No. 6, pp. 515-517

TEXT: Refractory materials for lining vacuum induction furnaces are liable to deoxidation on the boundary between the lining and the metal. The extent of this reaction depends on the chemical composition of the metal, the heat condition and the duration of the process, the vacuum applied, the grain size of the refractory material, etc. In order to establish the effect of the crucible lining on the composition and the mechanical properties of the metal a nickel base alloy was tested in high-frequency furnaces of 5-50 kg capacity at a vacuum of $5 \cdot 10^{-1}$ - $5 \cdot 10^{-3}$ mm Hg for 20 minutes. For the furnace lining non-fused and fused magnesite, electrocorundum, non-fused and fused zirconium dioxide and non-fused beryllium oxide were used. In the tests on non-fused lining materials, the crucible was made from magnesite with 1.5% boric acid as binding material. It was found that the content of boron in the alloy obtained was 2-2.5 times higher than the amount calculated, the quantity of oxygen

Card 1/4

Lining of Vacuum Induction Furnaces   S/133/60/000/006/001/002

3-5 times greater, that of hydrogen and nitrogen 2 times lower than in
alloys produced by the conventional methods. The boron concentration was
due to its reduction from the boric acid of the lining by carbon contained
in the metal (Ref. 1); magnesium was also reduced from the lining. Similar
phenomena were registered when testing crucibles containing zirconium di-
oxide and beryllium oxide. Thus the conclusion could be drawn that non-
fused refractory materials and boric acid as binding material were not
suitable for crucibles in vacuum induction furnaces. When testing crucibles
of fused materials it was found that the temperature, the grain size of
the refractory material and the density of the ramming of the crucible have
an influence on the chemical composition of the alloy. When using finely
grained corundum, the aluminum amount in the alloy due to reduction of the
lining was smaller than when applying coarsely grained corundum due to a
denser surface obtained with finely grained material and the contact sur-
face between the crucible and the metal was smaller. When applying fine-
ly grained corundum, the aluminum and the chrome content in the metal
at 1,500°-1,530°C do not differ greatly from the calculated values. The
deviations increase only at temperatures above 1,570°C. In the case of
coarsely grained corundum, the deviations are already evident at 1,450°C.

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Lining of Vacuum Induction Furnaces

At 1,570°C the aluminum content is 10% higher, the chrome content 4% lower than calculated. In the tests with fused zirconium dioxide, $(5 \cdot 10^{-3}$mm Hg) 0.04%-0.13% of zirconium was found in the metal, deteriorating the properties of the alloy. However, upon adding 0.05%-0.10% of zirconium to the same nickel base alloy and using a magnesite crucible under heat conditions equal to that of the previous tests, it was found that the notch impact strength and scale-resistance do not alter. Thus it may be assumed that the deterioration of the metal properties was not due to zirconium reduced from the lining, but rather more to the products of deoxidation, which increase the oxygen content of the metal. When applying fused magnesite and electrocorundum which are suitable for crucibles, the essential features of the process were the following: the induction coil was coated by a mixture of 50% ZrSiO$_4$ and 50% of powdered quartz or K230 (K230) type electrocorundum. After coating, the coil was exposed to air for 8 hours and then sprayed with hydrolized ethylsilicate (Ref. 3) and coated from the inside with glass fabrics. The dry refractory material for the crucible was wetted up to 4% by a solution of 200 g dextrine in 1 l warm water and stirred. The material was rammed in the metal pattern of the crucible. After drying for 12-20 hours in air, the furnace was switched

Card 3/4

S/133/60/000/006/001/002

Lining of Vacuum Induction Furnaces

for 4 hours to low capacity, then the furnace temperature was raised for
4 hours until the metal started melting. After two "washing" smeltings
(one with pig iron and one with graphite cores up to 1,800°-1,850°C) the
crucible was ready for use. Crucibles of magnesite and electrocorundum
could be used for 60-200 smeltings. There are 2 figures and 3 Soviet
references.

ASSOCIATION: VIAM

Card 4/4

BUTYLOCHKIN, Mikhail Ivanovich; FROLOV, A.V., red.; PITERMAN, Ye.L.,
    red. izd-va; LOBANKOVA, R.Ye., tekhn. red.

[The TU-2M diesel locomotive for a 750 mm gauge track;
basic design and operation] Teplovoz TU-2M kolei 750 mm;
ustroistvo i ekspluatatsiia. Moskva, Goslesbumizdat, 1961.
150 p.   (MIRA 15:4)
                    (Diesel locomotives)

ALYAB'YEV, Viktor Ivanovich; FROLOV, A.V., red.; PLESKO, Ye.P., red. izd-
    va: KUZNETSOVA, A.I., tekhn. red.

    [Timber skidding winches] Trelevóchnye lebedki; uchebroe posobie
    dlia lebedchikov-uchashchikhsia lesotekhnicheskikh shkol. Mo-
    skva, Goslesbumizdat, 1960. 193 p.   (MIRA 14:10)
        (Winches)   (Lumbering—Machinery)

FROLOV, A. V.

USSR/Medicine - Nervous System   May/Jun 1948
    Medicine - Hearing

"Fatigue of the Organ of Hearing in the Light of the Study of the Fundamental
Physiological Characteristics of the Central Nervous System," P. P. Kudryavtsev,
Otorhinolaryngologist, A. V. Frolov, Acoustics Engr, 6 pp

"Vest Oto-Rino-Laringol" Vol X, No 3

Presents various methods employed for studying effects of fatigue on the ear.
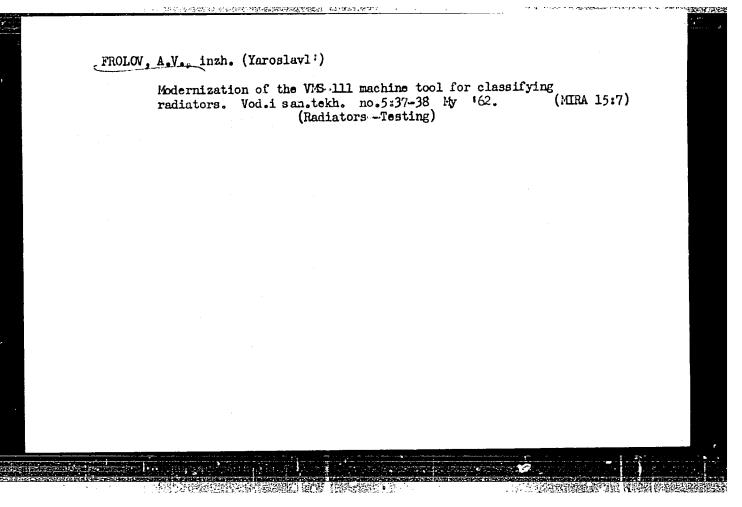Determines new waves to induce experimental fatigue by exposing the ear to
prolonged sounds.

PA76T57

POROYKOV, I.V., prof.; POPOV, M.F. [deaceased], starshiy nauchnyy sotrudnik,
FROLOV, A.V.; SHEVKOLOVICH, O.V.

Method for measuring large doses. Trudy TSentr. nauch.-issl. inst.
rentg. i rad. 10:190-196 '59.   (MIRA 12:9)
          (X RAYS--MEASUREMENT)

FROLOV, A.V.

Engineers and technical workers as active organizers of communist labor competition. Tekst. prom. 25 no.3:8-11 Mr '65.   (MIRA 18:5)

1. Instruktor Moskovskogo gorodskogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza.

FROLOV, A.V., inzh. (Yaroslavl')

Modernization of the VMS-111 machine tool for classifying
radiators. Vod.i san.tekh. no.5:37-38 My '62.   (MIRA 15:7)
                    (Radiators--Testing)

KOZENKO, A.B.; ZONTOV, A.K.; KOPTSOV, V.S.; FROLOV, A.V., red.;
    ZAGOSKINA, G.V., red.; SHENDAREVA, L.V., tekhn. red.

[Automated continuous production line for the manufacture of
fibarboards]Avtomatizirovannaia potochnaia liniia dlia pro-
izvodstva fibrolitovykh plit. Moskva, TSentr. in-t tekhn.
informatsii i ekon. issl. po lesnoi, bumazhnoi i derevoobra-
batyvaiushchei promyshl., 1962. 68 p.   (MIRA 16:4)
    (Fiberboard) (Assembly-line methods)

TAUBER, Boris Abramovich, prof., doktor tekhn. nauk; FROLOV, A.V.,
    retsenzent; MUSINYAN, T.M., red.; PROTANSKAYA, I.V., red.
    izd-va; VDOVINA, V.M., tekhn. red.

    [Hoisting and conveying machines] Pod"emno-transportnye ma-
    shiny. 2. izd. Moskva, Goslesbumizdat, 1962. 633 p.
                                                  (MIRA 16:5)
    1. Glavnyy konstruktor Gosudarstvennogo instituta po pro-
    yektirovaniyu novykh mashin dlya lesozagotovok i splava
    (for Frolov).
            (Hoisting machinery) (Conveying machinery)

RYASHENTSEV, N.P., kand.tekhn.nauk; FROLOV, A.V., inzh.

Magnetic flux distribution in an electromagnetic hammer.
Elektrotekhnika 35 no.4:54-56 Ap '64.   (MIRA 17:4)

MINKEVICH, L.M., inzh.; RYASHENTSEV, N.P., kand.tekhn.nauk; TIMOSHENKO, Ye.M.,
inzh.; FROLOV, A.V., inzh.

Study of electromagnetic hammers using an analog computer.
Elektrotekhnika 35 no.12:38-40 D '64.

(MIRA 18:4)

ARTEMOV, A.V., dotsent, kand. tekhn. nauk; FROLOV, A.V., gornyy inzh.;
     KOREPANOV, K.A., dotsent, kand. tekhn. nauk; MOROZOV, I.F., inzh.

     Response to O.I. Chernov's and V.N. Puzyrev's article "Gas
     emanation from coal." Ugol' 40 no.11:72-73 '65.
                                              (MIRA 18:11)
     1. Novocherkasskiy politekhnicheskiy institut (for Artemov,
     Frolov). 2. Donetskiy politekhnicheskiy institut (for Korepanov,
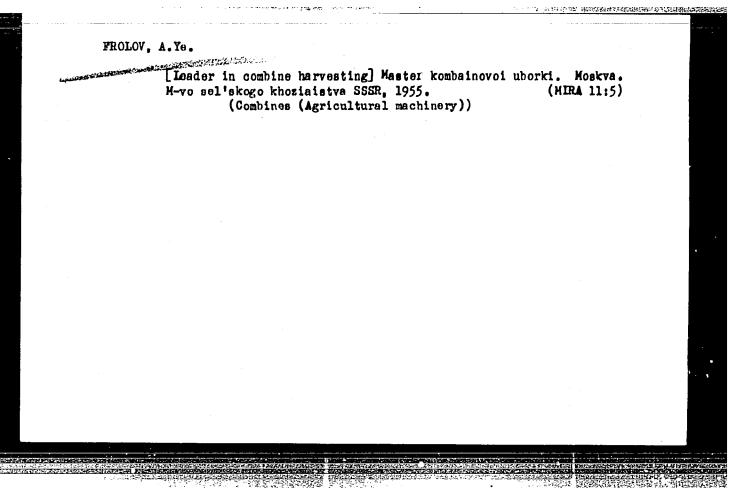   Morozov).

RYASHENTSEV, N.P., kand. tekhn. nauk; MALOV, A.T.; KAZANOV, V.D.;
TIMOSHENKO, Ye.M., kand. tekhn. nauk; FROLOV, A.V., kand.
tekhn. nauk

Introducing a riveter with an electromagnetic percussion unit
for riveting hinged joints. Biul. tekh.-ekon. inform. Gos.
nauch.-issl. inst. nauch. i tekh. inform. 18 no.10:18-19
0 '65.   (MIRA 18:12)

FROLOV, A.Ye.

[Loader in combine harvesting] Master kombainovoi uborki. Moskva.
M-vo sel'skogo khoziaistva SSSR, 1955.   (MIRA 11:5)
        (Combines (Agricultural machinery))

FROLOV, B.

How we cut down idle time in our industrial plant. Sov. profsoiuzy
6 no. 11:32-34 S '58.   (MIRA 11:10)

1. Predsedatel' komissii po proizvodstvenno-massovoy rabote zavkoma
profsoyuza Penzenskogo zavoda khimicheskogo mashinostroyeniya.
                    (Penza--Machinery industry)

FROLOV, B.A., aspirant

Effective means for the control of chicken mites. Veterinariia
40 no.10:58-61 0'63.   (MIRA 17:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy
sanitarii.

FROLOV, B.A., starshiy nauchnyy sotrudnik

Chlorophos in the control of the ectoparasites of poultry.
Veterinariia 41 no.9:102-103 S '64.   (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy
sanitarii.

FROLOV, B.A., starshiy nauchnyy sotrudnik

Extermination of chicken mites. Veterinariia 41 no.10:74-75
O '64.   (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy
sanitarii.

FROLOV, Boris Alekseyevich, kand. vetcr. nauk; SAYTANIDI, V.N.,
        red.

    [External parasites of poultry and measures for their control]
    Naruzhnye parazity ptits i mery bor'by s nimi. Moskva, Kolos,
    1965. 93 p.   (MIRA 18:10)

5(4)

AUTHORS: Isirikyan, A. A., Kiselev, A. V., Frolov, B. A.

TITLE: The Heat of Adsorption of Normal Alkanes on Silica Gels
                (Teplota adsorbtsii normal'nykh alkanov na silikagele)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 2,
                pp 389 - 394 (USSR)

ABSTRACT: In continuation of the work of previous papers (Refs 10,11,
                16 - 19) the heat of adsorption (ΔH) of n-pentane (I) and
                n-octane (II) on coarsely porous silica gels was measured.
                An adsorption calorimetric apparatus was used which is a
                simplified variant (Ref 20) constructed in cooperation with
                C. G. Muttik and which will be described separately. As in
                the other papers (Refs 10,11,13,16) a homogeneously porous sili-
                ca gel KSK-2 with a specific surface of 320 m^2/g and a pore
                diameter of about 100 Å was used. A comparison of the ob-
                tained absolute adsorption isotherms (Fig 1) for (I) and
                (II) with those for n-hexane and n-heptane on the same silica
                    gel (Ref 10) shows that the (ΔH) from pentane to octane
                increases and it is not possible to apply the BET equation.
Card 1/2   Since the constant of the induction interaction with the

electrostatic field is proportional to the polarizability of the n-alkanes the general adsorption energy on the silica gel also increases linearly with the number of carbon atoms in the molecule. The linear functions q_a^0 of n (n= number of carbon atoms)(Fig 3) and the standard differential (ΔH) of the n-alkanes were derived for adsorption on silica gels, carbon black (Refs 4,5), MgO (Ref 7), and water (Ref 27). The values for any particular n-alkane can be calculated from the following equations:

Adsorption on carbon black $Q_a^0 = 0.7+1.2$ n kcal/mol (n= number of carbons)

"   "   MgO $Q = 0.6+1.5$ n kcal/mol   "

" " silica gel KSK-2 $Q = 1.0+1.3$ n kcal/mol   "

Heats of condensation $L = 0.7+1.2$ n kcal/mol

Adsorption on water $Q_{a \to o} = 1.7+0.7$ n kcal/mol. There are 3 figures, 1 table, and 27 references, 24 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 17, 1957

Card 2/2

S/081/61/000/009/004/015
B101/B205

AUTHORS: Muttik, G. G., Frolov, B. A.

TITLE: Adsorber with automatic calorimeter designed for measuring
              the adsorption heat of vapors

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 9, 1961, 154-155,
              abstract 9E35 (9E35) ("Tr. dal'nevost. fil. Sib. otd. AN
              SSSR. Ser. khim.", 1960, vyp. 4, 83-87)

TEXT: A description is given of a calorimeter and an adsorber which
are used to determine the isotherms and heats of adsorption of a series
of hydrocarbons on coarse-grained silica gel КСК-2 (KSK-2). The calorim-
eter features constant heat exchange and has an automatically controlled
jacket. The calorimeter, its measuring and control equipment, and the
adsorber are schematically shown. [Abstracter's note: Complete transla-
tion.]

Card 1/1

KISELEV, A.V.; FROLOV, B.A.

Isotherms and differential heats of adsorption of some alkanes
and naphthenes on silica gel. Kin.i kat. 3 no.5:767-773 S-O
'62.

(MIRA 16:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova,
khimicheskiy fakul'tet i Dal'nevostochnyy filial Sibirskogo
otdeleniya AN SSSR.
(Paraffins) (Naphthenes) (Heat of adsorption)

KISELEV, A.V.; FROLOV, B.A.

Isotherms and heats of adsorption of vapors of aromatic hydro-
carbons on silica gel. Kin.i kat. 3 no.5:774-783 S-O '62.
(MIRA 16:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova,
khimicheskiy fakul'tet i Dal'nevostochnyy filial Sibirskogo
otdeleniya AN SSSR.
(Hydrocarbons) (Heat of adsorption) (Silica)

FROLOV, B.A.

Adsorption and heat of adsorption of some alkyl benzenes on silica
gel. Soob. DVFAN SSSR no.18:27-33 '63.   (MIRA 17:11)
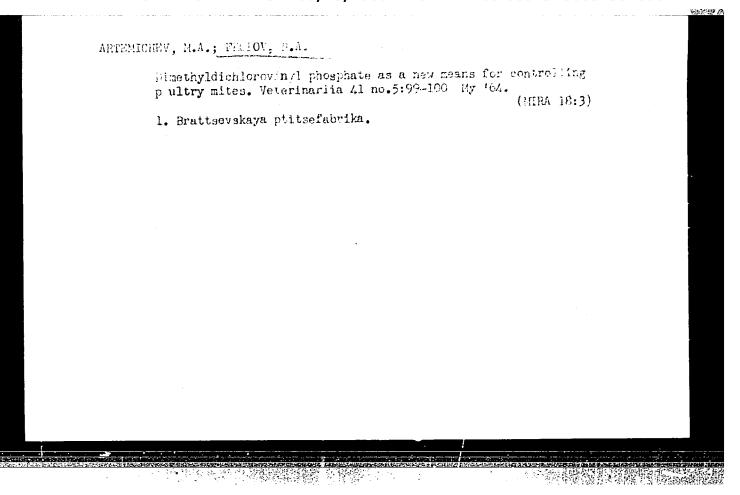
1. Dal'nevostochnyy filial imeni Komarova Sibirskogo otdeleniya AN
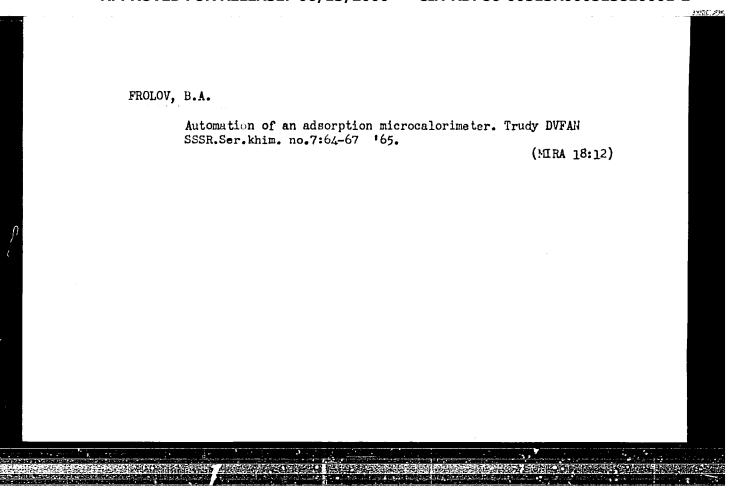SSSR.

FROLOV, B.A.

Isotherms and heats of adsorption of some naphthenes on silica
gel. Soob. DVFAN SSSR no.18:35-40 '63.   (MIRA 17:11)

1. Dal'nevostochnyy filial imeni Komarova Sibirskogo otdeleniya AN
SSSR.

ARTEMICHEV, M.A.; FILIOV, P.A.

Dimethyldichlorovinyl phosphate as a new means for controlling poultry mites. Veterinariia 41 no.5:99-100 My '64.

(MIRA 18:3)

1. Brattsevskaya ptitsefabrika.

FROLOV, B.A.

    Automation of an adsorption microcalorimeter. Trudy DVFAN
SSSR.Ser.khim. no.7:64-67 '65.
                                  (MIRA 18:12)

BYKOV, V.T.; GOR'KOVSKAYA, V.T.; FROLOV, B.A.

Isotherms of adsorption and of differential heats of adsorption
of benzene on montmorillonite. Report No.1, Trudy DVFAN SSSR.
Ser.khim. no.7:52-58 '65.

Isotherms of adsorption and of differential heats of adsorption
of benzene on kaolinite. Report No.2. Ibid.:59-63

(MIRA 18:12)

BYKOV, V.T.; GOR'KOVSKAYA, V.T.; FROLOV, B.A.

Isotherms and heats of adsorption of benzene vapors on some
argillaceous minerals. Kin. i kat. 6 no. 6:1073-1079 N-D '65
(MIRA 19:1)

1. Dal'nevostochnyy gosudarstvennyy universitet. Submitted
February 26, 1964.

18(5), 8(5)   SOV/112-59-5-9051

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 5, p 91 (USSR)

AUTHOR: Frolov, B. F.

TITLE: Transients in the Electric Motors of Face Equipment

PERIODICAL: V sb.: Avtomatiz. i elektrifik. v ugol'n. prom-sti, M.,
    Ugletekhizdat, 1958, pp 27-65

ABSTRACT: Electromagnetic and mechanical transients in a double-cage-rotor
    induction motor are considered with an allowance for magnetic-circuit
    saturation and skin effect. Methods for computing the forces in face-equipment
    transmissions set up by motor starting, abrupt speed change, or a short-circuit
    are indicated. The following equations serve as initial expressions:
    transformations to the rotating coordinate axes, a set of nonlinear induction-
    motor differential equations, an electromagnetic-torque equation, and a motion
    equation. Three-phase short-circuit conditions of the induction motor are
    considered as a combination of steady-state and starting conditions. The set of

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SOV/112-59-5-9051

Transients in the Electric Motors of Face Equipment

equations is solved by the successive interval method. This permits
considering the equations, within a small interval, as linear equations with
constant coefficients. The latter are solved by the operational-calculus method.
Magnetic-circuit saturation and skin effect are taken into account by modifying
the induction-motor principal parameters for various currents and slips within
each interval. Experimental investigations were conducted on types
MAD-191/11m, MA-191/10k, and KO-12/4 motors under no-load conditions.
The electromagnetic torque developed by the induction motor was determined
from an oscillographically-recorded acceleration curve. Acceleration was
recorded by an accelerometer with a carbon-type primary element.
Calculations and experimental data showed that the starting electromagnetic
torque of a double-cage-rotor induction motor can exceed its rated torque 3-4
times. On a three-phase short-circuit, the initial torque can exceed the rated
torque 5-7 times. Mechanical breakage in mining machinery is attributed by
the author to the above causes.

V.V.G.

Card 2/2

SEMENOV, I.A., inzh.; FROLOV, B.F., inzh.

Electric drive control circuits for twin interchangeable units.
Obog. i brik. ugl. no.6:37-41 '58. (MIRA 12:7)
(Machinery—Electric driving)

SEMENOV, I.A., inzh.; FROLOV, B.F., inzh.

      Ways of simplifying electric drive control diagrams and increasing
      their operational reliability. Obog. i brik..ugl. no.8:28-34 '58.
                                    (MIRA 12:10)

        (Electric driving) (Automatic control)

FROLOV, B. F.: Master Tech Sci (diss) -- "Investigation of the transitory pro-

cesses in electromotive face-cutting machines". Moscow, 1959. 14 pp (Main

Admin of Sci Res and Design Organizations of the Gosplan USSR, All-Union Sci

Res Coal Inst VUGI), 150 copies (KL., No 13, 1959, 105)

ROSENBAULI, O.B., kand. tekhn. nauk; RODIN, R.N., inzh.; FROLOV, B.F., inzh.

Universal diagram for automatized medium voltage electric drives for
the remote control of working machinery units. Obog. i brik. ugl. no.9:
70-73 '59.   (MIRA 12:9)
            (Machinery--Electric driving) (Remote control)

SEMENOV, I.A., inzh.; BOGATIKOV, A.S., inzh.; FROLOV, B.F., inzh.;
KANUNNIKOV, V.B., tekhnik

Apparatus for relayless electric drive control circuits used in
coal preparation plants. Obog. i brik.ugl. no.10:42-45 '59.
(MIRA 13:9)
(Coal preparation plants--Electric equipment)

ROSSENBAULI, O.B., kand.tekhn.nauk; RODIN, R.N., inzh.; FROLOV, B.F.,
    inzh.

Speed stabilization of asynchronous motors for automatic electric
drive circuits used in coal preparation and briquet plants. Obog.
i brik.ugl. no.10:46-49 '59.   (MIRA 13:9)
            (Electric motors, induction)
        (Coal preparation plants--Electric equipment)

FROLOV, Boris Fedorovich, kand.tekhn.nauk; MIKHEYEV, Yuriy Aleksandrovich, inzh. Prinimal uchastiye SEMENOV, I.A., inzh. KORABLEV, A.A., otv.red.; ABARBARCHUK, F.I., red.izd-va; BOLDYREVA, Z.A., tekhn.red.

[Electric equipment of coal preparation and briquetting plants]
Elektrooborudovanie ugleobogatitel'nykh i briketnykh fabrik.
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960.
312 p.   (MIRA 13:12)
        (Coal preparation plants--Electric equipment)
                (Briquets (Fuel))

FROLOV, B.G., inzhener, laureat Stalinskoy premii; DORMIDONTOV, N.K.,
doktor tekhnicheskikh nauk, professor; CHERNYY, N.Ye., redaktor;
VOLCHOK, K.M., tekhnicheskiy redaktor.

[Continuous production in wooden shipbuilding] Potochnoe
proizvodstvo v dereviannom sudostroenii. Pod red. N.K.
Dormidontova. Leningrad, Izd-vo Ministerstva rechnogo flota
SSSR, 1952. 207 p. [Microfilm]   (MLRA 7:11)
        (Shipbuilding)

YEFREMOV, Georgiy Vladimirovich; SUKHNEV, A.I., retsenzent; FROLOV, B.G.,
    redaktor; EBERLIN, K.Z., redaktor izdatel'stva; KRASNAYA, A.K.,
    tekhnicheskiy redaktor

[Manual for ship's carpenters] Uchebnik dlia sudovogo plotnika.
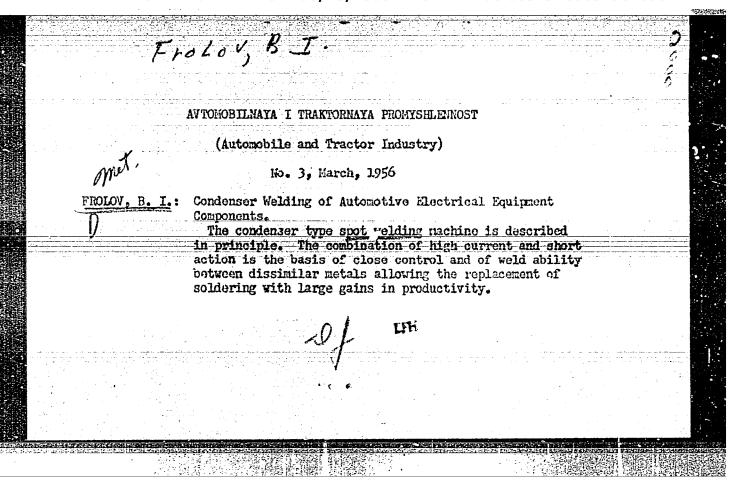Izd. 2-oe, perer. i dop. Moskva, Izd-vo "Rechnoi transport,"
1956. 251 p.   (MLRA 9:7)
        (Shipbuilding)   (Ships, Wooden)

FROLOV, B.G.

Some characteristics of mental degradation in a malignant course of
epilepsy in children and adolescents. Report No.1. Zhur. nevr. i psikh.
65 no.7:1078-1081 '65.   (MIRA 18:7)

1. Kafedra psikhiatrii (zav. - prof. S.S.Mnukhin) Leningradskogo
pediatricheskogo meditsinskogo institute i Detskaya psikhonevro-
logicheskaya bol'nitsa (glavnyy vrach P.V.Mashlakova), Leningrad.

Frolov, B I.

AVTOMOBILNAYA I TRAKTORNAYA PROMYSHLENNOST

(Automobile and Tractor Industry)

No. 3, March, 1956

FROLOV, B. I.: Condenser Welding of Automotive Electrical Equipment
Components.
The condenser type spot welding machine is described
in principle. The combination of high current and short
action is the basis of close control and of weld ability
between dissimilar metals allowing the replacement of
soldering with large gains in productivity.

LFH

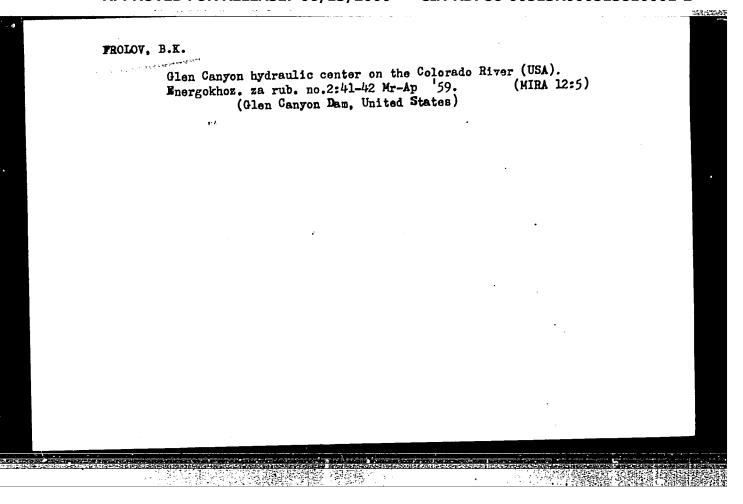FROLOV, Boris Kuz'mich; SUKHANOV, G.K., red.

[Temperature control of concrete during the building of dams; practices in the construction of hydraulic structures in foreign countries] Regulirovanie temperaturnogo rezhima betona pri sooruzhenii plotin; iz opyta stroitel'stva gidrouzlov za rubezhom. Moskva, Energiia, 1964. 167 p.   (MIRA 18:2)
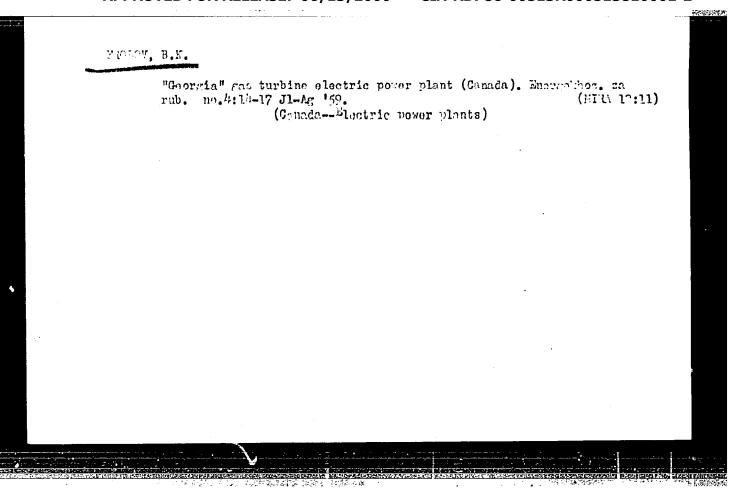
SOROKIN, N.N. [translator]; FROLOV, B.K. [translator]; MATVEYEV, B.P.,
     obshchiy red.; MAR'YANSKIY, L.P., red.; BORUNOV, N.I., tekhn.red.

[Manual on concrete; manual for the control of concrete con-
struction] Rukovodstvo po betonu: rukovodstvo po kontroliu
proizvodstva betonnykh rabot. Moskva, Gos. energ. izd-vo, 1958.
438 p.   (MIRA 12:2)
                    (Concrete construction)

FROLOV, B.K.

Glen Canyon hydraulic center on the Colorado River (USA).
Energokhoz. za rub. no.2:41-42 Mr-Ap '59.   (MIRA 12:5)
(Glen Canyon Dam, United States)

POPOV, B.K.

"Georgia" gas turbine electric power plant (Canada). Energolkhoz. za
rub. no.4:14-17 Jl-Ag '59.   (MIRA 12:11)
              (Canada--Electric power plants)

SOV/98-59-4-15/17

AUTHOR: Frolov, B.K.

TITLE: Chronicle (Khronika). A Scientific and Technical
            Conference on the Artificial Cooling of Concrete
            (Nauchno-tekhnicheskoye soveshchaniye po iskust-
            vennomu okhlazhdeniyu betona)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1959, Nr 4, pp
            59-61 (USSR)

ABSTRACT: The article is concerned with the scientific and
            technical conference on the artificial cooling of
            concrete for the construction of hydroelectric power instal
            lations,   called jointly "Gidroenergoproyekt" Insti-
            tute and the local NTOEP organization in Moscow
            during 25-27 November 1958. The conference was
            attended by the representatives of 14 projects and
            research institutes such as VNIIG imeni B.Ye. Vede-
            neyev, TNISGEI, LTIKhP, MISI imeni V.V. Kuybyshev,
            TsKBKhM, and others. Five basic reports and 9
            other statements were made. The report jointly
Card 1/3   delivered by the Candidate of Technical Sciences

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Chronicle; A Scientific and Technical Conference on the Arti-
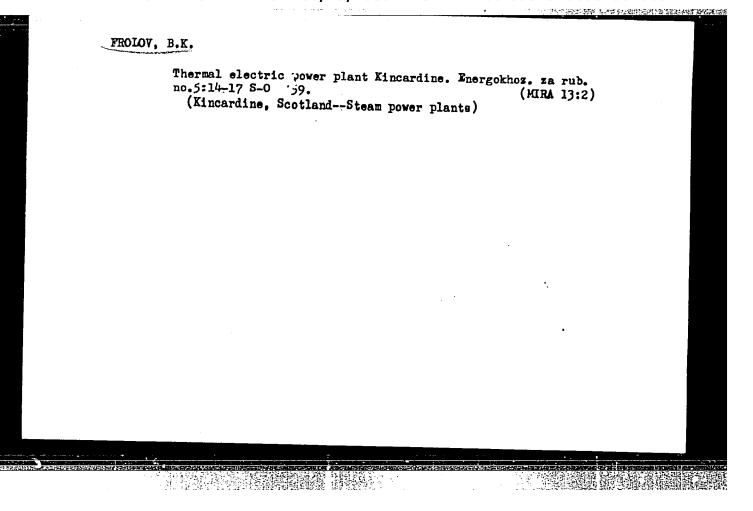ficial Cooling of Concrete

P.I. Vasil'yev, VNIIG, and Candidate of Technical
Sciences S.A. Frid, Lengidep, bore upon the basic
problems of artificially cooled concrete. Engi-
neer Ye.N. Terent'yeva, Mosgidep, lectured on the
artificial cooling of concrete to ensure the soli-
dity of the Bratskaya GES (Bratsk GES). Doctor of
Technical Sciences A.P. Tkachev reported on experi-
ments conducted by LTIKhP into: 1) the cooling of
concrete blocks by a pipe system and 2) the cooling
of both gravel and concrete mass by adding ice.
In this connection, the cooling system of the
San'myn'sya dam, China, was mentioned. Engineer T.
V. Gogolina, TsKBKhM, gave an account of the con-
crete cooling system of the Bratsk GES, with 550
thousand m^3 of concrete to be cooled within 4 months.
As the average annual temperature in that region
is only $-2.7^\circ C$, with a maximum temperature drop of
$20^\circ C$ permissible in summer, a double-stage cooling
is called for during that season: at first, the

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ficial Cooling of Concrete

water from the Angara river is to be used (+12°C),
followed by brine (-6°C). The projected refriger-
ating unit will have 4 ammonia refrigerating ma-
chines of the 4AG-type with a capacity of 1.4 mil-
lion kilocalories per hour each. Its approximate
cost will be 15-20 million rubles. The basic re-
port over several statements on problems inter-
related with cooling were made. The conference
suggested that projects and research work be inten-
sified and special testing lots be established on
the building sites of the Bratsk and Krasnoyarsk
GES to check various cooling methods. The confer-
ence proposed that a second meeting of this kind be
held by the end of 1959. At present, "Gidroenergo-
proyekt" Institute is engaged in editing a collec-
tion of reports and statements made during the above
conference.

Card 3/3

FROLOV, B.K.

Thermal electric power plant Kincardine. Energokhoz. za rub.
no.5:14-17 S-O '59.   (MIRA 13:2)
   (Kincardine, Scotland--Steam power plants)

MEYBOM, R.V., inzh.; FROLOV, B.K., inzh.

Equipment for making artificial sand abroad. Mekh.stroi. 17
no.2:28-32 F '60.   (MIRA 13:8)
   (Sand and gravel plants--Equipment and supplies)

ANBINDER, Aleksandr Danilovich; BARGSHTEYN, Iosif Izrailevich; FROLOV, B.L.,
       inzhener, redaktor; DUGINA, N.A., tekhnicheskiy redaktor.

[Restoration of parts by electric vibration weld deposition; work
practice of the Chelyabinsk tractor plant] Vostanovlenie detalei
elektrovibratsionnoi naplavkoi; opyt Cheliabinskogo traktornogo
zavoda. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit. lit-ry,
1956. 23 p.   (Electric welding)   (MIRA 9:6)

PATSKEVICH, Ivan Romanovich; BEREZKIN, P.N., dotsent, retsenzent; GARMASH,
    L.Ye., inzh., retsenzent; FROLOV, B.L., inzh., red.; DUGINA, N.A.,
    tekhn.red.

["Vibration-arc" built-up welding] Vibrodugovaia naplavka. Moskva,
Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1958. (MIRA 12:5)
                    (Electric welding)

FROLOV, B.M.

Stratigraphy of Sinian sediments in the Sarma Basin (central Lake
Baikal region). Trudy VNIGRI no.186:101-108 '61.   (MIRA 15:3)
(Baikal Lake region--Geology, Stratigraphic)

FROLOV, B.N.

2854

Kakim dokzhyen byt' dryenazh na zolootvalakh. (Po porodu statbi. D.D. Zhukova "Eshchye ob ograzhdayushchikh dambakh klya zolootvalov" v zhurn. "Elyektr. Stanbii", 1948, No 11).
Elyektr. Stantsii. 1949, No 9, S. 23-26.
    V. Dviga tyeli vnutrye nnye o sgoraniya. Gazoyengeratornyye dvigatyeli. Ryeaktiviy ye
    dvigatyeli

So: Letopis No. 34

FROLOV, B.N.

Local invariance principle And the Noether theorem. Vest. Mosk. un. Ser. 3: Fiz., astron. 18 no.6:48-58 N-D '63.   (MIRA 17:2)

1. Kafedra statisticheskoy fiziki i mekhaniki Moskovskogo universiteta.

FROLOV, B. N.

On the true energy - momentum tensor of a gravitational field.
Vest.Mosk.un Ser.3:Fiz., astron.19 no. 2:56-63 Mr-Ap '64.
(MIRA 17:5)

1. Kafedra teoreticheskoy fiziki Moskovskogo universiteta.

Γ ... , $\mathcal{E}$ ./.

		AID P - 3037
Subject	:	USSR/Electricity
Card 1/2	Pub. 27 - 24/33	
Author	:	Frolov, B. V., Kand. of Tech. Sci., Dotsent, Leningrad
Title	:	The field as an aspect of matter (Article by O. B. Bron, this journal, No. 7, 1954, Nos. 2, 3, and 4, 1955) (Discussion)
Periodical	:	Elektrichestvo, 7, 142-143, Jl 1955
Abstract	:	The author is concerned with the reviewers of O. B. Bron's article rather than with the article itself. He considers that discussion as most valuable from the scientific and philosophical points of view. This is a purely materialistic approach to the problem, and from that point of view, he criticizes certain statements of earlier participants in the discussion as smacking of 18th century idealism. In particular, he maintains that: 1) the mass exerts the same determining influence on the character of processes occuring in the electromagnetic field as does energy; 2) mechanical movement is not merely a change of place, but represents

FROLOV, B. V.

"Investigation of the Scheme of a Cadcade Connection of an Anynchronous Machine with Ion Transformer," OFFicial opponents: A. E. Kaplyanskiy, Professor, Doctor of Technical Sciences and Engineer G. K. Zherve.

Dissertation for the Degree of Candidate of Technical Scineces, defended at Leningrad Inst. for Construction of Aircraft Equipment, 25 April 1950 (Elektrichestvo, 1958, pp. 89-2 91 No . 5.)

FROLOV, Boris Vasil'yevich, kand.tekhn.nauk, dots.

Differential equations of a saturated synchronous machine.
Izv. vys. ucheb. zav.; elektromekh. 1 no.6:43-57 '58.
(MIRA 11:9)

1. Ispolnyayushchiy obyazannosti zaveduyushchego kafedroy teoreti-
cheskikh osnov elektrotekhniki Leningradskogo instituta aviatsionnogo
priborostroyeniya.
   (Differential equations)   (Electric machinery, Synchronous)

SOV/144-59-9-6/15

AUTHOR: Frolov, B.V., Cand.Tech.Sci., Docent, Acting Head of the
           Chair

TITLE: The Motion of an Electrical Machine Rotor under the
           Influence of an Arbitrary Torque

ABSTRACT: It is often necessary to make a detailed analysis of
           transient processes in electro-mechanical drives, and this
           involves consideration of the equations of motion of
           individual components of the system. Most automatic
           control systems use electrical machines whose law of
           change of torque as a function of time during the process
           of control may be very complicated. This article gives a
           general method of analysing the motion of an electrical
           machine rotor under the influence of an arbitrary torque.
           The method is applied to some particular cases of practical
           interest. The general equation of motion of a rotor is
           given by Eq (1), the solution for which for the case of
           constant torque is given by Eq (2). If a constant torque
           is applied to the rotor at a certain instant of time, the
Card 1/4   angular speed of the rotor is given by Eq (4). This

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        expression may be used to determine the speed of rotation
of the rotor under the influence of an arbitrary torque.
The actual speed of the rotor as a result of all the torque
applied to it is given by expression (5), which can be used
to determine motion of the rotor under the influence of any
torque whose law of change is known and can be expressed
mathematically. If the law of torque change cannot be
expressed by an equation, or if the equation is too
complicated to be convenient, the torque law may be
represented as a sum of rectangular or trapezoidal impulses.
Accordingly, the effects of such rectangular and
trapezoidal impulses are considered closely and the
corresponding equations for motion of the rotor are derived.
An appendix is devoted to the motion of the rotor of an
independently-excited d.c. machine controlled by changing
its flux. Many machines are controlled by varying the
field, and in order to limit the armature current when the
armature is at rest a limiting resistance is used.   The
Card 2/4 case considered is that of application of rated voltage to
        the field and it is assumed that the armature current is of

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constant rated value; the armature time-constant is
neglected and so is the influence of armature reaction on
the value of the flux. The necessary equations are
derived and solved to show that by taking two
oscillograms of the motor running up to speed with
constant torque and torque varying according to an
exponential law, it is possible to determine the time
constant of the field winding. Fig 4 shows motor
acceleration oscillograms for the case of switching on
the armature with constant field current. Experimental
and calculated acceleration curves of the motor are
compared in Fig 5 and it will be seen that agreement is
very good. It is concluded that motion of the rotor of
an electrical machine under the influence of an arbitrary
torque can be determined by means of Duhamel's integral
given the torque as a function of time. A brief
commentary on Frolov's article, contributed by
L.P. Fel'dman of the Novocherkassk Polytechnical
Institute, is appended on page 46. He claims that the
use of Duhamel's integral to solve the fundamental

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        equation is not new and has been considered in more
detail elsewhere. Mathematically the proposed treatment
does not seem to be very well founded and other equally
simple solutions are available.
There are 5 figures.

ASSOCIATION: Kafedra teoreticheskikh osnov elektrotekhniki,
        Leningradskiy institut aviatsionnogo priborostroyeniya
        (Chair of Theoretical Fundamentals of Electrical
Card 4/4   Engineering, Leningrad Institute of Aircraft
        Instrument Design)

SUBMITTED: April 28, 1959