

RUDAKOV, V.I., inzh.; SHCHERBOV, A.I., inzh.

Mechanization of the working of frozen ground in the State Union  
Trust for the Design and Construction of Hydraulic Structures.  
Stroi. i dor. mash. 6 no.10:16-18 0 '61. (MIRA 14:10)  
(Earthmoving machinery)  
(Frozen ground)

SKABALLANOVICH, I.A., kand.tekhn.nauk, dotsent; RUDAKOV, V.K., inzh.

Prediction of the flooding and reshaping of the shores of the reservoir of the Dneprodzerzhinsk Hydroelectric Power Station. Izv. vys. ucheb. zav.; energ. 4 no.10:116-122 0 '61. (MIRA 14:11)

1. Nauchno-issledovatel'skiy institut geologii Dnepropetrovskogo gosuniversiteta.

(Dneprodzerzhinsk Hydroelectric Power Station)

RUDAKOV, V.K., inzh. (Dnepropetrovsk)

Prognostic calculation of reservoir shore transformation. Gidr.1  
mel. 12 no.3:61-64 Mr '60. (MIRA 13:6)  
(Reservoirs) (Coast changes)

RUDAKOV, V.K., inzh.; TUMENKO, N.R.

Calculating the rise of ground water in a land mass between rivers  
as a result of the creation of a reservoir. Gidr. stroi. 32  
no.2:35 F 62. (MIRA 15:7)

(Water, Underground)

14(6)  
AUTHOR:

SOV/98-59-4-7/17  
Gryaznov, V.I., Candidate of Geological and Mineralogical Sciences, and Rudakov, V.K., Engineer

TITLE:

The Rate of Washing-Away of Loess Banks of the Kakhovka Reservoir (Razmyvayemost' lessovykh beregov Kakhovskogo vodokhranilishcha)

PERIODICAL:

Gidrotekhnicheskoye stroitel'stvo, 1959, Nr 4, pp 32-33 (USSR)

ABSTRACT:

The authors give a more precise definition of the formula of Ye.G. Kachugin to determine the washing-away grade of the above-mentioned banks. Proposed in 1955, this formula looks as follows:  $Q = k_p E t^b$ , whereby  $Q$  is the volume of the washing-away rock in  $cu\ m$ ;  $k_p$  is the washability coefficient in  $cu\ m$  divided by  $ton$ -meters;  $E$  is the wave energy per year in  $ton$ -meters;  $t$  is the number of years;  $b$  is the power indicator, less than 1. For loess-like grounds, Ye.G. Kachugin cites the following values:  $k_p = 25 \cdot 10^{-5}$ ;  $b = 47 \cdot 10^{-5}$   $m^2/ton$ -meters. The correction was rendered possible by way of new knowledge gained through recent

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The Rate of Washing-Away of Loess Banks of the Kakhovka Reser-  
voir

SOV/98-59-4-7/17

observations on the washing-away phenomenon of the Kakhovka reservoir. This study was carried out by the Nauchno-issledovatel'skiy institut geologii Dnepropetrovskogo universiteta (Research Institute of Geology of the Dnepropetrovsk University) in cooperation with the Ukrainskoye otdeleniye instituta "Gidroenergoprojekt" (Ukrainian Section of "Gidroenergoprojekt" Institute) during the period 1955-1957. The formula of Ye.G. Kachugin was incorrect as it could only be used for calculation of low banks with sand bars. However, steep banks, as it was learned meanwhile, are subject to a much stronger washing-away effect. Therefore, the washing-away data on the banks of another reservoir, the Dnepropetrovskoye vodokhranilishche (Dnepropetrovsk Reservoir), were ascertained by the newly-amended formula. There is 1 graph and 1 table.

Card 2/2

PROKIN, V.A.; RUDAKOV, V.M.

Breccialike ores of Sibay. Trudy Gor.-geol. inst. UFAN SSSR no.43:  
119-132 '59. (MIRA 13:11)

(Sibay region--Breccia)

1. RUDAKOV, V. N.
2. USSR (600)
4. Poultry Breeds - Bashkiria
7. "Pervomaiskie" hens in Bashkiria. Ptitsevodstvo no 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.



Subject : USSR/Engineering-Electricity AID P - 2157  
Card 1/1 Pub. 28 - 8/9  
Author : V. N. Rudakov  
Title : Automatic remote measuring instrument for weighing  
and indicating level of liquid in tanks  
Periodical: Energ. byul., no.5, 28-29, My 1955  
Abstract : This device is built on the principle of the changes  
in the weight of a submerged body according to its  
submersion. A floating vertical pipe is freely  
suspended inside of a tank and connected with an  
outside measuring instrument. The results are  
telemetered to a galvanometer located in a control  
point. Two sketches accompany the text. The author  
was awarded second prize in a competition for  
suggestions on the more economical consumption of  
electric energy and fuel.  
Institution: None  
Submitted : No date

GLUKHANOV, N.P.; KOVALEVSKAYA, Ya.P.; KRYLOV, K.I., prof.; MURAV'YEVA, G.Ya.;  
RUDAKOV, V.N.; SMIRNOV, P.S., tekhn.red.

[Laboratory work on electromagnetic fields] Laboratornye raboty  
po elektromagnitnomu poliu. Pod obshchei red. K.I.Krylova. Lenin-  
grad, Leningr. elektrotekhnicheskii in-t im. V.I.Ul'ianova (Lenina),  
1957. 246 p. (MIRA 11:7)

1. Zaveduyushchiy kafedroy "Teorii elektrichestva, magnetizma i  
stroyeniya materii" (for Krylov)  
(Electromagnetic theory)

AUTHOR: Dogramadzhi, M.F. and Rudakov, V.N.

136-5-8/14

TITLE: Magnetic field and state of the surface of fused metal in the electrolytic bath. (Magnitnoe pole i sostoyanie poverkhnosti rasplavlennogo metalla v elektroliznoy varne.)

PERIODICAL: "Tsvetnye Metally" (Non-ferrous Metals) 1957, No.5, pp. 50 - 54 (U.S.S.R.)

ABSTRACT: The object of the work described was to find ways of reducing the influence of magnetic forces in electrolyzers. The work was carried out jointly by the All-Union Aluminium-Magnesium Institute, the Leningrad Section of the Tyazhprom-elektroproekt Organisation and the Leningrad Electro-technical Institute (Leningrad Elektrotekhnicheskoy Institut) in 1955-1956. Part of the work consisted of an analytical calculation of the magnetic fields in the electrolyzer bath. These calculations showed the part played by currents in the different parts of the bath in the generation of its general magnetic field and suggested ways of finding rational lead designs. The influence of current flowing in the leads is to disturb the symmetry in the distribution of the magnetic field, this being more noticeable in lower-power baths. Direct measurements of the magnetic field on working electrolyzers were made with the aid of a graphite-cased, water-cooled instrument. Results are tabulated for a 62 kA bath and similar measurements are said

Card 1/2

SOV/137-59-3-5513

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 82 (USSR)

AUTHORS: Rudakov, V. N., Murav'yeva, G. Ya.

TITLE: On the Effect of Magnetic Fields on the Contour of the Surface of Liquid Aluminum in Electrolytic Baths for the Production of Aluminum (O vliyanii magnitnykh poley na formu poverkhnosti zhidkogo alyuminiya v elektroliznykh vannakh dlya polucheniya alyuminiya)

PERIODICAL: Izv. Leningr. elektrotekhn. in-ta, 1958, Nr 34, pp 172-187

ABSTRACT: The author studied the effect of the magnetic fields formed by the electric current flowing through the busbars on the contour of the surface of liquid Al during its electrolysis. The difference in Al levels at the opposite ends of the electrolytic bath (EB) on the average is 2.5 cm but on certain occasions attains 5-6 cm and even 9-10 cm, though for normal work of EB the distance from the lower surface (base) of the anode to the surface of the Al (interpolar distance) should be 4-4.5 cm. Deviation in either sense causes an overheating of EB and increases the specific consumption of energy. The investigation was carried out on an electrical analog of the electrolyzer by using a sand bath. EB parts were prepared from a mixture of sand.

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On the Effect of Magnetic Fields on the Contour of the Surface of Liquid Al (cont.)

and graphite. Recommendations for the design of busbars for EB in aluminum plants are given.

V. A.

Card 2/2

24.7800 (1035, 1142, 1162)

84494  
S/112/59/000/014/073/085/  
A052/A001

Translation from: Referativnyy zhurnal, Elektrotehnika, 1959, No. 14, p. 245  
# 30282

AUTHORS: Krylov, K. I., Rudakov, V. N.

TITLE: Application of Michelson's Interferometer for Determining Electric Parameters of a Substance at Ultrahigh Frequencies<sup>2</sup>

PERIODICAL: Izv. Leningr. elektrotekh. in-ta, 1958, No. 36, pp. 139-149

TEXT: Application of Michelson's interferometer for measuring the dielectric constant and tangent of dielectric loss angle in UHF band is described. The measurements are carried out on a 3.2-cm wavelength. Calculation formulae are derived and an example of determining the parameters of a dielectric from experimental data is given.

Ye. B. Z.

Translator's note: This is the full translation of the original Russian abstract.

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S/105/60/000/07/09/027  
B007/B005

AUTHOR: Rudakov, V. N., Docent  
TITLE: The d-c Magnetic Field in a Parallelepipedon  
PERIODICAL: Elektrichestvo, 1960, No. 7, pp. 39-41

TEXT: The author points out that an accurate calculation of the d-c magnetic field in a rectangular parallelepipedon leads to very complicated formulas, and presents a special computing operation. It facilitates considerably the computation without introducing simplifying assumptions. The method is described with the aid of Fig. 1. It is shown that the determination of the vector of the field intensity in the d-c magnetic field in a rectangular parallelepipedon consists in the calculation of extensive but equal functions. Thus, the calculation of the magnetic field can be much simplified by compiling a table of these functions. Fig. 2 shows the  $\phi(X, Y)$  curves drawn on the basis of the tables compiled by the author. S. K. Kalinkin and L. P. Konovalova assisted the author in compiling the tables for the  $\phi$  functions. There are 2 figures and 2 Soviet references.

VB

Card-1/2

*Известия Электротех. Инст. им. Ульянова (Серия)*

9.5000, 74.30, 74.7300

77333  
SOV/57-30-1-12/18

AUTHORS: Rudakov, V. N., Bogorodskiy, V. V.

TITLE: Measurements of Glacier Thickness by Electromagnetic Methods

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol 30, Nr 1, pp 82-89 (USSR)

ABSTRACT: The problem arose during measurements of ice layers in the Antactic as a part of the International Geophysical Year program. Gravimetric and magnetometric methods are only relative while the seismic methods are impractical due to a thick damping layer of snow. The authors discuss, therefore, the possibility of using retarded, reflected electromagnetic signals. (1) Electromagnetic properties and the structure of ice: The authors review the data about the dielectric permittivity  $\epsilon$  and the  $\tan \delta$  of the angle of electrical losses in the dielectric obtained by Eder (Ann. d. Phys., I, 7-8, 381-398, 1947). They compare them to those computed using the Debye equation

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Measurements of Glacier Thickness by  
Electromagnetic Methods

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$$\varepsilon = \frac{\varepsilon_0 + \varepsilon_\infty x^2}{1 + x^2}, \quad (1)$$

$$\varepsilon_1 = \varepsilon \tan \delta = \frac{\varepsilon_0 - \varepsilon_\infty}{1 + x^2} x, \quad (2)$$

where

$$x = \frac{f}{f_0}, \quad (3)$$

Here  $\varepsilon_0$  is value of  $\varepsilon$  at  $f = 0$ ;  $\varepsilon_\infty$  is value of  $\varepsilon$  at optical frequencies (up to the start of electronic dispersion);  $f_0$  is frequency at which  $\varepsilon_1$  reaches its maximum value. Taking the values of the constants from the work by Eder, the authors computed Table A. Assuming a linear temperature change in the deeper layers of the ice,

$$t_z^0 = t_h^0 - b(h - z), \quad (5)$$

where  $z$  is the coordinate perpendicular to the glacier;  
 $t_h^0$  is temperature of the earth beneath;  $b$  is temperature

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Measurements of Glacier Thickness by  
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Table A  
Dielectric permittivity and the tangent of the angle  
of electric losses of insipid ice at  $t = -10^{\circ}C$

(a) Frequency  $f$ , cycles; (b) computed using the  
Debye equation; (c) experimental data by Eder;  
(d) experiments data by Pasyukov, Rudakov, and  
Kholuyanov.

a	b		c		d	
	$\epsilon$	$\text{tg } \delta$	$\epsilon$	$\text{tg } \delta$	$\epsilon$	$\text{tg } \delta$
0	80.0	0.000	—	—	—	—
10	80.0	0.004	—	—	—	—
10 <sup>2</sup>	80.0	0.041	80.0	0.167	—	—
10 <sup>3</sup>	68.0	0.410	64.3	0.695	—	—
10 <sup>4</sup>	6.2	2.800	11.0	2.195	—	—
10 <sup>5</sup>	2.0	0.850	2.0	0.721	3.2	0.600
10 <sup>6</sup>	2.0	0.086	2.0	0.222	2.0	0.140
10 <sup>7</sup>	2.0	0.009	—	—	2.0	0.014
10 <sup>8</sup>	2.0	$9 \cdot 10^{-4}$	—	—	2.0	—
10 <sup>9</sup>	2.0	$9 \cdot 10^{-5}$	—	—	—	—
10 <sup>10</sup>	2.0	$9 \cdot 10^{-6}$	—	—	2.0	—

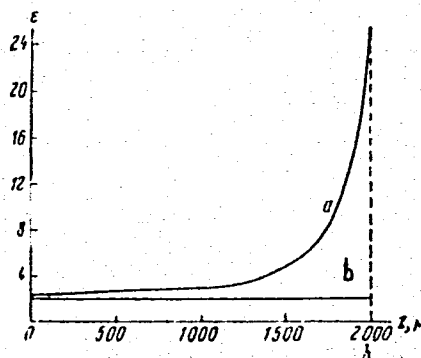
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gradient. Taking  $b = 0.02$  deg/m and  $t = -3^{\circ}$  C, they calculated the relationship between the dielectric permittivity and the distance from the surface of the glacier (see Fig. 3).

Fig. 3. Dielectric permittivity of the glacier vs distance from the surface of the glacier: (a) at  $f = 10^4$  cycles; (b) at  $f = 10^8$  cycles;  $h$  is the glacier thickness.



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The authors also note that the ice at 8 to 10 m under the surface of the glacier is made mostly out of crystals of 1-2 cm size. No data are available for greater depths. Electromagnetic investigations of ice crystals were made only in the region of light waves.

(2) Propagation of electromagnetic waves in ice: Since  $\tan \delta \neq 0$ , permittivity of ice has to be complex:

$$\epsilon = \epsilon - j\epsilon_1 = \epsilon(1 - j \tan \delta). \quad (7)$$

Using Maxwell's equations, the authors obtain an equation for the electric vector  $E$  ( $E = \text{b.f.}$ )

$$\Delta E - \frac{\omega^2}{c^2} \epsilon E - \text{grad} \left( E \frac{1}{\epsilon} \text{grad} \epsilon \right) = 0. \quad (9)$$

Assuming a slow variation of  $\epsilon$  and taking the wave propagation to be along the  $z$  axis, the solution can be obtained in the simplified form

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$$E(z) = \frac{A}{\rho} e^{-\int_{z_0}^z \beta(x) dx} - j \left\{ \int_{z_0}^z \alpha(x) dx - \pi/2 \right\}, \quad (16)$$

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where

$$\left. \begin{aligned} \rho &= \sqrt{\alpha^2 + \beta^2} \\ \operatorname{tg} \varphi &= \frac{\beta}{\alpha} \end{aligned} \right\} \quad (17)$$

and where  $\omega$  in Eq. (9) was first substituted by  $k$

$$k(x, y, z) = \frac{m}{c} \sqrt{\epsilon(x, y, z)}, \quad (11)$$

and then  $k$  was written in a complex form

$$k(z) = \alpha(z) - j\beta(z), \quad (13)$$

For the time of return of the signal at high frequencies and sufficiently low temperatures, the authors derive an approximate equation

$$\tau = \frac{2nh}{c}, \quad (19)$$

where  $n$  is index of refraction. For  $h = 2$  Km;  $n \approx \sqrt{\epsilon} = \sqrt{2}$ ,  $\tau$  comes out to be 18.9  $\mu$  sec. There exists one kind of damping due to absorption by ice. An approximate equation at high frequencies is

$$Ndb_1 = 8.65 \frac{m}{c} \sqrt{\epsilon} h \operatorname{tg} \delta. \quad (22)$$

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where  $Ndb_1$  denotes the number of decibels. For  $f > 10^6$  cycles,  $\tan \delta \sim 1/\omega$ , and  $n = \text{const}$ , so that for  $h = 2 \text{ Km}$ ,  $Ndb_1 \approx 40.8 \text{ db}$ . The scattering contributes another damping given by

$$Ndb_2 = \frac{20h}{\sqrt{V}} \lg \frac{1}{1-\sigma} \tag{23}$$

where

$$\sigma = \frac{8\pi|\alpha|^2 \omega^4 V^2}{3c^4} \tag{24}$$

is the effective cross section of scattering, and  $V$  is the volume of single crystals. As is known,

$$\alpha = \frac{3}{4\pi} \frac{\epsilon - 1}{\epsilon + 2} \tag{25}$$

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Assuming  $V = 1 \text{ cm}^3$ ,  $Ndb_2 \approx 0.01 \text{ db}$  at  $f = 10^8$  cycles, but increases rapidly to  $Ndb_2 \approx 100$  for  $f = 10^9$  cycles. The authors discuss other contributions to the damping (partial reflection on the air-ice or air-snow surface, non-mirror reflection from the ice-ground surface, waves not being plane) and conclude that for  $\lambda = 1 \text{ m}$  wavelength, the damping does not exceed 100 db. With a 10-kw generator one needs a receive of  $1 \mu$  volt sensitivity and a  $0.1\text{-}\mu$  sec impulse sequence with pauses larger than  $40 \mu$  sec, which is all technically feasible. The authors note that the effects discussed in the present paper are probably the cause of 100 to 120 m altimeter readings in airplanes landing on glaciers of that approximate thickness. The authors conclude that there probably exists a possibility of using highly directional millimeter waves, but that one first needs experimental investigations of scattering of such waves in ice. There are 4 figures; 1 table; and 6 references, 4 Soviet, 1 German.

SUBMITTED:  
Card 8/8

July 4, 1958

RUDAKOV, Vsevolod Nikolayevich; PEKSHEVA, Maya Vasil'yevna; SYCHEV, V.V.,  
red.; BORUNOV, N.I., tekhn. red.

[Use of atomic energy in electric power plants] Ispol'zovanie atom-  
noi energii na elektrostantsiakh. Moskva, Gos. energ.izd-vo, 1961.  
158 p. (MIRA 14:12)

(Nuclear reactors)



MURAV'YEVA, G.Ya., dotsent, kand.tekhn.nauk; RUDAKOV, V.N., dotsent, kand.tekhn.  
nauk

Principle of duality and electric models of magnetic shields. Izv.  
vys.ucheb.zav.; energ. 4 no.5:32-39 My '61. (MIRA 14:6)

1. Leningradskiy elektrotekhnicheskiy institut imeni V.I.  
Ul'yanova (Lenina). Predstavlena kafedroy teoreticheskikh osnov  
elektrotekhniki.

(Shielding (Electricity)) (Magnetic fields)

18,8200

37709

S/139/62/000/002/001/028  
E114/E435

AUTHOR: Rudakov, V.N.

TITLE: Electromagnetic method of stress analysis

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika.  
no.2, 1962, 7-14

TEXT: Methods of principal stress analysis in transparent bodies using polarized light are well-known. A.Dietzel and E.Deeg extended this method in 1954 to 3 cm electromagnetic waves for bodies transparent to such waves. The present article describes the work carried out in the Leningrad Electrical Engineering Institute imeni V.I.Ul'yanov (Lenin) extending such technique to bodies transparent to millimetre electromagnetic waves. This has the advantage of dispensing with models which cannot reproduce internal residual stresses, if any are present in the specimen. Longer wavelength help to cope with the difficulties caused by small discontinuities in the material but longer wavelength also means greater interference, diffraction phenomena and poorer resolution. A good compromise was considered to lie in the millimetre range. Assuming that the test piece is thin and  
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Electromagnetic method ...

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therefore only two principal stresses are present, an expression was derived for the difference in magnitude of the two principal stresses; this is a function of a multiplier, which is constant for a given experiment, and arctan of a number, to be determined by the experiment, which is proportional to the ratio of field strengths in the two principal directions. The multiplier is proportional to the wavelength and inversely proportional to the thickness of the plate and the optical constant of its material. In the experiment a thin high voltage porcelain plate was clamped between the transmitting and receiving horn antennae. The direction of major principal stress axis was found by rotating the two antennae together with the receiving antenna at right-angles to the transmitting antenna. At the point of zero reception, the principal stress axis will be in the plane of the emitted polarized electromagnetic wave. By noting the angle of the transmitting antenna as the plate is held in the beam in a number of regularly spaced positions, isoclines and isochromes can be mapped, showing the direction and intensity of principal stress at each point in the plate. By rotating the transmitting aerial

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Electromagnetic method ...

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through  $45^\circ$  to the principal stress axis, the intensity of electromagnetic field can be measured in the two planes of principal stresses by the receiving aerial which is rotated suitably. By substitution of these quantities into the equation, the difference of magnitude of the two principal stresses was determined. As an example, the magnitude of the difference of the two principal stresses is mapped for a fired thin porcelain plate, one side of which was heat treated. The gradients in the fired plate were found to be less steep than in an unfired plate. The non-uniform heat treatment caused non-uniform distribution of gradients. The method was found to be suitable for qualitative and quantitative testing of porcelain. There are 6 figures.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut imeni V.I.Ul'yanova (Lenina)  
(Leningrad Electrical Engineering Institute imeni V.I.Ul'yanov (Lenin))

SUBMITTED: December 6, 1960

Card 3/3

BOGORODSKIY, V.V.; RUDAKOV, V.N.

Electromagnetic methods for determining the thickness of  
floating ice. Zhur.tekh.fiz. 32 no.7:874-882 JI '62.

(MIRA 15:8)

(Electromagnetic waves)  
(Ice)

RUDAKOV, V.N., kand. tekhn. nauk, dotsent

Three historical phases and composing parts of present-day  
electrodynamics. Izv. LETI no.48:3-16 '63. (MIRA 17:12)

L 39288-65 EPF(n)-2/EPR/EPA(s)-2/EPA(w)-2/EWA(h)/EWP(o)/EWP(k)/EWT(d)/  
EWT(m)/EWP(b)/T/EWA(d)/EWP(l)/EWP(e)/EWP(w)/EWP(v) Pab-10/Pf-4/Pt-10/  
Peb/Pu-4 EM/GS/WH

ACCESSION NR: AT5000827

8/0000/64/000/004/0314/0322

71  
67  
B+1

AUTHOR: Rudakov, V. N. (Leningrad)

TITLE: The use of the electromagnetic method for investigating residual thermal stress in ceramics

SOURCE: Nauchnoye soveshchaniye po teplovyim napryazheniyam v elementakh konstruktsiy, 4th. Teplovyie napryazheniya v elementakh konstruktsiy (Thermal stresses in construction elements); doklady soveshchaniya, no. 4. Kiev, Naukova dumka, 1964, 314-322

TOPIC TAGS: ceramic stress, residual thermal stress, ceramic thermal stress, electromagnetic defactoscopy, stress analysis

ABSTRACT: Various ceramic parts are frequently used in structures working under complicated thermal conditions. The resultant thermal stresses are the cause of untimely failure of these parts. At present, no methods are available for measuring the stress in ceramics without destroying the parts. Since the optical method may be used only for transparent materials, it cannot be used for measuring the residual thermal stress in opaque ceramics. The LETI im. V. I. Ul'yanova

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L 39288-65

ACCESSION NR: AT5000827

has worked out a method for the electromagnetic detection of both isotropic and anisotropic defects in dielectrics by means of super-high-frequency electromagnetic waves. At first, a plane surface is considered. The tested part is set on the mobile frame of an electromagnetic polariscope located between the sending and receiving antennas. By means of an electric motor and special switches, the frame is reciprocated in one direction and a special electromagnet shifts it gradually, step by step, at right angles. In this way, the entire part is tested by the electromagnetic waves. The signal sent to the receiving antenna becomes zero when the direction of polarization is parallel to the direction of one of the main stresses, and the polarization planes of the sending and receiving antennas are crossed. After amplification, the signal sent to the receiving antenna is registered on a photographic film. An equation is given for the electromagnetic wave intensity. Isostatic and isoclinal lines are plotted for the part with subsequent plotting of isochromatic lines after using white light (as with the optical method). The photograph obtained by the electromagnetic polariscope, using monochromatic waves, shows the isochromatic and isoclinal lines as black lines. The same method may also be used for finding not only residual, but also any kind of thermal stresses in flat bodies which are transparent to super-high-

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frequency electromagnetic waves. At present, the Institute is designing polariscopes allowing the use of the electromagnetic method for finding stresses in thin-walled shells of cylindrical, conical and other shapes. "Besides the author, V. P. Kovalev, S. K. Kalinkin and others took part in the development of this method and in designing the apparatus." Orig. art. has: 7 figures and 16 formulas.

ASSOCIATION: None

SUBMITTED: 02Jun64

NO REF SOV: 003

ENCL: 00

SUB CODE: MT, TD

OTHER: 000

*o*  
Card 3/3

RUDAKOV, V.N.; SHVAYSHTEYN, Z.I.

Remote-control (noncontact) electromagnetic methods of measuring the thickness of drift ice. Trudy AANII 267:64-80 '64  
(MIRA 18:1)

L 38 03-65 EWT(1)/EPA(s)-2/EWT(m)/EWP(e)/EPF(n)-2/EPA(w)-2/EEC(t)/EWP(b) Pub-10/  
Pt-10/Pu-4/PI-4 IJP(c) GG/WH S/0181/65/007/C32/0659/0661  
ACCESSION NR: AP5005325

AUTHOR: Bogoroditskiy, N. P.; Rudakov, V. N.; Tairova, D. A.

67  
66  
B

TITLE: Electric anisotropy in polarized ceramic materials (electrets)

SOURCE: Fizika tverdogo tela, v. 7, no. 2, 1965, 659-661

TOPIC TAGS: polarization, ceramic material, electric anisotropy, electret,  
polarized structure, dielectric constant

ABSTRACT: To study the anisotropy in ceramic electrets made of T-150 material, the authors used an electromagnetic polaroscope with 8 mm operating wavelength, constructed at the LETI im. V. I. Ul'yanova (Lenina) (V. N. Rudakov, *Zh. VUZ, Fizika*, v. 2, 7, 1962). The investigated sample was secured in a special frame located between two antennas, one of which radiated and the other received plane-polarized electromagnetic waves. When the antenna polarization planes were crossed, the electromagnetic signal could be received only if the investigated sample rotated the planar polarization of the electromagnetic waves passing through it. The latter occurred when the waves were diffracted by local defects, and also in the presence of anisotropy of the dielectric constant. If the antenna polarization planes were

Card 1/2

L-38603-65

ACCESSION NR: AP5005325

made parallel to each other, the polaroscope operated like electromagnetic defectoscope. This defectoscope was used to investigate first unpolarized samples, and then these samples were placed in a polaroscope. This made it possible to observe the anisotropy of the dielectric constant in the plane of the sample. X-ray investigations have shown that the anisotropy of the polarized materials is not connected with phase transformations, and is due to the appearance of strains and stresses in the polarized medium. In the case of electrets, the stresses may be due to the field of the homo-charges. The lifetime of the homo-charges is governed not by Maxwellian relaxation, connected with the conductivity of the dielectric, but by the lifetimes on the local adhesion levels. In the presence of spontaneous polarization, the residual domain orientation is superimposed on the induced polarization. Orig. art. has: 1 figure and 3 formulas.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova (lenina) (Leningrad Electrotechnical Institute)

SUBMITTED: 15Jul64

ENCL: 00

SUB CODE: SS, EM

NR REF SOV: 003

OTHER: 001

Card

2/2 *llc*

REBAYEV, V.N., ALEKSANDROVA, M.G.

Radio wave spectroscopy of intricately shaped solids.  
Defektoskopiia 1 no.4:38-40 '66.

(MIRA 18:12)

L. Leningradskiy elektrotekhnicheskiy institut im. V.I.  
Ul'yanova (Lenina).

L 31915-66 EWT(d)

ACC NR: AP6010727

SOURCE CODE: UR/0142/66/009/001/0090/0096

AUTHOR: Rudakov, V. N.; Aleksandrova, M. G.

65  
B

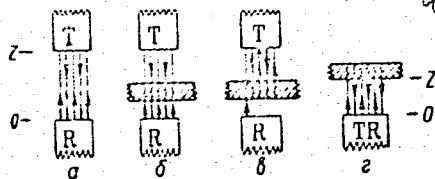
ORG: none

TITLE: Interference of electromagnetic waves in the space between probes in SHF outfits

SOURCE: IVUZ. Radiotekhnika, v. 9, no. 1, 1966, 90-96

TOPIC TAGS: radio intrascope, flaw detection, ELECTROMAGNETIC WAVE INTERFERENCE, SHF COMMUNICATION, SIGNAL RECEPTION

ABSTRACT: Four approximate formulas are developed for the intensity of the received signal in a SHF intrascope outfit (see figure) in which the specimen is placed either between transmitter T and receiver R (transmission system) or near transmitter-receiver TR (reflection system). The formulas were experimentally verified on a universal SHF intrascope



Card 1/2

UDC: 621.372.852.3.018.2

L 1915-66

ACC NR: AP6010727

with abrasive material, plexiglas, and metal-coated plexiglas specimens; the formulas proved to be in good qualitative agreement with the experimental data. Utilization of the interference phenomena enhanced the sensitivity and resolution of electromagnetic flaw detectors and polariscopes. Orig. art. has: 6 figures and 22 formulas.

SUB CODE: 13, 09 / SUBM DATE: 30Nov64

Card 2/2

L 25975-66 EWT(1)/EEQ(k)-2/EWA(h)

ACC NR: AP6015572

SOURCE CODE: UR/0146/66/009/002/0018/0020

AUTHOR: Aleksandrova, M. G.; Zelenkov, A. L.; Rudakov, V. N.; Lebedev, A. I. 32  
3

ORG: Leningrad Electrotechnical Institute im. V. I. Ul'yanov (Lenin) (Leningradskiy elektrotekhnicheskii institut)

TITLE: Universal device for observing and recording r-f fields

SOURCE: IVUZ. Priborostroyeniye, v. 9, no. 2, 1966, 18-20

TOPIC TAGS: diffraction camera, millimeter wave generator

ABSTRACT: An r-f diffraction instrument, the radiointroscope<sup>10</sup>, has been developed at the Leningrad Electrotechnical Institute imeni Lenin for revealing structural details of test materials. The introscope consists of a millimeter wave klystron, transmitting and receiving antennas, and the associated detection and display units (see Fig. 1). A test sample is placed between the antennas in a frame, which is scanned according to the pattern shown to the right of the figure. The resulting diffraction pattern is detected and observed on a long-persistence scope or recorded on film. For a transmitted pattern the antennas are placed coaxially, as shown; for a reflected pattern they are placed side by side, with suitable decoupling. Fig. 2 shows a pattern received at  $\lambda = 8$  mm from a polished disk [material not given], showing layering and a crack. Besides defect detection, the device can be used as a polariscope in dielectric studies; wavelengths of 4, 8 or 32 mm are obtained by changing 2

Card 1/3

UDC: 620.179.18



L. 25975-66

ACC NR: AP6015572

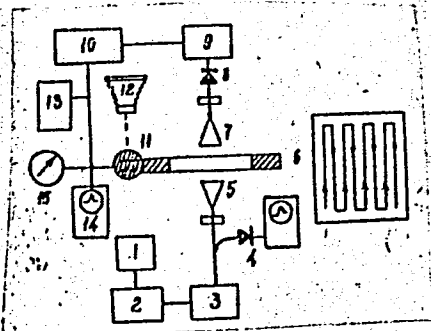


Fig. 1. Radiointroscope

- 1 - Square wave modulator; 2 - klystron supply; 3 - klystron; 4 - klystron monitor;
- 5-7 - antennas; 6 - scanned frame; 8 - detector; 9 - preamp; 10 - output amplifier;
- 11 - gas discharge tube; 12 - camera;
- 13 - oscillograph; 14 - defectoscope;
- 15 - meter.

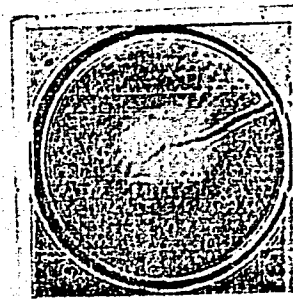


Fig. 2. Defectogram at  $\lambda = 8 \text{ mm}/\lambda$

Card 2/3.

L 25975-66

ACC NR: AP6015572

klystrons and antennas. The authors regard the introscope as a powerful tool in near-field diffraction studies, since theoretical analysis of this phenomenon is possible for only the most simple object geometries. Orig. art. has: 4 figures. [SH]

SUB CODE: 09/ SUBM DATE: 12Apr65/ ATD PRESS: 4257

Card 3/3 FW

L 11205-66 EWT(d)/EEC(k)-2

SOURCE CODE: UR/0381/65/000/004/0038/0040

ACC NR: AP5026214

AUTHOR: Rudakov, V. N.; Aleksandrova, M. G.

ORG: Leningrad Electrical Engineering Institute imeni V. I. Ul'yanov Lenin (Leningradskiy elektrotekhnicheskiy institut)

38  
B

TITLE: Radiowave endoscopy of bodies with complex profile

SOURCE: Defektoskopiya, no. 4, 1965, 38-40

TOPIC TAGS: radio wave absorption, electronic test equipment, dielectric material, semiconducting material, irradiation apparatus

ABSTRACT: The authors describe a simple method of investigating the gross structure of bodies with complex profile using centimeter and millimeter radiowaves. It is used to reveal various kinds of defects in industrial dielectrics and semiconductors. In their method, objects with complex profile must first be made plane-parallel, by the addition of special attachments having the same dielectric permeability as the specimen being tested (figure 1). The problem consists of directing the emitted wave within the specimen parallel to the upper boundary surface of the specimen. The angles of refraction  $\theta^d$  and incidence  $\theta$  are interrelated by the formula

$$\sin\theta/\sin\theta^d = n_{21}$$

( $n_{21}$ --index of refraction of second medium relative to the first). According to the formula, the requirement that the radiation be parallel to the upper boundary necessi-

UDC: 620.179.14:621.396.99

Card 1/ 2

L 11205-66

ACC NR: AP5026214

tates the addition of special attachments.

Otherwise the requirement is not physically realizable, for then  $\sin \theta > 1$ , implying the intensity curve from linearity in the graph of intensity  $I$  versus the dimension  $z$  normal to the radiation (figure 2). Orig. art. has: 4 figures.

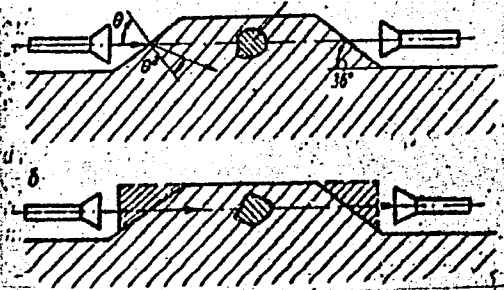


Fig. 1. Irradiation of specimen of complex profile.

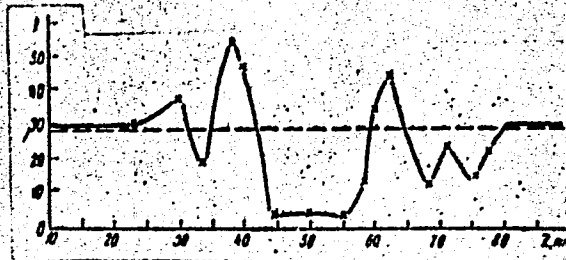


Fig. 2.

SUB CODE: 09,11/ SUBM DATE: 11May65/

ORIG REF: 000/

OTH REF: 000

my  
Card 2/8

BOGORODSKIY, V.V.; RUDAKOV, V.N.; TYUL'PIN, V.A.

Electromagnetic sounding of an antarctic glacier. Zhur. tekhn. fiz.  
35 no.6:1150-1153 Je '65. (MIRA 18:7)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut,  
Leningrad.



RUDAKOV, V.N., kand. tekhn. nauk, dotsent

Magnetic field of a cylinder with finite length. Elektrichestvo  
no. 3:78-79 Mr '65. (MIRA 18:6)

1. Leningradskiy elektrotekhnicheskiy institut imeni Ul'yanova  
(Lenina).

L 54773-65 EEO-2/EWT(1)/EEC(t)/EED-2 Pm-4/Pn-4/Pac-4/P1-4/Pj-4/Pk-4/P1-4  
GW/WR  
UR/0057/65/035/006/1150/1153

ACCESSION NR: AP5015642

AUTHOR: Bogorodskiy, V.V.; Rudakov, V.N.; Tyul'pin, V.

4/5  
B

TITLE: Electromagnetic probing of the antarctic ice cap

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.6, 1965, 1150-1153

TOPIC TAGS: radar, ice, thickness gage

ABSTRACT: The authors briefly discuss the deficiencies of the seismic method for measuring the thickness of the antarctic ice cap and the desirability of developing a radar method that might ultimately permit continuous surveys to be made from aircraft. They then describe a test performed early in 1964 on the 32 km range of the Mirnyy observatory and the Pionerskaya station in the antarctic with a standard Gyys-1M4<sup>21</sup> radar set operating at a wavelength of 1.42 m with a pulse power of 80 kW and a 44° antenna pattern. The apparatus was mounted on a tractor sledge, the antenna was laid directly on the snow, and the position was determined within 500 m. A strong reflection was received corresponding to an ice cap thickness of 850 m;

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L 54773-65

ACCESSION NR: AP5015642

this is to be compared with the thickness of 900 m determined seismically for the ice cap in this region. The measured attenuation was approximately 150 db; this is considered to be in good agreement with the attenuation of 117 to 120 db calculated on the basis of the theory of V.V.Bogorodskiy and V.N.Rudakov (ZhTF 30,82,1960). During movement of the apparatus to another location an accident occurred which terminated the tests. It is concluded that the theory of Rogorodskiy and Rudakov has been confirmed. The American group of A. H.Waite, who succeeded in making measurements at three locations, obtained similar results. "In conclusion, the authors consider it their pleasant duty to express their gratitude to the honored scientist and engineer Professor N.P.Bogorodskiy for assistance in performing the work." Orig.art.has: 2 fomulas and 1 figure.

Card 2/3

L 54773-65  
ACCESSION NR: AP5015642

ASSOCIATION: Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut, Leningrad (Arctic and Antarctic Scientific Research Institute)

SUBMITTED: 12Aug64

ENCL: 00

SUB CODE: ES, DC

NR REF SOV: 003

OTHER: 000

*AR*  
Card 3/3

SOV-98-58-2-2/21

AUTHORS: Vorenkin, I.N., and Rudakov, V.N., Engineers

TITLE: On the Possibility of Erecting Dams Without Cofferdams (O  
vozmozhnosti stroitel'stva plotin bez peremychek)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, <sup>1</sup>Nr 2, pp 6-11 (USSR)

ABSTRACT: The article deals with possible methods of erecting hydro-  
technical structures without a cofferdam. These methods are  
based on experience gained in the construction of the bridge  
over the Yangtze river at the town Ukhan' in Red China, where  
reinforced concrete pipes were used for erecting bridge  
pillars. The essence of the method and the sequence of  
operations are described. A metal spatial framework is  
placed between the pontoons. The framework serves to set  
the reinforced concrete pipes and to establish a cylindrical  
pile fencing. The pipes, of an outer diameter of 155 cm,  
are lowered through the framework to the alluvium and the  
bedrock (Diagram 1). The author describes the uses made of  
submerged concrete, concreting, etc. By using the above-  
mentioned method, one may in a number of cases dispense  
with erecting the usual cofferdam (Diagram 3). Diagram 2  
pictures the possible construction for a dam and screen when

Card 1/2

On the Possibility of Erecting Dams Without Cofferdams SOV-98-58-2-2/21

using concrete buttresses erected on the principles used in the Ukhan' bridge. Such buttresses establish a reliable junction of the dam screen with the underwater foundation at any depth. The author also gives the sequence of operations by which such a dam is to be constructed. Figures 4 - 7 show how the problem of linking a cofferdam with the foundation is being solved. There are 23 diagrams.

1. Dams--Construction
2. Reinforced concrete--Applications
3. Pipes--Applications

Card 2/2

10(4), 24(5)

SOV/98-59-9-8/29

AUTHOR: Gol'tsman, V.Kh., Rudakov, V.N. and Rubina, A.L.,  
Engineers

TITLE: Determination of Vertical Reactions on Flexible Grounds

PERIODICAL: *Gidrotekhnicheskoye stroitel'stvo*, 1959, Nr 9,  
pp 27-33 (USSR)

ABSTRACT: The authors consider conventional statistical methods for computation of reactive forces caused by pad foundation pressure as idealized. They try to bring some new ideas to this field of theoretical mechanics, using also preceding works prepared by P.L. Pasternak (Ref 1), P.P. Laupman and V.S. Eristov, (Ref 2), by taking into account bending of the foundation and the plasticity and non-uniformity of the ground. Several formulas based on these principles are given. There are 3 graphs, 1 set of diagrams and 3 Soviet references.

Card 1/1

RUDAKOV, V.N., inzh.

Precast reinforced concrete power house of the Saratov Hydroelectric  
Power Station. Gidr. stroi. 31 no.2:l-8 F '61. (MIRA 14:3)  
(Precast concrete construction)  
(Saratov Hydroelectric Power Station)

L 21582-66

ACC NR: AT6008387

SOURCE CODE: UR/0000/65/000/000/0145/0153

AUTHOR: Meshcherskiy, V. Yu. (Kiev); Rudakov, V. P. (Kiev)

ORG: none

TITLE: Scanning large linear fields in photoelectric conversion of optical-sensor information

SOURCE: AN UkrSSR. Povysheniye tochnosti i avtomatizatsiya izmeritel'nykh sistem (Automating and increasing the accuracy of measuring systems). Kiev, Naukova dumka, 1965, 145-153.

TOPIC TAGS: photoelectric sensor, nonelectric quantity instrument

ABSTRACT: In measuring nonelectric quantities by photoelectric sensors, the resulting pattern is scanned by an optical-to-electrical-signal converter. The scanners that realize pulse-time conversion (for remote measurements) include either a disk with a read slit moving along an Archimedes spiral or a drum with a helical read slit. Formulas for errors involved in both systems are developed. To minimize the error, a modified system is suggested in which the scanning field is subdivided into n areas analyzed simultaneously by n read slits. This modification promises scanning large fields by curvilinear read slits with much reduced

Card 1/2

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L 21582-66

ACC NR: AT6008387

error; an illustrating sketch is presented. Often the distance between two marks on one coordinate axis represents the measurand. Hitherto used opaque scanners with a long linear slit had cam-type or crank-type mechanisms liable to quick wear and slow in operation. A new idea is suggested (sketch supplied) for using a rotating-disk scanner for such cases. Orig. art. has: 4 figures and 25 formulas. [03]

SUB CODE: 09 / SUBM DATE: 25Oct65 / ORIG REF: 003/ ATD PRESS: 4219

Card 2/2 *ULR*



L 2761-66 EWT(d)/FSS-2/EWT(1)/EEC(k)-2 GW/AST

ACCESSION NR: AP5021261

UR/0293/65/003/004/0660/0662  
551.508.94:629.192.2:550.3

AUTHOR: Shvarts, Ya. M.; Markchev, N. T.; Petunin, A. N.; Rudakov, V. P.;  
Skvortsov, V. V. 44,55 44,55 44,55 44,55

TITLE: Testing of rocket electrostatic fluxmeter

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 4, 1965, 660-662

TOPIC TAGS: electric field, spaceborne ionization measurement, ionization detector, radiation detection

ABSTRACT: Laboratory tests of an electrostatic fluxmeter of the rotary type with thin wire meshes and a synchronous detector are reported. The meter is designed for measuring the electric field intensity at the surface of a probing rocket and, indirectly, the external electric field of the upper atmosphere. The sensor was placed in a chamber under vacuum of  $10^{-4}$ — $10^{-5}$  mm Hg and subjected to bombardment of argon ions with energies of 1000 ev or less. Determinations were made of mesh permeability for streams of charged particles and of the effectiveness of the screen plates and synchronous detector as noise suppressors. The coefficient of optical transparency of the screen was 0.87, while the electrical permeability for an ion

Card 1/2

59  
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9m

L 2761-66

ACCESSION NR: AP5021261

flux of  $10^{-9}$ — $10^{-7}$  amp/cm<sup>2</sup> was 0.82—0.86. The noise suppressing capabilities of the device are such that a noise current density of  $1.1 \times 10^{-7}$  amp/cm<sup>2</sup> and an electric field intensity of 8 v/cm are needed to make the signal to noise ratio 1. Orig. art. has: 1 figure. [BD]

ASSOCIATION: none

SUBMITTED: 18Mar65

NO REF SOV: 005

ENCL: 00

OTHER: 000

SUB CODE: EM, NP

ATD PRESS: 4102

SC

Card 2/2

ACCESSION NR: AP4033108

S/0120/64/000/002/0061/0063

AUTHOR: Lamunin, V. I.; Rudakov, V. P.; Serikov, I. N.; Sokolov, N. I.;  
Khaldin, N. N.

TITLE: Vacuum scatter chamber for studying charged-particle reactions

SOURCE: Pribory\* i tekhnika eksperimenta, no. 2, 1964, 61-63

TOPIC TAGS: scatter chamber, vacuum scatter chamber, nuclear measurement,  
particle reaction, particle scattering

ABSTRACT: A scatter chamber (see Enclosure 1) consists of a steel housing 1,  
lower lid 2, and upper movable lid 3. The primary particle beam, restricted by  
graphite diaphragms 4 and 5, passes the filter chamber 6 and is collimated by a  
set of tantalum diaphragms. Then, the beam strikes the target and goes into the  
Faraday cylinder. Filter disks 7 are remote-operated by ShI-11 step-by-step  
telephone-type switches located inside the filter chamber. Diaphragms 8 and 10

Card 1/3

ACCESSION NR: AP4033108

belong with the collimator, while diaphragms 9 and 11 remove fringe particles. Detectors are fastened to the movable lid 3 by means of a nipple 15 which is positioned at an angle of  $10^\circ$  from the central plane of the chamber. The recording angle can be varied within  $10^\circ$ - $170^\circ$  without disturbing the vacuum. Remote control is provided for the detector position, target replacement, and filter changes in the primary and secondary beams. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 01Jun63

DATE ACQ: 11May64

ENCL: 01

SUB CODE: NS

NO REF SOV: 004

OTHER: 001

Cord 2/3



RUDAKOV, V.P.

Angular  $\beta$ - $\gamma$  correlation in  $\text{La}^{140}$  and  $\text{Ce}^{141}$  decay. Izv. AN SSSR.  
Ser.fiz. 24 no.9:1124-1125 S '60. (MIRA 13:9)  
(Lanthanum--Decay) (Cerium--Decay)

21(8)

AUTHORS: Vlasov, N. A., Rudakov, V. P. SOV/56-36-1-4/62

TITLE:  $\beta$ - $\gamma$  Angular Correlation in the Decay of Ba<sup>139</sup> and the Sign of the Ratio of the  $\beta$ -Interaction Constants (Uglovaya  $\beta$ - $\gamma$  korrelyatsiya pri raspade Ba<sup>139</sup> i znak otnosheniya konstant  $\beta$ -vzaimodeystviya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 1, pp 24-27 (USSR)

ABSTRACT: In the introduction the results obtained by several investigations of the ratio of interaction constants ( $g_S/g_T$  or  $g_V/g_A$ ) carried out by several authors are discussed. With respect to the connection between angular correlation and the ratio of these constants, A. Z. Dolginov (Ref 7) showed that the anisotropy coefficient  $a$  can be represented in the expression of the angular  $\beta$ - $\gamma$  correlation  $W(\theta) = 1+a \cos^2\theta$  as a function of this ratio and some ratios of matrix elements of  $\beta$ -transition. The latter are written down for the case  $\Delta J = 1$  (cf. Ref 7) and discussed. Further, the results obtained by a number of other papers are discussed (Refs 8-12). In reference 8 the angular  $\beta$ - $\gamma$ -correlation was investigated for the cascade transition between the states  $(7/2^-) \xrightarrow{\beta} (5/2^+) \xrightarrow{\gamma} (7/2^+)$  at

Card 1/3

$\beta$ - $\gamma$  Angular Correlation in the Decay of Ba<sup>139</sup> SOV/56-36-1-4/62  
and the Sign of the Ratio of the  $\beta$  Interaction Constants

$E_\beta = 2.23$  and  $E_\gamma = 0.163$  MeV. The authors investigated it in the decay of Ba<sup>139</sup> (from the reaction Ba<sup>138</sup>(d,p)Ba<sup>139</sup>). A statistical evaluation of 30 measuring series resulted in the following values for the anisotropy coefficient:

$$a = \{N(\pi) - N(\pi/2)\} / N(\pi/2) = 0.058 \pm 0.023$$

(Ba<sup>139</sup> has a half-life of 85 minutes).

Control measurements were carried out with the preparations Sc<sup>46</sup> and Sb<sup>124</sup> the results of which are also given. Calculation of the anisotropy coefficient was carried out both on the assumption of a mixed vectorial and axial interaction and for a scalar-vectorial mixture. The following was obtained

for the constants:  $g_S = -g'_S$ ;  $g_T = -g'_T$ ;  $g_V = g'_V$ ;  $g_A = g'_A$

where the quantities with a prime relate to the non-conservation of parity. Calculations were carried out for the case of a mixture of magnetic dipole (96 %)- and electric quadrupole (4 %)-radiation. The dependence of  $a$  on the ratio  $g_S/g_T$  or  $g_V/g_A$  and on only one ratio of matrix elements was

Card 2/3



$\beta$ - $\gamma$  Angular Correlation in the Decay of Ba<sup>139</sup> SOV/56-36-1-4/62  
and the Sign of the Ratio of the  $\beta$  Interaction Constants

calculated; the functions obtained are given in figures 2 and 3. Theoretical results agree with experimental ones only for  $g_V/g_A < 0$ . The authors finally thank A. Z. Dolginov for letting them know calculation results and for discussions, and they express their gratitude to S. P. Kalinin for his interest, and to L. A. Sliv and I. S. Shapiro for discussing results. There are 3 figures and 13 references, 1 of which is Soviet.

SUBMITTED: July 11, 1958

Card 3/3

LAMUNIN, V.I.; RUDAKOV, V.P.; SERIKOV, I.N.; SOKOLOV, N.I.; KHALDIN, N.N.

Vacuum dispersion chamber for studying reactions between  
charged particles. Prib. i tekh. eksp. 9 no.2:61-63 Mr-Ap'64.  
(MIRA 17:5)

RUDAKOV, V. P., Cand Phys-Math Sci -- (diss) "Angular -- correlation." Leningrad, 1960. 6 pp; (Leningrad Order of Lenin State Univ im A. A. Zhdanov); 200 copies; price not given; (KL, 27-60, 148)

RUDAKOV, V.P.

Distribution of the number of fission neutrons. Atom. energ. 4 no.3:  
315-320 Mr '58. (MIRA 12:3)  
(Neutrons) (Nuclear reactions)

VLASOV, N.A.; RUDAKOV, V.P.

Angular  $\beta$ - $\gamma$ -correlation in the decay of  $Ba^{139}$  and the sign of the  
ratio of the  $\beta$ - $\gamma$ -interaction constants [with summary in English].  
Zhur. eksp. i teor. fiz. 36 no.1:24-27 Ja '59. (MIRA 12:2)  
(Barium--Decay) (Beta rays) (Gamma rays)

BUKHOV, V. I.

Fourteenth Conference on Nuclear Spectroscopy.  
In no. 538, Je '64.

107. 8049g.  
(NINA 17:7)

RUDAKOV, V.P.

[Angular  $\beta$  -  $\gamma$  correlation in  $\text{La}^{140}$  and  $\text{Ce}^{141}$  decay]

Uglovaia  $\beta$  -  $\gamma$ -korreliatsiia pri raspade  $\text{La}^{140}$  i  $\text{Ce}^{141}$ . Moskva,

In-t atomnoi energii, 1960. 5 p.

(MIRA 17:4)

RUDAKOV, V.P.

Thirteenth All-Union Conference on nuclear spectroscopy. Atom.  
energ. 15 no.1:82 J1 '63. (MIRA 16:8)  
(Physics--Congresses)



AUTHOR: Rudakov, V. P.

89-3-25/30

TITLE: Distribution of Fission Neutrons (Raspredeleniye chisla neytronov deleniya)

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 3, pp. 315-320 (USSR)

ABSTRACT: In September 1957, at the Neutron Conference at the Columbia University, D. Terel (USA) held a lecture on the mathematical determination of the number of neutrons set free at the fission from which an extract is given here. A simplified process of calculation with a reduced number of parameters is given. It is assumed that the fission products emit neutrons only if this is energetically possible. Further it is assumed, for the sake of simplicity, that the emission of any neutron from any fission product reduces the excitation energy of this by the quantity  $\Delta E$ , which on the average amounts to about  $E_0 = \Delta E$  and that the total excitation energy of two primary fission products at the double fission has a Gaussian error-distribution. Thereby the mean quadratic deviation from the mean energy  $\bar{E}$  is  $\sigma E$ . Both these assumptions

Card 1/2

Distribution of Fission Neutrons

89-3-25/30

are, according to experimental investigations, permissible.

As a measure of comparison the quantities  $D = \bar{r}^2 - r^{-2}$

and  $\Gamma_2 = \frac{\bar{r}^2 - \bar{r}}{r^{-2}}$  are computed as well from the experimental

data as from the given assumptions and an acceptable conformity has been achieved. There are 5 figures, 1 table, and 7 references, 0 of which are Slavic.

AVAILABLE: Library of Congress

1. Fission neutrons-Distribution 2. Mathematics-Theory

Card 2/2

ACCESSION NR: AP4043632

S/0056/64/047/002/0571/0576

AUTHORS: Gol'dberg, V. Z.; Rudakov, V. P.; Serikov, I. N.

TITLE: Analysis of elastic scattering of He-3 and Alpha particles on the basis of the optical model of the nucleus

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 571-576

TOPIC TAGS: helium, elastic scattering, alpha particle reaction, differential cross section, optical potential

ABSTRACT: Although a detailed analysis of elastic scattering of alpha particles by many nuclei from  $C^{12}$  to  $Th^{232}$  was made by Igo and Thaler (Phys. Rev. v. 106, 126, 1957), no such analysis was made for the elastic scattering of  $He^3$ . Earlier calculations, made on the basis of a limited experimental material, have led to parameters that vary erratically from nucleus to nucleus. The authors have therefore used the optical model to attempt a more systematic

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ACCESSION NR: AP4043632

analysis on the data concerning elastic scattering of  $\text{He}^3$  by different nuclei, and calculated the differential cross sections for this scattering. New data obtained on the differential cross sections at the laboratory of the authors (V. M. Pankratov and I. N. Serikov, ZhETF, v. 44, 187, 1963) and by Gonzalez-Vidal et al. (UCRL-9566, 1961) have been used in the calculations. The results show that a single set of parameters for the optical potential can be used to describe satisfactorily the experimental data over the wide range of nuclei from  $\text{Be}^9$  to  $\text{Bi}^{209}$ . A comparison is given of the parameters of the potentials describing the elastic scattering of  $\text{He}^3$  and of alpha particles by  $\text{Al}^{27}$ . "The authors thank V. A. Belyakov, P. E. Nemirovskiy, and I. S. Shapiro for useful discussions." Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: None

SUBMITTED: 28Jan64

ENCL: 00

SUB CODE: NP

NR REF SOV: 002

OTHER: 010

Card 2/2

GOIDBERG, V.Z.; RUDAKOV, V.P.

Wide-focus magnetic beta-spectrograph. *Trizh. i tekhn. eksp.* 8  
no.6:36-37 N-D '63. (NIRA 17:6)

ARTEMOV, A.I.; G. I. BLAGO, V.L.; BLANOV, N.I.; ...

the  $(\text{He}^3, \alpha)$  reaction on  $\text{Ba}^{137}$ ,  $\text{Ba}^{138}$  ...  
1919-1924, Je 195. (MIRA 19:1)

ARTEMOV, K.P.; GOLDBERG, V.Z.; ISLAMOV, B.I.; RUDAKOV, V.P.; SERIKOV, I.N.

Elastic scattering of  $\text{He}^3$  ions on  $\text{Be}^9$ ,  $\text{N}^{14}$ , and  $\text{O}^{16}$ . IAd. fiz.  
1 no.4:629-632 Ap '65. (MIRA 18:5)

21 (7), 21 (8)

AUTHOR: Rudakov, V. P.

SOV/89-7-1-18/26

TITLE: IX All-Union Conference on Nuclear Spectroscopy  
(IX Vsesoyuznoye soveshchaniye po yadernoy spektroskopii)

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 1, pp 76-78 (USSR)

ABSTRACT: The IX All-Union Conference was held from January 26 to February 2, 1959 at Khar'kov. More than 300 participants heard 100 lectures, the most important of which dealt with the following fields. Nuclear Theory, General problems of  $\beta$ -decay. A. S. Davydov (IGU): Theoretical classification of low-energy excited nuclear states. L. K. Peker: Deformed nuclei. B. L. Birbrair, L. K. Peker, L. A. Sliv (LFTI): Quadrupole oscillations of deformed nuclei. Ye. V. Inopin, V. Yu. Gonchar, S. P. Tsytko (KhFTI): Calculation of the ft-values with matrix elements for  $\beta$ -transitions by means of the generalized nuclear model. S. T. Belyayev (IAE): Consideration of pair-correlation in nuclei. A. E. Migdal (IAE): The application of the superconductivity model to nuclei for the purpose of calculating their moments of inertia. P. E. Nemirovskiy (IAE): Problems of the neutron stability of nuclei. Ya. A. Smorodinskiy (IAE): The present stage in the theory of  $\beta$ -decay. V. V. Vladimirovskiy,

Card 1/3



## IX. All-Union Conference on Nuclear Spectroscopy

SOV/89-7-1-18/26

V. K. Grigor'yev, V. A. Yergakov, Yu. V. Trebukhovskiy (ITEF): Measurement of the angular correlation between electron and neutrino in the decay of the neutron. V. M. Iobashev, V. A. Nazarenko, L. I. Rusinov (LFTI): Measurement of the correlation between the transversal electron polarization and circular polarization of  $\gamma$ -quanta occurring in the decay of  $Sc^{46}$  and  $Co^{60}$ . Decay Schemes.  $\gamma$ -radiation of Nuclei. Yu. P. Anufriyev, A. K. Val'ter, Yu. V. Gonchar, Ye. G. Kopaneyts, A. N. L'vov, P. M. Tutakin, S. P. Tsytko, P. V. Seroikin, A. S. Deyneko, I. Ya. Malakhov, A. Ya. Taranov (Fiziko-tehnichesk'iy Khar'kovskiy institut (Physico-technical Institute, Khar'kov)): The  $Si^{28,29,30}(p,\gamma)$ ,  $Ne^{20}(p,\gamma)$ ,  $S^{32-34}(p,\gamma)$ ,  $Ar^{40}(p,\gamma)$  and  $N^{14}(p,\gamma)$  reactions. D. G. Alkhazov, A. P. Grinberg, G. M. Gasiinskiy, M. Kh. Lemberg, V. V. Rozhdestvenskiy, K. N. Yerokhina of the Leningradskiy fiziko-tehnichesk'iy institut (Leningrad Physico-technical Institute): Investigation of the Coulomb excitation of the lower levels of some nuclei during their bombardment by multiply charged ions (C, N, O, and Ne). A. V. Kalyamin, A. N. Murin, V. N. Pokrovskiy, V. A. Yakovlev (RIAN): New isotopes

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IX. All-Union Conference on Nuclear Spectroscopy

SOV/89-7-1-18/26

Tu<sup>161</sup>, Ho<sup>153</sup>, Ho<sup>155</sup> and Ho<sup>157</sup>. B. S. Dzheleпов, V. A. Sergiyenko (LGU): Decay schemes of some neutron-deficient isotopes, set up on the basis of measurements of the coincidence of the internal conversion electrons. Spectroscopy Engineering. B. S. Dzheleпов, R. B. Ivanov, V. G. Nedovesov, V. G. Chumin (RIAN):  $\alpha$ -spectrometer with double focusing. S. A. Baranov, V. V. Baruchko, A. G. Zelenkov, A. F. Malov, G. Ya. Shchepkin (IAE): Improved  $\alpha$ -spectrometer. I. F. Barchuk, G. V. Belykh, V. I. Golyskin, V. A. Kovtun (IFAN UkrSSR): Magnetic spectrograph for heavy charged particles. The representatives of the Ministerstvo radiotekhnicheskoy promyshlennosti (Ministry of the Radio-engineering Industry) gave a report about new multipliers. The Conference was closed by B. S. Dzheleпов, who stressed the fact that nuclear tables and reference works ought to be published much more quickly in order to be of real use to the experimenter.

Card 3/3

RUDAKOV, V. P., and VLASOV, N. A.

"Correlation angulaire beta-gamme dans la desintegration de  $^{139}\text{Ba}$  et signe du quotient des constantes de la desintegration beta."

report presented at the Intl. Congress for Nuclear Interactions (Low Energy) and Nuclear Structure (Intl. Union Pure and Applied Physics,) Paris, 7-12 July 1958.

RUDAKOV, V.P.

Seventh all-Union conference on atomic spectroscopy.

Atom.energ. 5 no.1:78-80 J1 '58.

(Spectrum, Atomic)

(MIRA 11:9)

AUTHOR: Rudakov, V. P. SOV/89-5-1-13/28

TITLE: VIII. All-Union Conference of Nuclear Spectroscopy  
(VIII Vsesoyuznoye soveshchaniye po yadernoy spektroskopii)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 1, pp. 78-80 (USSR)

ABSTRACT: From January 27 to February 3, 1958 the VIII. All-Union Conference of Nuclear Spectroscopy was held at Leningrad. It was attended by a total of more than 500 representatives of the various institutes of the USSR, Poland, Czechoslovakia, the German Democratic Republic, Yugoslavia, and France. 100 lectures were delivered in the course of 10 sessions. The material of this conference is described in detail in Journal I. The following principal problems were dealt with:

- 1.) General problems of beta decay, nuclear shells,  $\alpha$ -decay.
- 2.) Decay schemes. The  $\gamma$ -radiation of nuclei.
- 3.) The technology of spectroscopy.

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VIII. All-Union Conference of Nuclear Spectroscopy

SOV/89-5-1-13/28

1. Nuclear physics
2. Spectroscopy

Card 2/2

ARTEMOV, K.P.; GOL'DBERG, V.Z.; RUDAKOV, V.P.

Elastic and inelastic scattering of alpha particles on Al<sup>27</sup>.  
Atom. energ. 14 no.5:482-484 My '63. (MIRA 16:6)  
(Alpha rays Scattering)

EWT(m)/BDS--AFFTC/ASD--DM

L 1120h-63

ACCESSION NR: AP3001178

S/0089/63/014/005/0482/0484

55

AUTHOR: Artemov, K. P.; Gol'dberg, V. Z.; Rudakov, V. P.

TITLE: Elastic and inelastic scattering of Alpha particles<sup>19</sup> by Al sup 27

SOURCE: Atomnaya energiya, v. 14, no. 5, 1963, 482-484

TOPIC TAGS: elastic scattering, inelastic scattering, Alpha particles, excited states of Al sup 27

ABSTRACT: The Alpha particles were accelerated to 40, 38, and 36 Mev in the 1.5 m cyclotron of the Institute for Atomic Energy. A high pressure ionization chamber was used for detection of Alpha particles. In agreement with the results of other workers, the angular distribution of scattered particles showed a "diffraction pattern," the maxima of the inelastically scattered particles coincided with the minima of those scattered elastically. The results are interpreted on the basis of theory by other authors, among them S. I. Drosdov (Zh. experim. i theoret. fiz., 31, 901, 1956). The radius of interaction of the Alpha particle with the Al-nucleus is found to be 5.5 fermi. Conclusions are made concerning the excited states in Al sup 27. "The authors are grateful to S. I. Drosdov for the discussion of results of the work." Orig. art. has: 3 figures and 6 references.

Card 1/2,



GOL'DBERG, V.Z.; RUDAKOV, V.P.; SERIKOV, I.N.

Use of an optical nuclear model in analyzing the elastic scattering  
of  $\text{He}^3$  and alpha particles. Zhur. eksp. i teor. fiz. 47 no.2:571-576  
Ag '64. (MIRA 17:10)

12912

S/250/62/006/012/001/003  
A001/A101

AUTHOR: Rudakov, V. P.

TITLE: On one sufficient condition of motion stability during a finite time interval

PERIODICAL: Akademiya nauk BSSR, Doklady, v. 6, no. 12, 1962, 757- 759

TEXT: The author considers the problem of motion stability of a system which looks as follows:

$$\frac{dx}{dt} = P(t) x + X(t, x) \tag{1}$$

where  $P(t) = \| p_{ik}(t) \|$ ,  $X(t, x) = \{ X_i(t, x) \}$ ,  $x = \{ x_i \}$  ( $i, k = 1, \dots, n$ ).

It is assumed that within the region

$$t_0 \leq t \leq T, |x_i| \leq a \quad (t_0 \neq T, a \neq 0)$$

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5/250/62/006/012/001/003  
A001/A101

On one sufficient condition of...

matrix  $P$  is a real and continuous function of time  $t$ , and vector  $X$  is a real and continuous function of time  $t$  and real perturbation vector  $x$ . The author cites a definition of stability given by G. V. Kamenkov and A. A. Lebedev (P.M., v. 18, no. 4, 512, 1954): The unperturbed motion is stable over the finite time interval  $[t_0, t_1]$ . If in space  $x$  can be found cycle  $V(t, x) = A$  which possesses, within this interval, the following properties: 1) diameter of the region

$$V(t, x) \leq A \tag{2}$$

does not exceed initial diameter  $D(t_0)$ ,

$$\frac{D(t)}{D(t_0)} \leq 1: \tag{3}$$

2) at any initial perturbations  $x_0 = \begin{Bmatrix} x_{10} \end{Bmatrix}$  satisfying condition  $V(t_0, x_0) \leq A$ , perturbations  $x(t)$  satisfy inequality (2). The author introduces the concept of a regular bundle of quadratic forms  $K - \mu V$  and determines its characteristic numbers, i.e., roots of equation

Card 2/3  $\det(C - \mu E) = 0 \tag{4}$

On one sufficient condition of...

S/250/62/006/012/001/003  
A001/A101

where  $C$  is matrix of coefficients of form  $K$ ;  $E$  is unitary matrix. The maximum root, at any time instant, of equation (7) is denoted by  $\mu_B(t)$ . Then the author proves two theorems to the effect that the following conditions are necessary and sufficient for the motion to be stable within the finite time interval:

$$\mu_B(t_0) < 0 \quad (10)$$

$$\int_{t_0}^t \mu_B(\tau) d\tau < 0 \text{ at } t_0 < t \leq t_1. \quad (11)$$

ASSOCIATION: Kiyevskiy gosudarstvennyy pedinstitut im. A. M. Gor'kogo  
(Kiyev State Pedagogical Institute imeni A. M. Gor'kiy)

PRESENTED: By N. P. Yerugin, Academician of AS BSSR

SUBMITTED: June 27, 1962

card 3/3

KUDAKOV, V. F.

"Excitation Functions for the Reactions  $Mg^{24}(d,\alpha)Na^{22}$ ,  
 $Fe^{54}(d,\alpha)Mn^{52}$ ,  $Fe^{54}(d,n)Co^{55}$ , and  $Zn^{66}(d,2n)Ga^{66}$ ," by  
N. A. Vlasov, S. P. Kalinin, A. A. Ogloblin, V. M.  
Pankratov, V. P. Rudakov, I. N. Serikov, and V. A. Sidorov,  
Atomnaya Energiya, Vol 2, No 2, Feb 57, pp 169-171

This work describes experiments to determine the excitation curves for the reactions  $Mg^{24}(d,\alpha)Na^{22}$ ,  $Fe^{54}(d,\alpha)Mn^{52}$ ,  $Fe^{54}(d,n)Co^{55}$ , and  $Zn^{66}(d,2n)Ga^{66}$ . Cross section versus deuteron energy graphs are given for each of the four reactions.

The measurement apparatus and technique are explained.

No interpretation of the data is made. (U)

Sum. 1346

S/021/63/000/001/005/012  
D251/D308

AUTHOR: Rudakov, V. P.

TITLE: On the stability of motion in a given interval of time with constantly acting disturbances

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 1, 1963, 22-26

TEXT: The author considers an unperturbed motion

$$x_k = 0, \quad (k = 1, 2, \dots, n) \quad (1)$$

and perturbed motions  $x_k = x_k(t, t_0, x_0)$ ,  $k = 1, 2, \dots, n$ , on which there act instantaneous perturbations (initial disturbances), and continuously acting perturbing forces giving, respectively, in matrix notation

$$\frac{dx}{dt} = Ax \quad (2)$$

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On the stability ...

S/021/63/000/001/005/012  
D251/D308

and

$$\frac{dx}{dt} = Ax + p \quad (3)$$

In a finite interval of time  $[t_0, t_1]$ , the unperturbed motion (1), stable in the region

$$\sum_{l=1}^n \left( \sum_{s=1}^n h_{ls} x_s \right)^2 \leq f, \quad \det \| h_{ls} \| \neq 0 \quad (4)$$

where  $h_{ls}$  and  $f(t)$  are arbitrary functions, will be stable under the action of perturbing forces such that for all initial disturbances  $x_0 = \{x_{k0}\}$  which satisfy (4) for  $t = t_0$ , the corresponding perturbed motion  $x = \{x_k(t)\}$  will satisfy (4) for all  $t \in [t_0, t_1]$ .

Card 2/3

On the stability ...

S/021/63/000/001/005/012  
D251/D308

Sufficient conditions of stability are established in terms of a matrix transformation performed on (1).

ASSOCIATION: Kyiv's'kyy pedahohichnyy instytut (Kiev Pedagogic Institute)

PRESENTED: by Y. Z. Shtokalo, Academician .

SUBMITTED: December 19, 1962

Card 3/3



SHUMAKOVICH, Ye.Ye., doktor vet. nauk; ~~HUDAKOV, V.S.~~; BURLAKOVA, K.I.

Experiment in controlling Mullerius and Protostrongylus infections  
by preventive dehelminthization with emetine hydrochloride. Trudy  
VIGIS 5:190-194 '53. (MIRA 11:1)  
(Emetine) (Nematoda) (Parasites--Ruminantia)

RUZAKOV, V.S.

The variational principle for the energy of quasi-stationary states. Vest. LGU 20 no.16:132-139 '65. (MIRA 18:9)

RUDAKOV, V.S.

Hypervirial relations for a distorted Coulomb field, Vest. LGU 20 no. 10:  
13-17 '65. (MIRA 18.7)

RUDAKOV, V. V.

USSR/Engineering - Transportation

Card 1/1 : Pub. 71 - 4/17

Authors : Rudakov, V. V.

Title : Transporting mural materials on platform carts and trays

Periodical : Mech. trud. rab. 5, 15-16, July 1954

Abstract : The editorial reports on simplified methods used by, "Zovstal'-stroy" Combine, for transporting and hoisting mural materials. General description of fork-buckets, suspension lines, and platform carts and trays, is presented. Diagrams; drawings; illustration.

Institution : .....

Submitted : .....