L 10913-67 EWT(1)/FCC GW/GD

ACC NR: AT6021011 (A,N) SOURCE CODE: UR/0000/65/000/000/0018/0033

31

AUTHOR: Adam, N. V.; Ben'kova, N. P.; Orlov, V. P.; Tyrumina, L. O.

ORG: none

TITLE: Secular variations of the geomagnetic field based on data of a spherical analysis

SOURCE: AN SSSR. Institut fiziki Zemli. Nastoyashcheye i proshloye magnitnogo polya Zemli (The present and past of the earth's magnetic field). Moscow, Izd-vo Nauka, 1965, 18-33

TOPIC TAGS: earth magnetism, geomagnetic measurement, spherical analysis, secular variation

ABSTRACT: This article concerns the principal geomagnetic field studied by the method of spherical analysis and its secular variations. The authors derive an analytical expression which approximates secular variations. They examine on the basis of this analytical expression certain problems of the nature of secular variations, and attempt to use the results obtained for forecasting the field. The authors, having previously used spherical analysis for plotting charts of isoporic lines in the polar caps and having obtained sufficiently good agreement with charts plotted from observational data, conclude that the sum of the first six terms of a spherical harmonic series permits representing the morphology of secular variations with the same degree

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ACC NR: AT6021011

of schematization. This scheme is characteristic of modern world isoporic charts plotted graphically from the data of magnetic observatories but without the element of subjectivism inherent to the graphic method. Spherical analysis is recommended both as a method of analytical representation and as a method of plotting isoporic charts. Since one of the important characteristics of the planetary part of secular variations is western drift, the authors estimated western drift for individual harmonics by means of spherical analysis of a constant field and secular variations, and by the shift of the centers of world anomalies. They also examined the latitudinal and longitudinal distributions of drift velocity. The velocity values obtained from the coefficients of spherical analysis of world charts of the total field for the 1955 epoch, and from the secular variation charts for the period 1954—1959, are calculated. The velocity values were found to fluctuate within -0.47 to +0.12 deg/year, two characteristics being noted: 1) a decrease of the velocity for high-latitude observatories and 2) asymmetry in the distribution of velocity between western and eastern hemispheres. The velocity values were higher for western observatories than for eastern. To extrapolate secular variations to the present or forthcoming epochs, isoporic charts of 1954—1959 were used to forecast the secular variations for 1960—1965. A comparison of the coefficients of the spherical analysis of secular variations revealed that, with the present accuracy, the coefficients higher than the third order can be considered constant, and the coefficients of the first three orders change in time within a set interval, fluctuating about averages that are constant or almost constant in time. It is concluded that during a 50-year period the magnetic moment can decrease by $0.5 \cdot 10^{25}$ CGS, and that the position of the geomagnetic pole will

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ACC NR: AT6021011

shift along the latitudinal circle from 291°46' to 291°52'. Combining paleomagnetic and analytical studies of the geomagnetic field can be quite fruitful, in particular in regions west and east of the centers of world anomalies. Orig. art. has: 3 formulas, 6 tables and 6 figures.

SUB CODE: 12,08/ SUBM DATE: 21Sep65/ ORIG REF: 007/ OTH REF: 004

Card 3/3

L 07493-67 EWT(1)/FCC GW/GD

ACC NR: AT6021014 SOURCE CODE: UR/0000/65/000/000/0066/0076

33
32
13+1

AUTHOR: Orlov, V. P.; Sokolov, V. P.

ORG: none

TITLE: Secular variation of the geomagnetic field and its anomalies

SOURCE: AN SSSR. Institut fiziki Zemli. Nastoyashcheye i proshloye magnitnogo polya Zemli (The present and past of the earth's magnetic field). Moscow, Izd-vo Nauka, 1965, 66-76

TOPIC TAGS: secular variation, geomagnetic field, magnetic field intensity, magnetic anomaly

ABSTRACT: The authors note the following with respect to the secular variation of the geomagnetic field and its anomalies. A characteristic feature of the overall pattern of the secular variation is that the changes of the geomagnetic field strength in the Southern Hemisphere are appreciably greater in magnitude than in the Northern Hemisphere. Since about 1955 the changes of the secular variation in the Soviet Union and adjacent territories of Mongolia and China have become more pronounced than in the preceding decades. The changes of the mean annual values of the secular variation from 5-year period to a 5-year period in Eastern Siberia exceed 30 γ, reaching 45 γ in certain places. Such marked changes have not been observed in the Soviet Union in any case since 1825. The values of the secular variation in the Antarctic are much greater and the pattern of its distribution is more complex, owing to the presence

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L 07493-67
ACC NR: AT6021014

of the center of the secular variation in the South Atlantic, than in the Arctic. At present the south magnetic pole is shifting northward and westward. In the region of Southern Africa and adjacent regions of the Atlantic and Indian oceans is a world magnetic anomaly which is manifested by low values of H. The central part of the region of low H values coincides with the focus of the negative values of its secular variation. The annual decrease of H in this region during the past 30 years was 60—80 γ/yr for a total of more than 2000 γ. Thus there are grounds to assume that this world anomaly owes its origin to the secular variation. Studies to elicit anomalies of the secular variation permitted the conclusion that an investigation of these anomalies can be one of the methods of studying present-day tectonic processes and the possibility is not precluded that along with other types of geophysical investigations the anomalies can be of considerable importance for forecasting earthquakes. Orig. art. has: 6 figures.

SUB CODE: 08/ SUBM DATE: 21Sep65/ ORIG REF: 007/ OTH REF: 002

Card 2/2/mb

ACCESSION NR: AP4024736 S/0109/64/009/003/0553/0556

AUTHOR: Orlov, V. P.

TITLE: Calculating the propagation constants of a complex-shape waveguide by coordinate conversion

SOURCE: Radiotekhnika i elektronika, v. 9, no. 3, 1964, 553-556

TOPIC TAGS: waveguide, complex shape waveguide, waveguide propagation constant, coordinate conversion, irregular waveguide

ABSTRACT: The coordinate-conversion method is applied to an axially regular waveguide having a complex-shape cross-section. By introducing a new coordinate system — curvilinear and nonorthogonal in the general case — the complex cross-section can be turned into a simple planar figure, such as a circle or a square. The original waveguide is thereby converted into a circular or square waveguide filled with a nonhomogeneous anisotropic medium; the method

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ACCESSION NR: AP4024736

of eigenfunctions becomes applicable. The boundary problem for a waveguide filled with a homogeneous isotropic medium is described by the Maxwell equations. The latter are transformed for a curvilinear nonorthogonal coordinate system. TE- and TM-wave systems are determined by A. G. Sveshnikov's method (Zh. Vy*chisl. matem. i matem.fiziki, 1963, 3, 2, 314). Orig. art. has: 1 figure and 11 formulas.

ASSOCIATION: none

SUBMITTED: 30Mar63 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: EC NO REF SOV: 006 OTHER: 001

Card 2/2

ORLOV, V.P.

Calculation of the propagation constants of wave guides with complex shape using coordinate conversion. Radiotekh. i elektron. 9 no.3:553-556 Mr '64. (MIRA 17:4)

ACCESSION NR: AP4043668 S/0109/64/009/008/1345/1356

AUTHOR: Nikol'skiy, V. V.; Sukhov, V. G.; Korniyenko, D. I.; Orlov, V. P.

TITLE: Calculation of a rectangular waveguide containing a longitudinally-magnetized ferrite by the eigenfunction method

SOURCE: Radiotekhnika i elektronika, v. 9, no. 8, 1964, 1345-1356

TOPIC TAGS: waveguide, ferrite, longitudinally magnetized ferrite, ferrite containing waveguide

ABSTRACT: Based on the Galerkin-Ritz theory, a method for calculating the propagation constants of and fields in a rectangular waveguide partially filled with a longitudinally-magnetized ferrite is developed. The problem is solved as a boundary problem for the waveguide cross-section; Maxwell's equations are used. Phase shift and attenuation are calculated for a wide range of ferrite characteristics, sizes and configurations of the system. Programing time and

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ACCESSION NR: AP4043668

techniques are discussed as well as the accuracy of calculation. Fundamental characteristics of the system are clarified by isolating various modes and by analyzing their spectral composition. A few numerical examples are calculated and data presented in graphical form. Orig. art. has: 15 figures, 9 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 22May63 ENCL: 00

SUB CODE: EC NO REF SOV: 005 OTHER: 005

Card 2/2

NIKOL'SKIY, V.V.; SUKHOV, V.G.; KORNIYENKO, D.I.; ORLOV, V.I.

Design of a rectangular waveguide with ferrite and ferrite-dielectric filling and longitudinal magnetization. Radiotekh. i elektron. 10 no.11:1992-1999 N '65. (MIRA 18:11)

ORLOV, V.P.; POSTNIKOV, V.V.; SHIROKOV, M.Ya.

Evaluation of oxygen content of germanium and silicon films obtained by vacuum spray coating. Zhur.fiz.khim. 39 no.10:2573-2576 O '65. (MIRA 18:12)

1. Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut.
Submitted June 20, 1964.

L 10523-66 EWT(m)/EPF(n)-2/EWP(t)/EWP(b) LIP(c) JD/WW/JG
ACC NR: AP5027183 SOURCE CODE: UR/0076/65/039/010/2573/2576

AUTHOR: Orlov, V. P.; Postnikov, V. V.; Shirobokov, M. Ya.

ORG: Gor'kiy Scientific Research Physicotechnical Institute (Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut)

TITLE: Estimate of oxygen content in germanium and silicon films obtained by vacuum deposition

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 10, 1965, 2573-2576

TOPIC TAGS: oxygen, epitaxial growing, germanium, silicon, metal vapor deposition, SEMICONDUCTING FILM

ABSTRACT: The determination of the oxygen content in evaporated germanium and silicon films was made in two steps: first the amount of oxygen adsorbed on pure Ge and Si surfaces during the deposition of a single monolayer was calculated, then the volume oxygen concentration was found by multiplying by the number of monolayers per centimeter of thickness of the film. Oxygen concentrations calculated for various deposition rates and substrate temperatures in Ge and Si films grown in the [100] direction are tabulated. The calculations were made for an oxygen pressure $p = 10^{-6}$ mm Hg; in order to obtain the concentration at other pressures p, it suffices to multiply the tabular value by $10^6 p$. The results are applicable to estimates of oxygen content in Ge films grown in the [110] direction, and in Si films grown in the [110] and [111] directions. Certain conclusions are drawn regarding the conditions of growth of epitaxial films. Orig. art. has: 2 tables and 6 formulas.

UDC: 541.183+541.17

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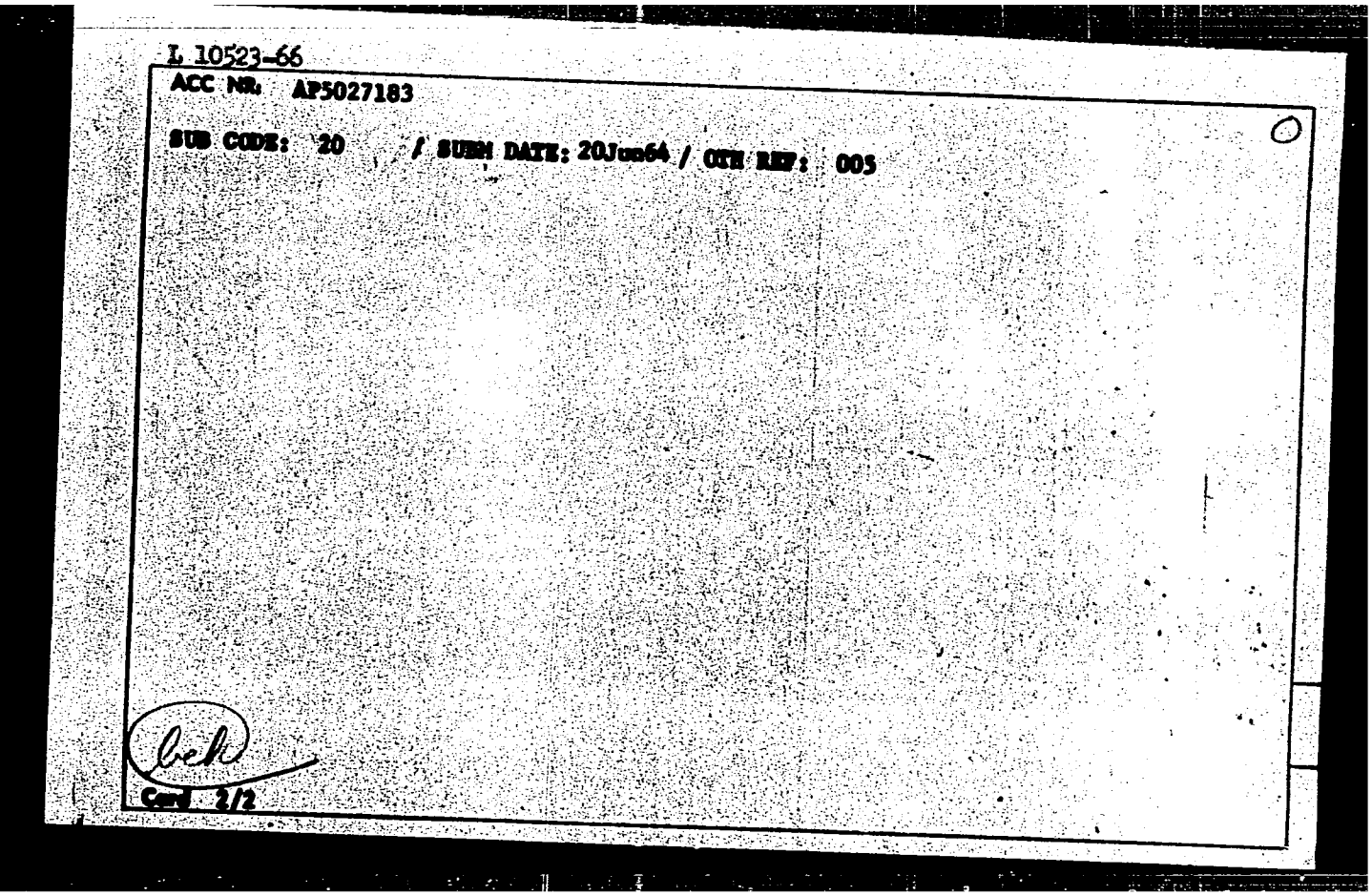

L 10523-66
ACC NR: AP5027183

SUB CODE: 20 / SUBM DATE: 20Jun64 / OTH REF: 005

Card 2/2

ORLOV, V.P.; SHIROBOKOV, M.Ya.

Adsorption of nonpolar molecules on germanium and silicon. Zhur. fiz. khim. 39 no.9:2215-2218 S '65. (MIRA 18:10)

1. Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut.

L 7813-66 EWT(d)/EWI(1)/T/EWA(h) IJP(c)
ACC NR: AP5027622 SOURCE CODE: UR/0109/65/010/011/1992/1999

AUTHOR: Nikol'skiy, V. V.; Sukhov, V. G.; Korniyenko, D. I.; Orlov, V. P.
44,55 44,55 44,55 44,55

ORG: none

TITLE: Calculation of a rectangular waveguide filled with ferrite or ferrite and dielectric and magnetized longitudinally

SOURCE: Radiotekhnika i elektronika, v. 10, no. 11, 1965, 1992-1999

TOPIC TAGS: rectangular waveguide, ferrite layer waveguide, dielectric layer waveguide

ABSTRACT: The method of eigen-functions (10, 44, 55) used by the authors for designing rectangular waveguides containing ferrite rods (Rad. i elektronika, 1964, 9, 8, 1345, and 1965, 10, 4, 618) is extended over these configurations: two ferrite strips adjoining the wider walls of the waveguide; same, adjoining the narrower

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UDC: 621.372.853.2.001.24

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NIKOL'SKIY, V.V.; SUKHOV, V.G.; KORNIYENKO, D.I.; ORLOV, V.P.

Design of a square waveguide with a longitudinally magnetized ferrite using an eigenfunction method. Radiotekh. i elektron. 10 no.4: 618-625 Ap '65. (MIRA 18:5)

8(2) PHASE I BOOK EXPLOITATION SOV/1290

Besekerskiy, Viktor Antonovich, V.P. Orlov, L.V. Polonskaya, and S.M. Fedorov. Proyektirovaniye sledyashchikh sistem maloy moshchnosti (Design of Low-power Servo Systems) Leningrad, Sudpromgiz, 1958. 508 p. 9,000 copies printed.

Ed. (title page); Besekerskiy, Viktor Antonovich; Scientific Ed.; Khrushchev, V.V.; Ed. (inside book): Shaurak, Ye. N.; Tech. Ed.: Levochkina, L.I.

PURPOSE: The book is intended for engineers engaged in the design and development of servo systems. It may also be useful to students of vuzes specializing in automatic control.

COVERAGE: The authors describe the principles of designing low-power servo systems (100-200 watts). The first part of the book deals with general problems of synthesizing servo systems. It also discusses the requirements for stability, accuracy, and smooth operation of servo systems at low speeds. The second part describes problems of synthesizing some special types of servo

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systems, such as gyrostabilizers, amplifiers with large feedback, and servos using stabilizing and integrating systems. The third part discusses problems of designing individual system components. The material of the first and second parts is based on a dissertation written by V.A. Besekerskiy. The book does not discuss the theory of automatic control. The authors assume that the reader has a sufficient background in the field of automatic control and telemechanics. They thank Professor D.V. Vasil'yev and Docent V.V. Khrushchev for reviewing the manuscript. There are 119 references of which 104 are Soviet (including 7 translations), and 15 English.

TABLE OF CONTENTS:

9(6)

S/146/60/003/01/003/016
D002/D006

AUTHORS: Orlov, V.P., Candidate of Technical Sciences, Senior Staff Member, Tanakiy, Ye.A., Candidate of Technical Sciences, Docent

TITLE: A Follow-up Instrument System With Protection from Idle Phase Voltage

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, 1960, Vol. 3, Nr 1, pp 18-25 (USSR)

ABSTRACT: At the Kafedra avtomatiki i telemekhaniki (Chair of Automation and Telemechanics), the authors developed a follow-up system (Figure 1) with a small-size amplifier (Figure 2, photograph) in which a single-cycle key demodulator and a single-cycle key modulator on semiconductor triodes (Figure 3) are used as a protection against the idle phase voltage. The calculation results of the formula for the determination of the transmission coefficient and time constant of the protection device are given, and the transmission function and the characteristics of the follow-up system are investigated mathematically. It is pointed out that the device is very reliable at a frequency of one cycle and an oscillation amplitude of 16°. The

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S/146/60/003/01/003/016
D002/D006

A Follow-up Instrument System With Protection from Idle Phase Voltage

curves showing the oscillations of the follow-up axis are illustrated (Figure 5), and show that the amplitude error is very small. The article was recommended by the Chair of Automation and Telemechanics. There are 2 photographs, 3 diagrams, and 1 graph.

ASSOCIATION: Leningradskiy Institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: November 21, 1959

Card 2/2

SOV/124-57-5-5794

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 5, p 108 (USSR)

AUTHORS: Orlov, V. S., Charnyy, I. A.

TITLE: Determination of Stratum and Well Parameters by Means of an Isobaric Chart (Opredeleniye parametrov plasta i skvazhin pri pomoshchi karty izobar)

PERIODICAL: Tr. Mosk. neft. in-ta, 1956, Nr 16, pp 113-124

ABSTRACT: The representation of the potential $\Phi = kp/\mu$ is used in the form of

$$\Phi(r,\theta) = \Phi_k + \frac{1}{4\pi}\sum_{i=1}^{N} q_i \log_e \frac{r^2 + \delta_i^2 - 2r\delta_i\cos(\theta-\alpha_i)}{\frac{\delta_i^2 r^2}{R_k^2} + R_k^2 - 2r\delta_i\cos(\theta-\alpha_i)} \cdot \phi(r,\theta)$$

Here Φ_k is the mean potential along a perimeter $r = R_k$; $\phi(r, \theta)$ is a regular harmonic function; p is the pressure; k is the permeability; μ is the absolute viscosity; δ_i and α_i are the polar coordinates of the wells; $q = Q_i/h$ where Q_i is the yield of the well and h is the thickness of the stratum. The form of representation used above is

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SOV/124-57-5-5794

Determination of Stratum and Well Parameters by Means of an Isobaric Chart

suitable for a region which is homogeneous and isotropic relative to the parameter $\sigma = kh/\mu$ of a piecewise nonuniform stratum. A circle of radius r_h is drawn upon the isobaric chart of the deposit, and the pressure (and hence the potential) is determined along the points on the circumference of the circle according to the isobaric chart, which enables the author to set up the pressure function inside the circle. The parameter σ is determined by comparing the pressure values obtained by the method given above with the values given by the isobaric chart inside the circle. The method of determining the reduced radii of the wells is given likewise. A numerical sample is worked out. The method is incorporated in the book by I. A. Charnyy: Osnovy podzemnoy gidravliki (Fundamentals of Underground Hydraulics). Moscow, Gostoptekhizdat, 1956.

V. Ya. Bulygin

Card, 2/2

ORLOV, V. S., Cand Tech Sci -- (diss) "Isobar charts and their application to the analysis and regulation of the process of the working of petroleum deposits." Mos, 1957. 16 pp (Min of Higher Education USSR, Mos Order of Labor Red Banner Petroleum Inst im Academician I. M. Gubkin), 110 copies (KL, 52-57, 107)

AUTHORS: Borisov, Yu. P., and Orlov, V.S. (Orlov, V.S.) 93-57-7-11/22

TITLE: Interpretation and Use of Bottom Hole Pressure Build-up Data for Isobar Map Construction (Interpretatsiya dannykh vosstanovleniya zaboynogo davleniya i ikh ispol'zovaniye pri postroyenii kart izobar)

PERIODICAL: Neftyanoye khozyaystvo, 1957, Nr 7, pp 39-43 (USSR)

ABSTRACT: The article analyzes the bottom hole pressure build-up process and the possibility of using the data for isobar map construction. The build-up characteristics for shut-in wells producing from infinite formations of homogeneous fluid and from finite formations of nonhomogeneous fluid are defined by equations. Theoretically, the relationship between the variation in pressure with respect to time must be linear, but in practice it is not so. Miller and co-workers [Ref.6], using an electrical analyzer, and also

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the All-Union Instrument Scientific Research Institute (VNII), using a hydrointegrator showed that the linear relationship is disturbed initially and that afterwards the bottom pressure is proportional to the logarithm of time. Furthermore, VNII revealed that the coefficient of the angle of the linear relationship can either decrease or increase depending on variation in the formation segments away from the well [Fig. 1]. An increase signifies a drastic decline in the formation's permeability and a decrease signifies a rise in permeability. The relationship between pressure and time for a nonhomogeneous formation can deviate from the straight line in either direction (Figs. 2,3). Up till now scientists maintained that only the permeability must be determined, and in known cases of well imperfection also the piezoconductivity. However, this may lead to inaccuracies since the error occurring from the calculations of the drainage area with the aid of plots devised by V.I. Shchurov' and M. Muskat is substantial and I.A. Charnyy's [1] evaluation of the drainage radius is unacceptable. The authors conclude that the

Interpretation and Use of Bottom Hole (Cont.) 93-57-7-11/22

formation permeability around the wells, the imperfection of wells, and the variation in permeability of segments away from the wells can be determined with the aid of pressure build-up curves. The data on pressure build-up are used for the construction of isobar maps. Isobar map construction requires knowledge of the manometer's time lag at the bore hole and since this is quite impossible to obtain the authors suggest taking the average pressure around the well and calculate it with the aid of pressure build-up curves and thus eliminate the necessity of stopping the well for the determination of the average pressure. An isobar map constructed on the basis of average pressure will not reflect the actual pressure distribution, but will eliminate arbitrariness in the construction of static pressure maps. This method of calculating average pressure is simpler and more reliable than the one proposed by D.R. Horner (Ref.3). There are 3 figures and 6 references of which 3 are English and 3 are Soviet.

AVAILABLE: Library of Congress

Card 3/3 1. Pressure--Applications

11(0) SOV/93-58-10-11/19

AUTHOR: Mukharskiy, E.D. and Orlov, V.S.

TITLE: Fluid Conductivity Estimation From Field Data on the D_1 Formation of the Bavly Oilfield (Otsenka gidroprovodnosti plasta D_1 Bavlinskogo neftyanogo mestorozhdeniya po dannym promyslovykh issledovaniy)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 10, pp 48-54 (USSR)

ABSTRACT: In oilfield development the fluid conductivity of geological formations is determined by means of the formula $\varepsilon = kh/\mu$, where k is the permeability of the reservoir rock, h = the effective energy of the reservoir rock, and μ - the viscosity of the reservoir fluid. When these properties are individually estimated from geological and geophysical data the results are inaccurate. The accuracy of the results can be improved by determining the entire kh/μ complex for each sector of the formation with data obtained by hydrodynamic methods [Ref 1-2]. Bottom-hole pressure variation curves based on hydrodynamic data can also be used for determining the imperfection of wells [Ref 3]. When the pressure distribution in the formation and the yield of the wells are known the fluid conductivity in the sectors of the

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formation as well as the imperfection of the wells can be determined with the aid of isobar maps. In case of plane parallel or plane radial flow the fluid conductivity in sectors of the formation without exploitation or injection wells is determined by the formulas of Darcy or Dupuy [Ref 4]. In case of complex flow and the presence of wells the fluid conductivity is determined by another method [Ref 5]. The authors employed hydrodynamic methods for determining the fluid conductivity in the D I formation of the Bavly Oilfield. The curves of formation pressure variation for certain wells are shown by (Fig. 1). The isobar map based on strictly reliable data is shown by (Fig. 2). The data used in drawing the isobar map and the pressure build-up curve are given in the Table. The authors conclude that the fluid conductivity values obtained with the aid of the isobar maps are completely reliable for the construction of fluid conductivity charts such as presented by (Fig. 3). There are 3 figures, 1 table and 5 Soviet references.

SOV/93-58-11-9/15

11(0)
AUTHOR: Andriasov, R.S. and Orlov, V.S.

TITLE: Determining the Effective Depth of Bullet Penetration in Oilwell Perforations (Otsenka effektivnoy glubiny proniknoveniya puli v plast pri perforatsii skvazhin)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 11, pp 49-54 (USSR)

ABSTRACT: In formulas the hydrodynamic imperfection of wells is presented by the coefficient s or by the reduced radius of the well. The equation for the reduced radius is $r_{s\ pr} = r_s e^{-s}$, where $r_{s\ pr}$ is the reduced radius of the well, r_s - the radius of the bit, e - the base of the natural logarithms; $s = s_1 + s_2$; s_1 is the coefficient of well imperfection owing to the degree of opening and s_2 - the coefficient of well imperfection owing to the method of opening. According to V.I. Shchurov [Ref 1] the coefficients s_1 and s_2 can be determined with the aid of given values for the following characteristics: $\delta = \frac{b}{h}$, $\ell = \frac{\ell'}{D}$, $a = \frac{d}{D}$, and nD, $a = \frac{h}{D}$, where b is the opened capacity of the formation, h - the effective capacity of the formation, ℓ' - bullet penetration

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depth in the rock, D - the diameter of the bit, d - the diameter of the casing perforation equalling the diameter of the bullet, and n - the number of shots per meter of opened formation capacity. By this method the reduced radius of the well is obtained from hydrodynamic data [Ref 2, 3, 7, 8] and the coefficient of additional resistance to oil inflow is presented by the formula $s = \frac{r_s}{r_{s\,pr}}$, where r_s is the radius of the bit. The effective (h) and opened (b) capacities of the formation are determined from geological and geophysical data and the s_1 and s_2 coefficients of well imperfection are determined with the aid of Shchurov's graphs according to which $s_2 = s - s_1$. Having the bottom hole data (n, D, d) and the value of s_2 it is possible by the analysis of Shchurov's graphs to obtain $s_2 = s_2 (nD)$, as well as the relationship $s_2 = s_2 (\ell)$ which is parametrically tied in with nD and a. Having the values of s_2, nD, and a it is possible to determine the value of ℓ and consequently the effective depth of the bullet's penetration in the rock. In the Temporary Instruction [Ref 5] the curves were plotted at ℓ = 0, 0.1, 0.25, 0.5, and 1.0. Therefore, the s_2 must be determined graphically at several values of ℓ and the relationship between s_2 and ℓ plotted as in Fig. 1. The graphs in Fig. 1 are often difficult to plot and to facilitate the calculation of ℓ the authors developed the analytic equation $s_2 = s_2 (nD, a, \ell)$ on the basis of Shchurov's graphs, and expressed

the relationship between s_2 and ℓ as follows:

$$s_2 = \frac{1}{nD\ [0.413a - 1.038\ a^2 + A]} - (99a^2 - 14a + 1.51)\ell \text{ , where}$$

$A = 0.913a^{0.448}\ \ell^{0.378a^{-0.263}}$. The authors determined the value of ℓ (Table 1) for six wells of the Zhirnoye Oilfield with the aid of this formula and with initial data from the VNII Institute. Similarly they determined the minimum effective bullet penetration depth (Table 2) for the Romashkino Oilfield employing initial data obtained by Svishchev and Mikitko [Ref 6]. This formula can also be applied to fracturing by means of torpedoes and to the evaluation of the fracturing process. The accuracy of the results will depend largely on the correct determination of the number of perforations per running meter of opened formation, on the correct determination of the diameter of the bit, and on the density of the perforations. It is concluded that the accumulation of data on the effective penetration depth of the bullet in the reservoir rock will help oil workers in solving many practical problems. There are 2 tables, 1 figure, and 10 Soviet references.

ORLOV, V.S.

Using pressure charts in solving the problem on the shifting of oil boundaries. Trudy VNII 12:53-65 '58. (MIRA 12:3)
(Oil reservoir engineering) (Atmospheric pressure--Maps)

BORISOV, Yu.P.; ORLOV, V.S.

Method for plotting "true" isobars. Trudy VNII 12:66-89 '58.
(MIRA 12:3)
(Oil reservoir engineering) (Atmospheric pressure)

VASIL'YEVSKIY, Vladimir Nikolayevich; LEYBIN, Emmanuil L'vovich; ORLOV, Vyacheslav Sergeyevich; KRYLOV, A.P., red.; SAVINA, Z.A., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Pressure maps in oil and gas production] Karty izobar v dobyche nefti i gaza. Pod red. A.P.Krylova. Moskva, Gos.nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1959. 107 p.
(MIRA 12:10)

1. Chlen-korrespondent AN SSSR (for Krylov).
(Atmospheric pressure--Maps)

ONOPRIYENKO, V.P., kand.tekhn.nauk; STARSHINOV, B.N., kand.tekhn.nauk; BRUSOV, L.P., inzh.; LOZOVOY, P.R., inzh.; BURDYUKOV, D.P., inzh.; ORLOV, V.S., inzh.

Sintering of Krivoy Rog magnetite concentrates. Trudy Ukr. nauch.-issl.inst.met. no.5:36-52 '59. (MIRA 13:1)

1. Ukrainskiy institut metallov, Krivorozhskiy Yuzhnyy gornoobogatitel'nyy kombinat i Krivorozhskiy metallurgicheskiy zavod.
(Krivoy Rog--Iron ores) (Sintering)

ONOPRIYENKO, V.P.; ASTAKHOV, A.G.; STARSHINOV, B.N.; ORLOV, V.S.; BURDYUKOV, D.P.; ROVENSKIY, I.I.; KUSHNIREV, V.A.; POKRYSHKIN, V.L.

Obtaining a high-basicity sinter out of Krivoy Rog iron ores.
Trudy Ukr. nauch.-issl. inst. met. no.6:7-22 '60. (MIRA 14:3)
(Krivoy Rog Basin—Iron ores)
(Sintering)

GORNOVOY, B.A., gornyy inzh.; BORISOV, S.S., gornyy inzh.; KOLIBABA, V.L.; ORLOV, V.S.

Improving the breaking method in the Gora Blagodat' Mine. Gor. zhur. no.11:73-74 N '61. (MIRA 15:2)

1. Nizhne-Tagil'skiy gorno-metallurgicheskiy tekhnikum (for Gornovoy, Borisov). 2. Nizhne-Tagil'skiy metallurgicheskiy kombinat (for Kolibaba, Orlov).
(Sverdlovsk Province--Boring) (Blasting)

BOKSERMAN, A.A.; ORLOV, V.S.; KANYUGA, A.P.; PETRASH, I.N.

Mean formation pressure under conditions of flooding gassy oil and initial data for determining it. Nauch.-tekh. sbor. po dob. nefti no.13:34-39 '61. (MIRA 16:7)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut, Stanislavskiy TsNIL i Nauchno-issledovatel'skaya laboratoriya neftepromyslovogo upravleniya Dolinaneft'.
(Oil field flooding)

ORLOV, V.S.; PRAVEDNIKOV, N.K.

Calculating fluid recovery in the multiline drive pattern.
Nauch.-tekh. sbor. po dob. nefti no.15:54-58 '61. (MIRA 15:9)

1. Vsesoyuznyy neftegazovyy-issledovatel'skiy institut.
(Oil field flooding)

BORISOV, Yu.P.; ORLOV, V.S.

Approximation method for calculating the recovery of petroleum and water in pattern flooding. Trudy VNII no.37:108-129 '62. (MIRA 16:6)

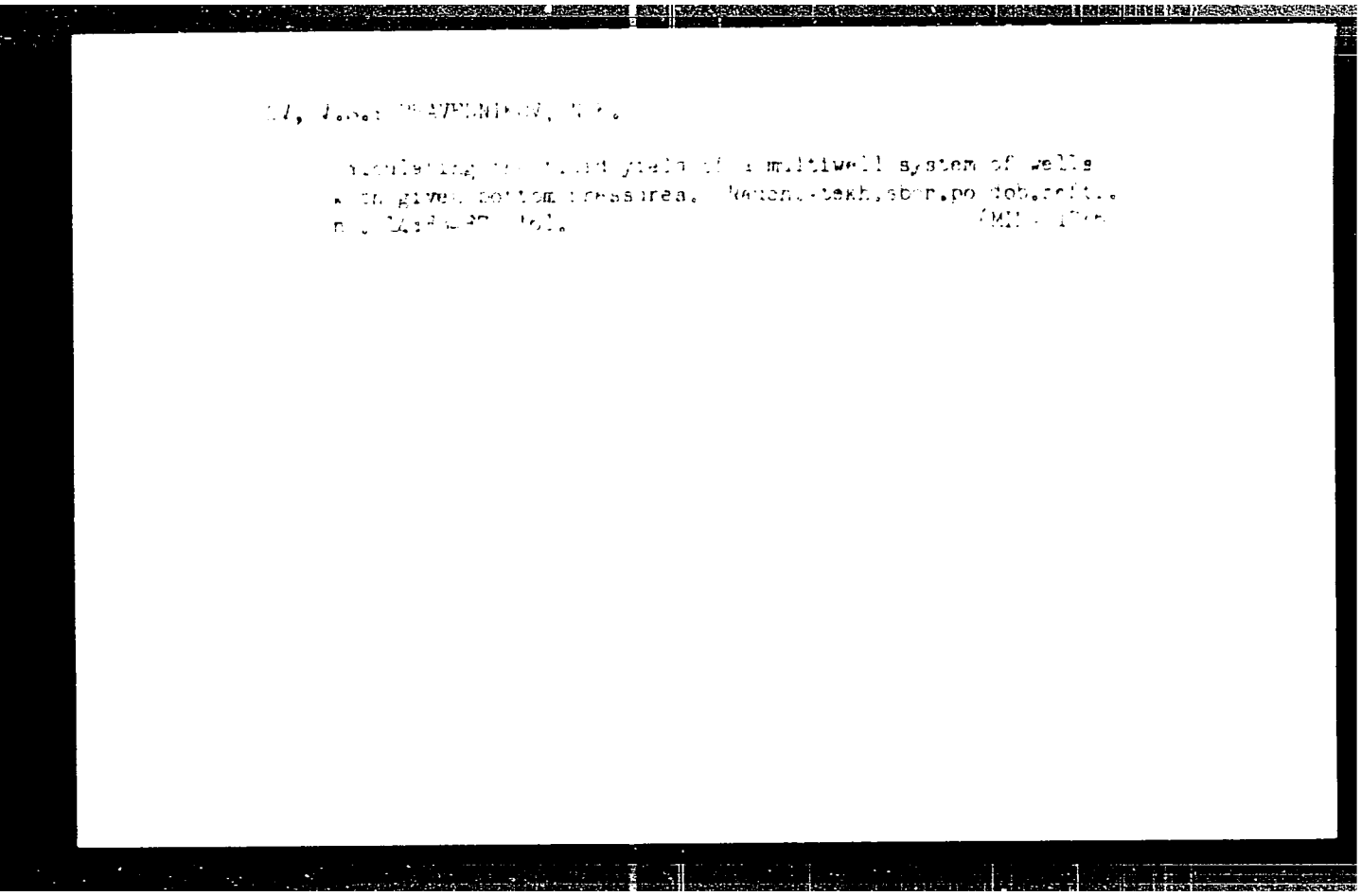
(Oil field flooding)

BOKSERMAN, A.A.; ORLOV, V.S.

Determining the average reservoir pressure in various petroleum production systems. Neft. khoz. 40 no.5:45-49 My '62. (MIRA 15:9)
(Oil reservoir engineering)

ORLOV, V.S.

Analyzing the development of an oil pool in water drive by the material balance method. Neftepromm. delo no.3:33-36 '63. (MIRA 16:9)



BYKOV, N.Ye.; KUCHAPINA, M.I.; KAZAKOVA, V.Ye.; BOROVLEVA, T.P.; ALENIN, V.V.; BOKSERMAN, A.A.; OBLOV, V.S.

Delineation of production areas in the fields of the cis-Carpathian region. Nauch.-tekh. sbor. po dob. nefti no.19: 6-12 '63. (MIRA 17:8)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

SURIN, V.V., gornyy inzh.; ORLOV, V.S., gornyy inzh.; SHCHELKANOV, V.A., kand. tekh. nauk

Increasing the economic efficiency of underground mining at the "Ilzhnaia" Mine. Gor. zhur. no.6:22-23 Je '64. (MIRA 17:11)

1. Goroblagodatskoye rudoupravleniye (for Surin, Orlov). 2. Institut gornogo dela Ural'skogo filiala AN SSSR (for Shchelkanov).

GATTENBERGER, Yu.P.; DOLOKHOV, G.I.; ORLOV, V.S.; SELIVANIN, A.I.

Estimating petroleum production on the Bavli oil field. Nauch.-tekh. sbor. po dob. nefti no.24:90-94 '64. (MIRA 17:12)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

YEGURTSOV, N.N.; ORLOV, V.S.

Optimal distribution of the petroleum production plan between objects of independent development by linear programming. Nauch.-tekh. sbor. po dob. nefti no.24:121-125 '64. (MIRA 17:10)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

VERNIKOVSKIY, K.B.; LUBENETS, I.P.; ORLOV, V.S.; SHCHELKANOV, V.A.; DENISOV, Ye.M.

Induced block caving at the Gora Blagodat' mine. Gor. zhur. no. 12:29-32 D '65. (MIRA 18:12)

1. Goroblagodatskoye zhelezorudnoye mestorozhdeniye (for Vernikovskiy, Lubenets, Orlov). 2. Institut gornogo dela, Sverdlovsk (for Shchelkanov, Denisov).

BORISOV, Yu.P.; YEGORTSOV, N.N.; ORLOV, V.S.; [illegible]

Efficient distribution of oil production between various points.
Nauch. tekh. sbor. po dob. nefti no.27:94-98 '65.
(MIRA 18:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

ORLOV, V.S.

Ultrathin photosensitive layers for electron microscopic radioautography. Biofizika 10 no.1:192-194 '65. (MIRA 18:5)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

KAY[illegible], [illegible].; B[illegible]OV, Yu.P.; BYKOV, N.Ye.; [illegible]RLOV, V.F.

Petrification for programming the development of multi[illegible] oil fields and bringing them into production. Neft. khoz. 43 no.8:1-7 Ag '65. (MIRA 18:[illegible])

ORLOV, V. S.

The Smolensk Decembrists. Smolensk. Smolenskoe obl. gos. izd-vo, 1951. 156 p. (52-21051)

DK212.07

ORLOV, V. S.

Roslavl' [by] D. P. Makovskiy, V. S. Orlov [et al] Smolensk, Smolgiz, 1952
202 p. Illus. (Goroda smolenshchiny)
Bibliography: p. 201-[203]

SO: 727M/5
621.01
.M2

ORLOV, V. S.

Orlov, V. S. "The clinical aspects of adamantinoma of the lower jaw." First Leningrad Medical Inst imeni Academician I. P. Pavlov. Chair of Maxillary-Facial Surgery and Stomatology. Leningrad, 1956. (Dissertation for the Degree of Candidate in Medical Science)

So: Knizhnaya letopis', No. 27, 1956. Moscow. Pages 94-109; 111.

ORLOV, V. T.

Apocynum

Current tasks in further cultivation of Indian hemp (apocynum). Sov. agron. 10 no. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, July 1952, Uncl.

ORLOV, V.T.

USSR / Cultivated Plants. Plants for Technical Use. M
Oil Plants. Sugar Plants.

Abs Jour : Ref Zhur - Biol., No 8, 1958, No 34750

Authors : Yakushkin, I.V.; Orlov, V.T.
Inst : Not given
Title : Concerning the Flax Variety L-1120.

Orig Pub : Lyen i konoplya, 1957, No 7, 17-19

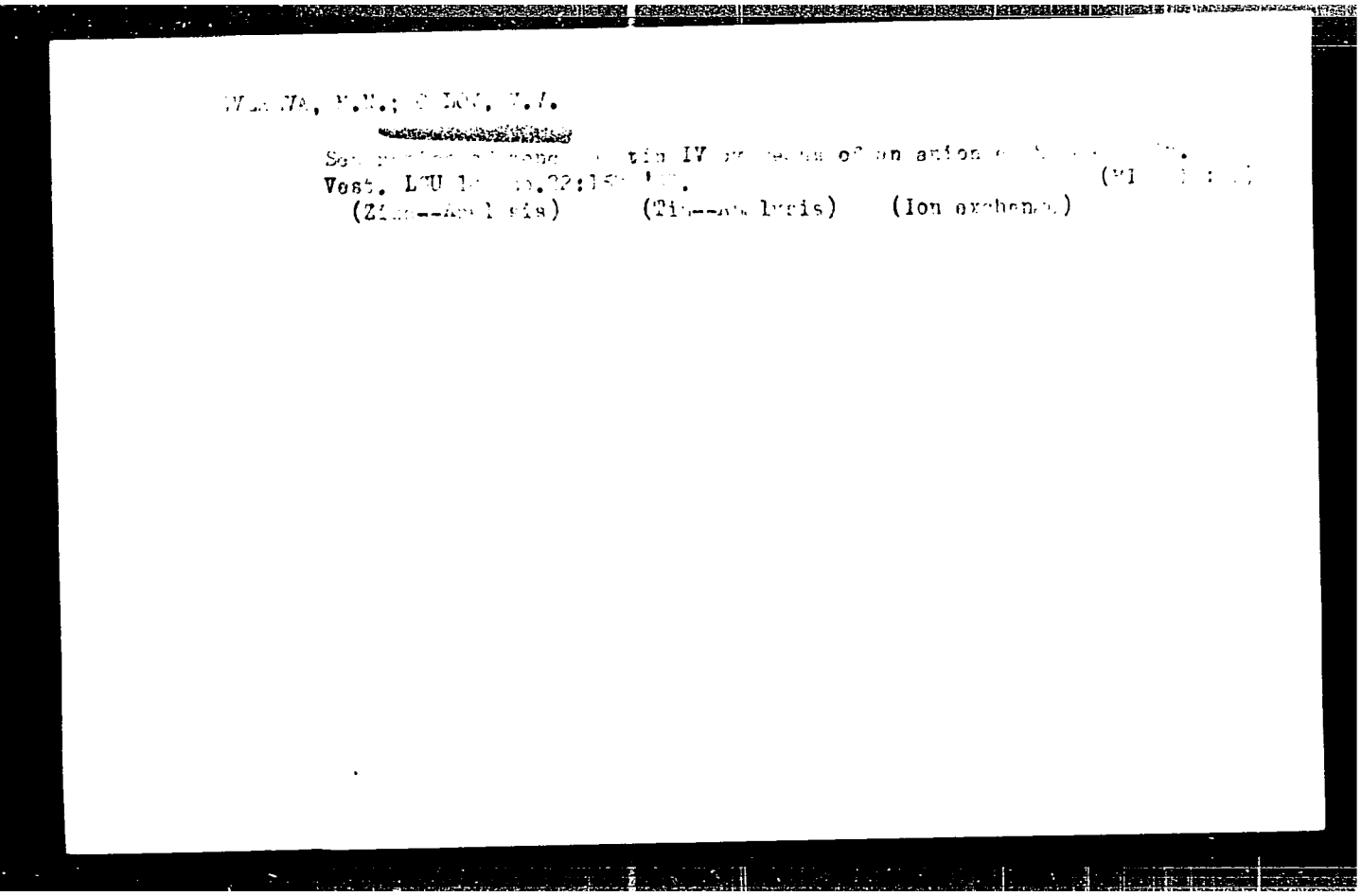
Abstract : Variety L-1120 was developed by the Experimental Station of Smolensk by means of hybridization and controlled growth. It was allocated to 10 percent of the total area for flax cultivation. This variety yields high crops of fiber and seeds, and has high resistance to bending, while its drawbacks appear to reside primarily in the unsatisfactory spinning capacity of the fibers. By raising the seeding norm (up to 30 million seeds per one hectare), by earlier harvesting, and by spreading and maceration of the chaff

Card 1/2

ORLOV, V.V., inzh.

Sources of errors of weighing devices with dial indicators.
Priborostroenie no.3:28-29 Mr '65. (MIRA 18:4)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238



ORLOV, V.V., inzh. (stantsiya Levshino); VINNICHEK, V.S., inzh. (stantsiya Levshino)

Promoting the mechanization of snow removal operations. Put' i put.khoz. 4 no.1:29 Ja '60. (MIRA 13:5)

1. Nachal'nik Levshinskoy distantsii Permskogo otdeleniya Sverdlovskoy dorogi (for Orlov). 2. Levshinskaya distantsiya Permskogo otdeleniya Sverdlovskoy dorogi (for Vinnichek).
(Railroads--Snow protection and removal)

ORLOV, V.V.

Securing the stability of the roadbed. Put' i put.khoz. 4 no.9:8 S '60. (MIRA 13:9)

1. Nachal'nik distantsii, stantsiya Levshino, Sverdlovskoy dorogi.
(Railroads--Track)

GOLOVANOV, Yaroslav Kirillovich; ORLOV, Vladimir Viktorovich;
CHERNIKOVA, M.S., red.; YELAGIN, A.S., tekhn. red.

[Great figures of a great plan]Velikie tsifry velikogo plana.
Moskva, Sovetskaia Rossiia, 1962. 62 p. (MIRA 15:9)
(Communism) (Russia--Economic policy)

OHLOV, V.V., inzhener.

Master plans for industrial enterprises building organizations.
Stroi.prom. 31 no.11:24-27 N '53. (MLRA 6:12)
(Industrial buildings) (Construction industry)

LUK'YANOV, V.I.; MYSLIN, V.A.; SHNEYEROV, A.I.; KHORKHOT, A.Ya.; YELENSKIY, M.S.; MEL'NIKHOVA, O.M.; PLESHKOV, L.Ye.; OKLOV, V.V.; ZLATOLINSKIY, V.M.; VISHNEVSKIY, F.L.; LAPSHENKOV, P.G.; MAKHOV, M.S.; RUKAVISHNIKOV, I.D.; LYTKIN, K.P.; KOZHEVNIKOV, O.A.; ZORKIN, G.M.; NORMAN, B.B.; TUMANOV, N.S.; SEREBRYANIKOV, S.M.; VOLKOV, N.G.; NOVIKOV, P.G.; FRIDBERG, G.V., insh., red.izd-va; GELLERSON, P.G., tekhn.red.

[Designing chief plans for industrial plants; principal methods] Proektirovanie general'nykh planov promyshlennykh predpriiatii; osnovnye polozheniia. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 103 p.
(MIRA 13:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut gradostroitel'stva i rayonnoy planirovki. 2. Nauchno-issledovatel'skiy institut gradostroitel'stva Akademii stroitel'stva i arkhitektury USSR (for Khorkhot, Yelenskiy, Mel'nikhova). 3. Gosudarstvennyy institut proyektirovaniya metallurgicheskikh zavodov (Gipromez) (for Pleshkov).
(Continued on next card)

LUK'YANOV, V.I.; KHORKHOT, A.Ya.; ZORKIN, G.N.; NORMANN, B.B.; PLESHKOV, L.Ye.; LYTKIN, K.F.; KOZHEVNIKOV, O.A.; TEMCHIN, N.A.; ORLOV, V.V.; ZLATOLINSKIY, V.N.; MAKHOV, M.S.; RUKAVISHNIKOV, I.D.; SHITOVA, L.N., red.izd-va; OSENKO, L.M., tekhn.red.

[Instructions for drafting general plans of industrial enterprises] Ukazaniia po proektirovaniiu general'nykh planov promyshlennykh predpriiatii. Odobreny Gosudarstvennym komitetom Soveta Ministrov SSSR po delam stroitel'stva 15 noiabria 1960 g. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1961. 131 p. (MIRA 15:2)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut gradostroitel'stva i rayonnoy planirovki. 2. Akademiya stroitel'stva i arkhitektury SSSR, Nauchno-issledovatel'skiy institut gradostroitel'stva i rayonnoy planirovki (for Luk'yanov). 3. Akademiya stroitel'stva i arkhitektury USSR, Nauchno-issledovatel'skiy institut gradostroitel'stva (for Khorkhot). 4. Giproaviaprom (for Zorkin, Normann). 5. Gosudarstvennyy soyuznyy institut po proyektirovaniyu metallurgicheskikh zavodov (for Pleshkov). 6. Gosudarstvennyy institut po proyektirovaniyu zavodov tyazhelogo mashinostroyeniya (for Lytkin, Kozhevnikov). 7. Gosudarstvennyy proyektnyy institut No.1 (for Temchin). 8. Gosudarstvennyy proyektnyy institut stroitel'noy promyshlennosti (for Orlov, Zlatolinskiy). 9. Gosudarstvennyy proyektnyy institut po promyshlennomu transportu (for Makhov, Rukavishnikov).

(Industrial plants--Design and construction)

[redacted], V. V.

"Application of [redacted] Kiev Order of Labor [redacted] Academician [redacted]

SO: Sum 432, [redacted]

ORLOV, V.V.

Lymphosarcoma of the small intestine in children. Vest.khir. 78 no.3:118 Mr '57. (MIRA 10:6)

1. Iz kliniki detskoy khirurgii (zav. - prof. A.F.Zverev) Sverdlovskogo meditsinskogo instituta. Adres avtora: Sverdlovsk, Ural'skiy zavod tyazhelogo mashinostroyeniya, Novo-Ekskavatornyy poselok, Kalushskiy per., d.29, kv.1.

(INTESTINE, SMALL, neoplasms
lymphosarcoma in child (Rus))
(LYMPHOSARCOMA, in inf. & child
small intestine (Rus))

ORLOV, V.V.

Blunt abdominal trauma and acute appendicitis in children. Vest.khir. 81 no.10:128-129 O '58 (MIRA 11:11)

1. Iz kliniki detskoy khirurgii (zav. - prof. A.F. Zverev) Sverdlovskogo meditsinskogo instituta. Adres avtora: Sverdlovsk, Ural'skiy zavod tyazhelogo mashinostroyeniya, Novo-Ekskavatornyy poselok, d.29.

(ABDOMEN, wds. & inj.
relation to pathogen. of acute appendicitis in child (Rus))
(APPENDICITIS, in inf. & child
acute, relation to closed abdom. trauma (Rus))

ORLOV, V.V.; BYKOV, I.M.

Intubation anesthesia in pediatric urology. Urologiia 25 no. 5:9-12 S-O '60. (MIRA 14:1)

(UROLOGY) (INTRATRACHEAL ANESTHESIA)
(PEDIATRIC ANESTHESIA)

W. J. SWIATECKI 68

AUTHOR: GROMOVA,Z.I., DUBOVSKIY,B.G., KAMAYEV,A.V., ORLOV,V.V. 84-5-1/22

TITLE: Measurements of Neutron Resonance Absorption in the Reactor of the Atomic Power Plant. (Izmereniye rezonansnogo pogloshcheniya neytronov v reaktore atommoy elektrostantsii, Russian)

PERIODICAL: Atomnaia Energiia, 1957, Vol 2, Nr 5, pp 411-415 (U.S.S.R.)

ABSTRACT: According to three different formulae, which, besides the known or estimated characteristic number, contain the ratio $\frac{R}{T}$ between the number of resonance-captured neutrons in a fuel element in 238-U and the number of captured thermal neutrons, as well as by measuring this ratio the probability $1 - \varphi$ of resonance capture on the occasion of the moderation of a fast neutron was computed.
The ratio of the uranium-graphite lattice was carefully maintained in an experimental channel while measuring was carried out by comparing the activation of an uranium sample enclosed in a cadmium shell and of an open one, as well as by comparing $\frac{R}{T}$ of uranium and a resonance indicator with known thermal capture cross section and resonance integral.

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84-5-1/22

Measurements of Neutron Resonance Absorption in the Reactor of the Atomic Power Plant.

Results, which amount to an average of $\psi = 0{,}900 \pm 0{,}015$ for the reactor of the Soviet Nuclear Power Plant, agree well with one another as well as with theoretically computed results. (2 Illustrations, 3 References).

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 2.11.1957
AVAILABLE: Library of Congress

Card 2/2

AUTHOR: GORDEYEV, I.V., ORLOV, V.V. SEDEL'NIKOV, T.K. 89-9-11/30

TITLE: The Temperature Dependence of the Effective Resonance Integral. (Temperaturnaya zavisimost' effektivnogo rezonansnogo integrala pogloshcheniya)

PERIODICAL: Atomnaya Energiya, 1957, Vol 3, Nr 9, pp 252-255 (U.S.S.R.)

ABSTRACT: The temperature dependence is theoretically derived and as a result the function $\eta\left(\xi, \frac{1}{a}\right)$ is graphically represented. On the ordinate the η-values from 1 - 3,6 (in 0,1 - steps), and on the abscissa the $\frac{1}{a}$ values from 0,1 to 1000 (in the logarithmic scale) are plotted and the curves for ξ 0,04; 0,05; 0,075; 0,1; 0,15; 0,2; 0,3; 0,4; 0,5; 0,75; 1; 2; are drawn. (With 2 Illustrations and 2 Slavic References).

ASSOCIATION: Not given

PRESENTED BY:

SUBMITTED: 18.3.1957

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Orlov, V.V. SOV/89-4-6-4/30

TITLE: Mutual Screening of the Blocks of Resonance Absorption of Neutrons in a "Closely Packed" Lattice (Vzaimnaya ekranirovka blokov rezonansnogo poglotitelya neytronov v"tesnoy" reshetke)

PERIODICAL: Atomnaya energiya, 1958, Vol 4, Nr 6, pp 531-538 (USSR)

ABSTRACT: The mutual screening effect between blocks and layers of a resonance absorption is calculated theoretically for the case in which the thickness of the moderator, by which the absorption blocks are separated from each other, is of the same order of magnitude or smaller than the free length of path of the neutrons in the moderator. In calculation it is assumed that the blocks are small and that the absorption coefficient can be described by the Breit-Wigner formula.
Resonance absorption is calculated for the following cases, especially the screening coefficients $f(\beta)$, $k(\alpha,\beta)$ being calculated and tabulated:
1.) Lattices of parallel plates
2.) Round lattice with: a) a cylindrical block, b) a ring-shaped block.

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Mutual Screening of the Blocks of Resonance Absorption of Neutrons in a "Closely Packed" Lattice

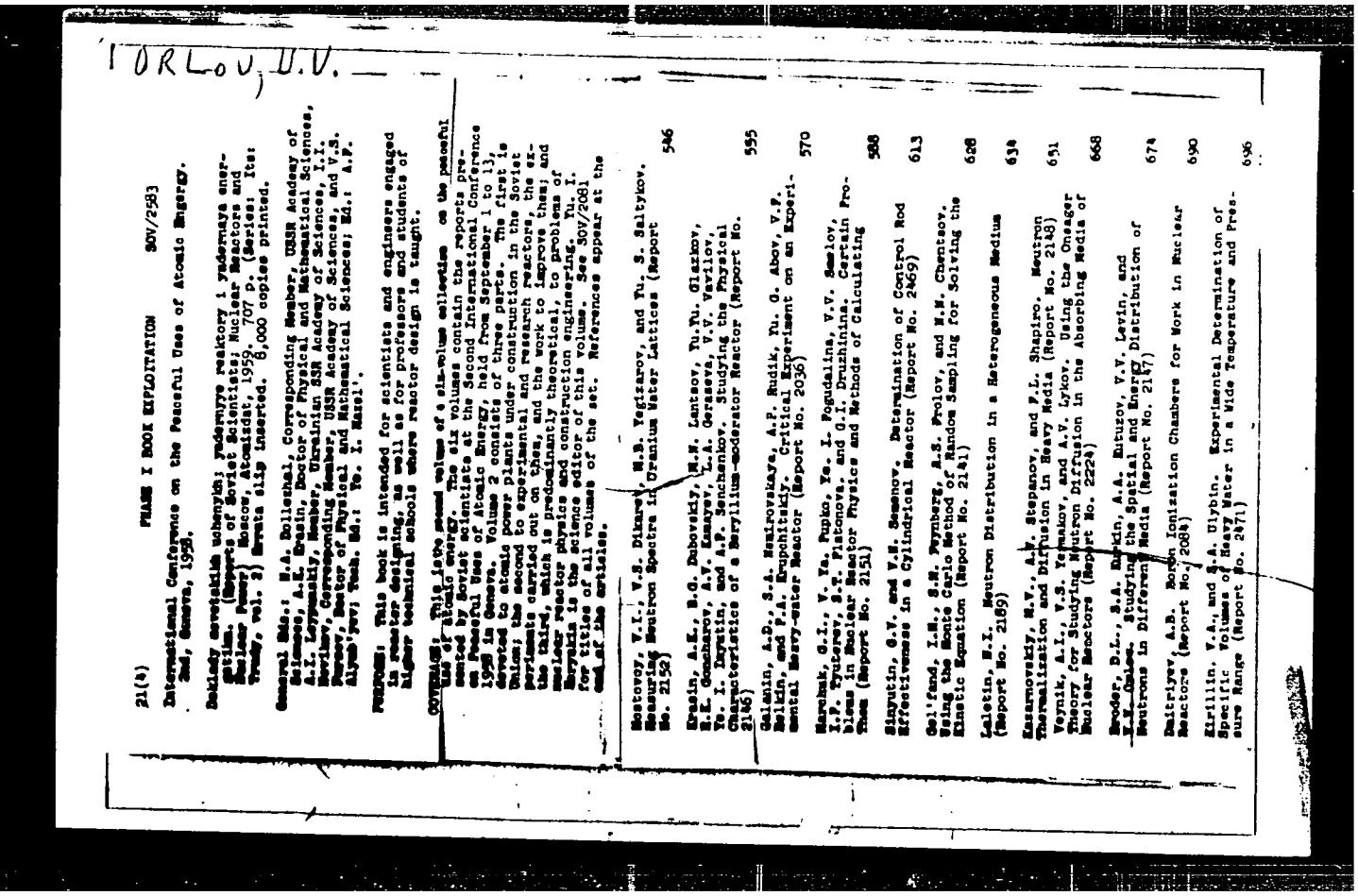
SOV/89-4-6-4/30

3.) Ring-shaped geometry of the absorber.
It was possible to show that the approximative exchange of the actual arrangement of a lattice of cylindrical blocks is equivalent to a round lattice. The calculations carried out for the system of parallel plates make it possible to check the accuracy of the results obtained by Petrov (Ref 1). There is good agreement. There are 3 figures, 6 tables and 3 Soviet references.

SUBMITTED: November 4, 1957

1. Neutrons--Absorption 2. Neutron absorbers--Theory
3. Absorbers--Materials

Card 2/2



TORLOV, D.V.

21(8) PHASE I BOOK EXPLOITATION SOV/2583

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

Doklady sovetskikh uchenykh; yadernaya 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.: N.A. Dollezhal, Corresponding Member, USSR Academy of 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.: A.P. Alyab'yev; Tech. Ed.: Ye. 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 1958 second volume of a six-volume collection on the peaceful use 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 experiments carried out on them, and the work to improve them; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Dr. I. Bryantin is the science editor of this volume. See SOV/2081 for titles of all volumes of the set. References appear at the end of the articles.

/21(9)

AUTHORS: Kochergin, V. P., Orlov, V. V. SOV/89-6-1-4/33

TITLE: Length of the Moderation of Neutrons (Dlina zamedleniya neytronov)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 1, pp 34 - 41 (USSR)

ABSTRACT: The integral equation of the moments of the neutron spatial distribution function in an infinite medium with infinitely thin isotropic sources is derived and an approximated solution for the equation is developed. The energy moments and angle-moments of the neutron distribution function are expressed by the experimentally determinable angular distribution of the neutrons for the case of an anisotropic elastic scattering on the nuclei for various neutron energies. By making use of the experimental data for the total cross section and the angular distribution of elastic neutron scattering on the nuclei H^1, D^2, Be^9, C^{12} and O^{16} formulae were derived for the moderation length of the neutrons. By means of these formulae the moderation length in the following moderators was determined: water, heavy water, graphite, beryllium, and beryllium oxide. A comparison between

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experimental and calculated values shows that the latter agree with the former with an accuracy of up to about ± 5%. Work was discussed with G. I. Marchuk, Doctor of Physico-Mathematical Sciences. V. S. Gudkov, Z. P. Drobyshev, and Z. I. Shemetenko took part in the calculation work. There are 4 figures, 1 table, and 4 references.

SUBMITTED: June 21, 1958

:1 (8)

AUTHORS: Broder, D. L., Kutuzov, A. A., Levin, V. V., Orlov, V. V. Turusova, A. V.

SOV/89-7-4-1/28

TITLE: The Passage of Fast Neutrons Through Lead and Iron

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 313-320 (USSR)

ABSTRACT: The present paper gives the results obtained by measuring the spatial distribution of fast neutrons (originating from monoenergetic neutrons of the energy E_0 = 4 Mev and E_0 = 14.9 Mev) and of neutrons of atomic reactors in iron and lead. First, the experimental arrangements are discussed. The reactor of the Pervaya atomnaya elektrostantsiya (First Atomic Power Plant), an experimental nuclear reactor of the VVR type with ordinary water and enriched uranium, and a neutron generator were used as neutron sources. The spatial distribution of neutrons in iron and lead was measured by means of a neutron generator, a neutron detector, and D- and T-targets. A Th^{232}-fission chamber and threshold indicators ($Al^{27}(n,p)Mg^{27}$, $P^{31}(n,p)Si^{31}$, and $S^{32}(n,p)P^{32}$) were used as detectors. The distribution of thermal and epithermal neutrons was measured

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by means of a U^{235}-fission chamber. The results of these measurements in iron and lead are shown by 4 diagrams. The authors then theoretically investigate an infinite homogeneous medium in which an unbounded, plane isotropic source of monoenergetic neutrons with the energy E_0 is located. Neglecting the moderation of neutrons in elastic scattering, the kinetic equation for the neutron collision density $\psi(\mathfrak{r},E)$ is written down. The inelastic scattering is here assumed to be isotropic. The aforementioned equation is then transformed by means of a Fourier transformation, and is solved by employing the method of spherical harmonics. The calculation is then followed step by step, and the asymptotic solution is explicitly written down. A formula is written down for the neutron flux with the energy E in a medium with point source. The results shown by some diagrams for iron agree well with the experiment. The same also applies to the results for lead. The computation method suggested makes it possible, if the differential cross sections of elastic and inelastic scattering of neutrons are sufficiently well known, to determine the spatial- and energy distribution of neutrons in thick layers of matter having comparatively high nuclear charge numbers (e.g. greater than 56)

with sufficient accuracy. At large distances from the source, the neutron spectrum is enriched with considerably slowed-down neutrons. If the energy distribution is known, the shield may be calculated according to the multigroup theory. The authors thank Professor A. K. Krasin, Candidate of Technical Sciences A. N. Serbinov, and the scientific co-worker V. A. Romanov for their constant interest in the present paper and for their collaboration in the experiment. Besides, the authors thank V. G. Liforov, Z. S. Blistanov, and V. S. Tarasenko for their assistance in the experiments. S. A. Kurkin assisted in working out the calculation method, and M. B. Yegiazarov, V. S. Dikarev, V. G. Madeyev, Ye. N. Korolev, and N. S. Il'inskiy further took part in the experiments. There are 9 figures and 14 references, 4 of which are Soviet.

SUBMITTED: January 21, 1959

ORLOV, V.V.; GOLASHVILI, G.V.; VASKIN, A.I.

[Resonance absorption of neutrons by a block] Rezonansnoe pogloshchenie neitronov blokom. Moskva, Glav.upr. po ispol'zovaniiu atomnoi energii, 1960. 16 p. (MIRA 17:1)

LUK'YANOV, A.A.; OrLOV, V.V.

[Effect of the resonance structure of cross sections on neutron diffusion] Vliianie rezonansnoi struktury sechenii na diffuziiu neitronov. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 19 p. (MIRA 17:1)
(Neutrons--Capture) (Neutrons--Scattering)

ORLOV, V.V.

[Albedo equations in neutron diffusion and deceleration theory] Al'bednye uravneniia v teorii diffuzii i zamedleniia neitronov. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 21 p. (MIRA 17:2)

ORLOV, V.V., kand. fiz.-mat. nauk, red.; TSYPIN, S.G., kand. fiz.-mat. nauk, red.; KAZANSKIY, Yu.A.[translator]; KUKHTEVICH, V.I. [translator]; MATUSEVICH, Ye.S. [translator]; NIKOLAYSHVILI, Sh.S. [translator]; SINITSYN, B.I. [translator]; YUS, S.V. [translator]; VISKOVA, M.V., red.; RYBKINA, V.P., tekhn. red.

[Protection of transportation units having nuclear engines; translated articles] Zashchita transportnykh ustanovok s iadernym dvigatelem; sbornik perevodov. Moskva, Izd-vo inostr. lit-ry, 1961. 619 p. (MIRA 14:12)

(Radiation protection) (Nuclear reactors—Safety measures)

24 4400

S/058/62/000/004/024/160
A058/A101

AUTHORS: Marchuk, G. I., Orlov, V. V.

TITLE: On the theory of conjugated functions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 57, abstract 4B427 (V sb. "Neytron. fizika". Moscow, Gosatomizdat, 1961, 30 - 45)

TEXT: The authors analyze an arbitrary linear equation for a $\varphi(x)$ function, where x is the set of all variables characterizing the $\varphi(x)$ state. They offer a general determination of the conjugated function, conjugated equation and value. They formulate a perturbation theory. The general formulae are concretized on the example of radiation (or neutron) transfer theory. The authors give examples of some functionals used in transfer theory, and examples of using perturbation theory.

A. Galanin

[Abstracter's note: Complete translation]

Card 1/1

32983
S/641/61/000/000/010/033
B104/B102

26.2245

AUTHORS: Luk'yanov, A. A., Orlov, V. V.

TITLE: Effect of the cross section resonance structure on neutron diffusion

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey Moscow, 1961, 105 - 115

TEXT: The authors derive expressions for the cross section and the diffusion coefficient of a neutron flux for the case of a resonant interaction of the neutrons with the nuclei of a medium. The resonance characteristics of the U^{238} nucleus in the energy range of 200 ev to 50 kev are determined and the diffusion parameter for different U^{238} concentrations different temperatures and energies are averaged. The diffusion cross section and the diffusion coefficient depend essentially on the U^{238} concentration in the mixture and on the temperature of the medium. For $E < 50$ kev the single-level approximation gives sufficiently accurate values if the effective resonance width does not exceed the mean distance

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Effect of the cross section ...

between the levels. In this range the resonance width is $\Delta \approx \sqrt{E}/50$ ($T = 300^\circ K$, E in ev). In the energy range above 50 kev self-screening decreases considerably, and the resonance width exceeds the mean distance between the levels. The maximum resonance cross section is then $\sigma(0, \xi) \approx \frac{\sqrt{\pi}}{2} \sigma(0) \xi$, where $\sigma(0) = 4\pi\lambda^2$. At $T = 300^\circ K$ $\xi \sim 0.1$. Thus, at $E \gtrsim 30$ kev, $\sigma(0, \xi)$ can be compared with the potential scattering cross section $\sigma_s^0 \approx 10$ barn: $\sigma(0, \xi) \approx \frac{\sqrt{\pi}}{2} \cdot \frac{2.6 \cdot 10^3}{E(kev)} 0.1 (barn) \approx \frac{230}{E(kev)}$ barn. The authors thank I. I. Bondarenko and I. V. Gordeyev for taking part in the discussions. There are 1 figure, 4 tables, and 12 references: 5 Soviet and 7 non-Soviet. The four most recent references to English-language publications read as follows: Wigner E., J. Appl. Phys., 26 260 (1955), Dresner L., Nucl. Sci. and Engng., 1, 68 (1956); Lane A. M., Lynn J. E. Proc. Phys. Soc., A70, no. 8, 557 (1957); Macklin R. L., Pomerance H. S. Progress in Nuclear Energy, 1, no. 1, Pergamon Press, Lond., 1956 [illegible].

Card 2/2

32984
S/641/61/000/000/011/027
B104/B102

26.2242

AUTHORS: Orlov, V. V., Golashvili, T. V., Baskin, A. I.

TITLE: Neutron resonance absorption in a lump

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 116 - 124

TEXT: The authors develop a general formula for the effective resonance integral which takes account of the scattering and the slowing down of neutrons in a lump as well as the possibility of a neutron passing through the lump. A survey is given of the formulas of the effective resonance integral which have already been dealt with (Marchuk G. I., Chislennyye metody rascheta yadernykh reaktorov, - Numerical methods of reactor calculation - Gl. XXI. Atomizdat, 1958; Galanin A. D., Teoriya yadernykh reaktorov na teplovykh neytronakh - Theory of thermal reactors - Atomizdat; Spinrad B., Chernick J., Corngold N., lecture no. 1947, Second International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1958). The authors derive Wigner's formula for the resonance integral $J_{eff} = a + b/\xi$.

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Neutron r[illegible]onance ...

where a is the volume absorption, b the surface absorption, and l [illegible] mean free neutron path in the lump. If the resonance cross section is given by the Breit-Wigner formula $\sigma_r(E) = \sigma_{r0}/(1 + x^2)$, $x = \frac{E - E_0}{\Gamma/2}$, [illegible] E_0 and Γ are the energy and the resonance width, respectively, the resonance integral is given by

$$J_{эфф} = \frac{\pi}{2} \frac{\sigma_0 \Gamma_\gamma}{E_0} \sqrt{\frac{\Sigma_s}{\Sigma_r^0 + \Sigma_s}} + \frac{S}{4V_{бл}} \frac{\Gamma_\gamma}{2E_{0Q}} \int \frac{\Sigma_r^{02}}{[\Sigma_s(1+x^2) + \Sigma_r^0]\Gamma_\gamma} \times \quad (3).$$
$$\times \left(1 - \exp\left[-\left(\Sigma_s + \frac{\Sigma_r^0}{1+x^2}\right)l\right]\right) dx.$$

[illegible]ith s[illegible]rong resonance the quantities with $1/l_0$ and the pot[illegible]ati[illegible]l [illegible] cross section, Σ_s, can be neglected against σ_{r0}, $\Sigma_r(E) = [illegible] + \Sigma_{r0}([illegible]$ total microscopic cross section. The volume absorption [illegible] temperature, surface absorption may decrease or increase as a [illegible] $1/a$ and $\cdot$ [illegible] a is the power of the moderator. I. I. Gurevich [illegible].

Card [illegible]

32984

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B104/B102

Neutron resonance ..

Pomeranchuk (Reaktorstroyeniye i teoriya reaktorov Doklady sovetsk... delegatsii na Mezhdunarodnoy konferentsii po mirnomu ispol'zovaniyu at... noy energii Izd-vo AN SSSR, 1955, p- 22) are mentioned. There are 2 figures and 9 references: 7 Soviet and 2 non-Soviet

Card 3/3

24 6500

38149
S/058/62/000/004/030/160
A058/A101

AUTHOR: Orlov, V. V.

TITLE: Albedo equations in neutron diffusion and moderation theory

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 60, abstract 4B452 (V sb. "Neytron. fizika". Moscow, Gosatomizdat, 1961, 179 - 191)

TEXT: The author examines albedo matrices and transmission functions for simply shaped bodies (sphere, plate, cylinder) in a multigroup diffusion approximation. Examination of unilateral fluxes in a diffusion approximation, limited by magnitudes of the order of film thickness, yields albedo-matrix and transmission-function expressions for thin films. Expressions are derived that determine albedo matrices and transmission functions of double films through albedo matrices and transmission functions of simple thin films. Singling out of an infinitely thin double film in a finite film leads to a system of four matrix nonlinear differential equations (non-independent ones) determining albedo matrices and transmission functions. In particular problems, e.g. for a semi-infinite medium, these equations can be simplified. In a limiting transition to continuous

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Albedo equations in...

distribution of groups, equations are derived that determine albedo matrices and transmission functions in the age-diffusion approximation. For the case of constant cross sections and a semi-infinite medium, an explicit solution is obtained.

B. Kochurov.

[Abstracter's note: Complete translation]

Card 2/ 2

89364
S/089/61/010/002/015/018
B102/B209

22.2246

AUTHORS: Breshenkova, Ye. B., Orlov, V. V.

TITLE: The solution of the equation of motion for a medium with a one-directional point emitter

PERIODICAL: Atomnaya energiya, v. 10, no. 2, 1961, 175-177

TEXT: The present "Letter to the Editor" presents the solution of the equation of motion for a gamma radiation emitted from a point source in one direction in a scattering and absorbing medium.

$$\vec{\Omega}\,\mathrm{grad}\,F(\vec{r},\vec{\Omega},\lambda) = -\mu(\lambda)F(\vec{r},\vec{\Omega},\lambda)+\int_{\lambda-2}^{\lambda} d\lambda' K(\lambda',\lambda)\int d\vec{\Omega}'\frac{1}{2\pi}\,\delta(1-\vec{\Omega}\cdot\vec{\Omega}'-\lambda+\lambda')\times$$

$$F(\vec{r},\vec{\Omega}',\lambda')+\delta(\vec{r}-\vec{r}_0)\delta(\vec{\Omega}-\vec{\Omega}_0)\delta(\lambda-\lambda_0).$$

By means of the reciprocity theorem

$$G(\vec{r},E,\vec{\Omega};\ \vec{r}_0,E_0,\vec{\Omega}_0) = G^{+}(\vec{r}_0,E_0,\vec{\Omega}_0;\ \vec{r},E,\vec{\Omega})$$

and/or after integration over $d\vec{\Omega}$: $G_0(\vec{r},E;\vec{r}_0,E_0,\vec{\Omega}_0) = G^{+}(\vec{r}_0,E_0,\vec{\Omega}_0;\vec{r},E)$ where $G_0 = \int G\,d\vec{\Omega}$, the solution of this equation may be transformed into the solution of the equation of motion

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The solution of the ...

$$-\Omega \operatorname{grad} F^*(r, \Omega, \lambda) = -\mu(\lambda) F^*(r, \Omega, \lambda) + \\ + \int_{\lambda}^{\lambda+2} d\lambda^* K(\lambda, \lambda^*) \int d\Omega^* F^*(r, \Omega^*, \lambda^*) \frac{1}{2\pi} \times \\ \times \delta(1 - \Omega\Omega^* - \lambda^* + \lambda) + \delta(r - r') \delta(\lambda - \lambda'). \quad (2)$$

$G(\vec{r},E,\vec{\Omega};\vec{r}_o,E_o,\vec{\Omega}_o)$ is Green's function of the equation of motion which describes the radiant flux with energy E in the direction of motion $\vec{\Omega}$ (the single point source emitting the energy E_o is assumed to be located at $\vec{r}_o$, its direction of motion is $\vec{\Omega}_o$). $F(\vec{r},\vec{\Omega},\lambda)$ denotes the radiant flux at the point $\vec{r}$ with wavelength λ in the direction $\vec{\Omega}$; $K(\lambda',\lambda) = nZ\pi r_o^2(\lambda/\lambda')^2\left[\frac{\lambda}{\lambda'} + \frac{\lambda'}{\lambda} - 2(\lambda'-\lambda) + (\lambda'-1)^2\right]$ stands for the probability density of Compton scattering with a change of the wavelength from λ' to λ; $\mu(\lambda)$ denotes the absorption coefficient. The total-flux distribution of gamma radiation may be determined according to the formula $F_o(r',\lambda') =$

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The solution of the ...

$F^+(r_o, \Omega_o, \lambda_o)$. Considering the symmetry of the source and with $\vec{r} - \vec{r}' = \vec{R}$ and $(\vec{\Omega}\vec{R})/R = \xi$ one obtains

$$-\xi\frac{\partial F^+(R,\xi,\lambda)}{\partial R}-\frac{(1-\xi^2)}{R}\frac{\partial F^+(R,\xi,\lambda)}{\partial\xi}=$$
$$=-\mu(\lambda)F^+(R,\xi,\lambda)+\int_{\lambda}^{\lambda+2}d\lambda^*K(\lambda,\lambda^*)\int d\Omega^*\times$$
$$\times F^+(R,\xi^*,\lambda^*)\frac{1}{2\pi}\delta(1-\Omega\Omega^*-\lambda^*+\lambda)+\frac{\delta(R)}{4\pi R^2}\delta(\lambda-\lambda'). \quad (3)$$

By expanding the conjugate flux into a spherical harmonic $F^+(R,\xi,\lambda) = \sum_{l=0}^{\infty}\frac{2l+1}{4\pi}F_l^+(R,\lambda)P_l(\xi)$ and substituting in (3), multiplying by $P_l(\xi)$ and integrating over $d\vec{\Omega}$ one obtains the equation for $F_l^+(R,\lambda)$:

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The solution of the ...

$$-\frac{(l+1)}{2l+1}\left(\frac{l+2}{R}+\frac{\partial}{\partial R}\right)F^{+}_{l+1}(R,\lambda)+$$
$$+\frac{l}{2l+1}\left(\frac{l-1}{R}-\frac{\partial}{\partial R}\right)F^{+}_{l-1}(R,\lambda)=$$
$$=-\mu(\lambda)F^{+}_{l}(R,\lambda)+\int_{\lambda}^{\lambda+2}d\lambda^{*}K(\lambda,\lambda^{*})\times$$
$$\times\mathcal{P}_{l}(1-\lambda^{*}+\lambda)F^{+}_{l}(R,\lambda^{*})+\frac{\delta(R)}{R^{2}}\delta(\lambda-\lambda')\delta_{l_0}. \quad (5)$$

By multiplication by R^n and integration over the entire volume, the following is obtained for the moments $b_{l,n}(\lambda)$:

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The solution of the ... ..

$$-\frac{1}{2l+1}[(l+1)(l-n)\,b_{l+1,\,n-1}(\lambda)-l(l+n+1)\times$$
$$\times b_{l-1,\,n-1}(\lambda)]=-\mu(\lambda)\,b_{l,\,n}(\lambda)+$$
$$+\int_{\lambda}^{\lambda+2}d\lambda^{*}K(\lambda,\lambda^{*})\,\mathcal{P}_{l}(1-\lambda^{*}+\lambda)\,b_{l,\,n}(\lambda)+$$
$$+4\pi\delta(\lambda-\lambda')\,\delta_{l_0}\delta_{n_0}. \qquad (6)$$

где

$$b_{l,\,n}(\lambda)=\int_{0}^{\infty}R^{n}F_{l}^{*}(R,\lambda)\,4\pi R^{2}dR.$$

This equation determines only those moments $b_{l,n}(\lambda)$ for which $l \leq n$ and l and n are of equal parity. With

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The solution of the

$$F^{*}_{2l}(R,\lambda)=\frac{e^{-\mu R}}{4\pi R^{3}}\sum_{n=0}^{N}a_{2l,n}(\lambda)(\mu R)^{n};$$

$$F^{*}_{2l+1}(R,\lambda)=\frac{e^{-\mu R}}{4\pi R^{3}}\sum_{n=0}^{N}c_{2l+1,n}(\lambda)(\mu R)^{n}.$$

where $a_{2l,n}(\lambda)$ and $c_{2l+1,n}(\lambda)$ are solutions of the system of N+1 equations, one obtains

$$\left.\begin{aligned} b_{2l,2m}(\lambda)&=\sum_{n=0}^{N}\frac{(n+2m)!}{\mu^{2m+1}}a_{2l,n}(\lambda);\\ b_{2l+1,2m+1}(\lambda)&=\sum_{n=0}^{N}\frac{(n+2m+1)!}{\mu^{2m+2}}c_{2l+1,n}(\lambda)\end{aligned}\right\}\quad(7)$$

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The solution of the ...

with m = l, l+1, l+2, ... l+N. The solution of system (7) permits to express the coefficients $a_{2l,n}(\lambda)$ and $c_{2l+1,n}(\lambda)$ in terms of the even-even and odd-odd moments which were determined from (6). The higher the moments known, the more accurate one can calculate $F_1^+(R,\lambda)$. In solving this problem, it is expedient to eliminate the unscattered radiative flux from the equation of moments (6), which may be brought about in the usual way. In conclusion, the authors thank V. F. Turchin, G. I. Marchuk, and Sh. S. Nikolayshvili for their discussions. I. I. Bondarenko is mentioned. There are 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc.

SUBMITTED: August 25, 1960

S/089/61/010/003/010/021
B102/B205

24.6520

AUTHORS: Luk'yanov, A. A., Orlov, V. V.

TITLE: Theory of the cross sections of heavy nuclei within the range of partial overlap of neutron resonances

PERIODICAL: Atomnaya energiya, v. 10, no. 3, 1961, 262-264

TEXT: In Ref. 1 ("Neytronnaya fizika", Gosatomizdat, Moscow 1961), the authors presented a universal theory of the calculation of cross sections. In the present "Letter to the Editor", they suggest a simple method of calculating cross sections within the range of partial overlap of resonances. In an infinite homogeneous medium, the cross section is given by

$$\langle\sigma_x(E)\rangle = \int_{E_1}^{E_1+\varepsilon} (\sigma_x/\sigma)dE' \Big/ \int_{E_1}^{E_1+\varepsilon} (1/\sigma)dE' \text{, where } \sigma \text{ is the total cross section,}$$

and σ_x the reaction cross section; ε is a certain energy range, within which the collision density varies insignificantly. The cross section in the