MOROZOV, V.A., prof.; POPOV, V.G., aspirant

Lamp for gynecological examinations. Veterinariia 42 no.8:92 Ag '65. (MIRA 18:11)

1. Dagestanskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.

SOKOLOV, Yu.V.; POPOV, V.G., red.

[Ways of developing the manufacture of cellular aggregates in the Northern Caucasus] Puti razvitiia proizvodstva poristykh zapolnitelei na Severnom Kavkaze. Rostov-na-Donu, Rostovskii Promstroiniiproekt, 1964. 24 p. (MIRA 18:6)

1. Rostovskiy institut po proyektirovaniyu promyshlennogo stroitel'stva (for Sokolov).

TOPCHIYEV, D.A.; POPOV, V.G.; KABANOV, V.A.; KARGIN, V.A.

Polymerization of quinoline and autocatalysis phenomena during the formation of macromolecules with a system of conjugation. Izv.AN SSSR.Ser.khim. no.2:391-392 F '64. (MIRA 17:3)

1. Institut neftekhimicheskogo sinteza im. A.V.Topchiyeva AN SSSR.

ANTIPOV, A.A., inzh.; POPOV, V.G., kand.tekhn.nauk; TERESHCHENKO, A.F., kand.tekhn.nauk

Methods of calibrating propeller shafts. Sudostroenie 29 no.10: 64-66 O '63. (MIRA 16:12)

ARKHANGORODSKIY, A.G. [Arkhanhorods'kyi, O.H.] (Nikolayev); POPOV, V.G. [Popov, V.H.] (Nikolayev)

Effect of the rigidity of torsion of the framework on the stability of the sheathing of a cylindrical shell. Prykl.mekh. 8 no.2:178-185 '62. (MIRA 15:3)

1. Nikolayevskiy korablestroitel'nyy institut.
(Elastic plates and shells)

35927

S/198/62/008/002/008/011
D299/D301

10.7000
24.4200

AUTHORS: Arkhannorods'kyy, O.H., and Popov, V.H. (Mykolayiv)

TITLE: Influence of torsional rigidity of the wall on the stability of a cylindrical shell

PERIODICAL: Prykladna mekhanika, v. 8, no. 2, 1962, 178 - 184

TEXT: The influence is considered of the elastic clamping of the edges on the stability of a closed cylindrical shell under uniform pressure. The obtained results are used for determining Euler's load (pressure) for a shell, stiffened by equally-spaced ribs. The problem is solved by the energy method. The normal-bending function is taken in the form

$$\tilde{w} = f\left[(1-\varkappa)\sin\frac{m\pi x}{l} + \varkappa\sin^2\frac{m\pi x}{l}\right]\sin\frac{ny}{R}, \qquad (1)$$

where R is the shell radius, h - the wall thickness, l - the length of the shell (or distance between ribs), $\varkappa$ - the coefficient of the resistance pair, n - the number of waves, m - the number of half-waves. The nonlinear terms in the compatibility equation are ne-

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Influence of torsional rigidity ...

glected. After calculations, one obtains the equation for the total energy of the system. The pre-critical stressed state is considered to be a membrane state. The equation for Euler's load (pressure) is:

$$q_e = \frac{Eh}{R}\frac{1}{0{,}5C_8a^2 + C_6n^2}\left[\frac{a^4}{(a^2+n^2)^2(4a^2+n^2)^2}(C_1a^4 + C_2a^2n^2 + C_3n^4) + \right. \tag{12}$$

$$\left. + \frac{h^2}{12(1-\mu^2)R^2}(C_4a^4 + C_5a^2n^2 + C_6n^4) + 2\frac{h^2}{12(1-\mu^2)}\frac{a^3}{Rl}C_7\right],$$ (12)

where the coefficients C involve expressions in $\mathcal{H}$. By setting, in Eq. (12), $\mathcal{H} = 0$, one obtains von-Mises well-known formula. The Euler load (pressure) of an elastically clamped shell, is

$$q_e = Kq_{0_e}, \tag{14}$$

where

$$q_{0_e} = \frac{Eh}{R}\frac{1}{0{,}5a^2 + n^2}\left[\frac{a^4}{(a^2+n^2)^2} + \frac{h^2}{12(1-\mu^2)R^2}(a^2+n^2)^2\right]$$

is Euler's pressure of a freely supported shell, and K is a factor which takes into account the influence of the elastic clamping of the edges, on stability. The values of K, as a function of the

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Influence of torsional rigidity ...

shell parameters α, R, h, and ω, are listed in 2 figures. The clamping of the edges has a much greater effect in comparatively short shells. The parameters γ and n are interrelated, γ depending on the elastic and geometric properties of the shell and of the reinforcing ribs, and n - on the degree of clamping of the edges on the ribs. Further, the differential equation is considered of the deformation of a shell, clamped along the line, joining the ribs and wall. The clamping is considered as rigid with respect to bending, and as elastic -- with respect to rotation. One obtains:

$$\varkappa = \frac{1}{1 + \frac{1}{\pi h^3 \cdot 3(1-\mu^2) l \left(\frac{n}{R}\right)^2 \left[I_\omega \left(\frac{n}{R}\right)^2 + \frac{1}{2(1+\mu)} I_d \right]}}, \qquad (22)$$

where I_ω and I_d are moments of inertia of the rib cross-sections. The above solution is valid within the limits of accuracy of the adopted assumptions. More accurate results would require a nonlinear treatment of the problem. Finally, a numerical example is considered; thereby the critical pressure q_e was found to have increased!

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by 45 % as a result of the torsional rigidity of the ribs. There are 2 figures and 5 Soviet-bloc references.

ASSOCIATION: Mykolayivs'kyy korablebudivnyy instytut (Mykolayiv Ship Building Institute)

SUBMITTED: October 19, 1960

POPOV, V.G.

Special aspects of teaching geography in national minority schools.
Geog. v shkole 24 no.5:49-50 S-O '61. (MIRA 14:8)
(Geography--Study and teaching)

POPOV, V. G., CAND TECH SCI, "BEND AND STABILITY OF THREE-PLY CYLINDRICAL ~~SHEATHINGS~~ casings." LENINGRAD, 1961. (LENINGRAD SHIPBUILDING INST). (KL-DV, 11-61, 222).

S/145/60/000/003/001/010
D221/D301

AUTHORS: Arkhangorodskiy, A.G., Candidate of Technical Sciences and Popov, V.G., Engineer

TITLE: Strength of cylindrical shells reinforced by transversal and longitudinal ribs

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 3, 1960, 3 - 13

TEXT: The article refers to the work of Kafedra stroitel'noy mekhaniki korablya, Nikolayevskiy korablestroitel'nyy institut (Department of Structural Marine Mechanics at the Nikolayevskiy Marine Institute) during 1952-1953. Its purpose was to determine the possibilities of strength increase of cylindrical shells by longitudinal ribs. On the assumption that bending is small when compared to thickness, then the linear solution is given by

$$W = \sin \frac{m\pi x}{l} \sum_{n=1}^{N} a_n \sin \frac{ny}{R}, \qquad (1)$$

where designations are indicated in Fig. 1. With the use of Ritz's method the author finds expressions for the potential energy of deformation and bending of the shell, as well as the work of external forces. After defining forces in the meridional sections due to transversal load, g, the function of stresses, Φ, as the integral of combined deformations is found. This leads to the equation of the system's energy. In the case of all-round uniform pressure, it is possible to write with good approximation, that

$$p_x = \frac{g\,R}{2h}; \text{ and } \quad p_y = \frac{g\,R}{h}, \tag{10}$$

where p_x and p_y are the compressive stresses. This results in simplified expressions. The minimum critical pressure is obtained when $m = 1$. Special instances of reinforced ribs are then considered. A set of equations is evolved for six-equidistant ribs. The limit of angle $\psi = \frac{2\pi y_0}{R}$ will be between 0 and 30°. When the shell is reinforced by seven ribs, then this angle varies between 0 and 26°, and

maximum EI is taken for each of these values. Finally, the author discussed nine ribs. Experimental investigation was carried out to supplement the theoretical work. Although the ribbing different from above recommendations, results were used to determine the effect of ribs on critical pressure. The dimensions of models are tabulated, and illustrations given of them. During tests knocks were observed which corresponded to formation of dents in the shell, and when pressure did not fall, contrary to shells without ribs. The character of waviness in the shell is markedly changed at the instant of dent formation. A detailed description is given of these deformations. For comparison, results on shells without reinforcements were also tabulated. The model in these cases was subject to deformations in an axial direction after the appearance of dents and without pressure increase. On the basis of theoretical and experimental investigations, the following deductions were made. The longitudinal ribs ensure a general increase of strength. Deviations from the correct shape of the shell affect its stability to a lesser extent than in the case of non-reinforced units. It is expedient to mount ribs with higher strength on bending and torsion for the

Strength of cylindrical shells ... S/145/60/000/003/001/010
D221/D301

rational use of the material of the shell. The carrying capacity of shells reinforced by cross ribs only is determined by the shell when subject to all-round external pressure, whereas in instances of longitudinal and cross ribs it depends on these reinforcements. There are 5 figures, 2 tables, and 5 Soviet-bloc references.

ASSOCIATION: Nikolayevskiy korablestroitel'nyy institut (Nikolayevskiy Marine Construction Institute)

SUBMITTED: May 16, 1959

Card 4/5

POPOV, V.G.

Primary pulmonary hypertension. Klin. med. 38 no. 2:94-100 F '60.
(MIRA 14:1)
(HYPERTENSION)

28170

S/145/61/000/005/004/009
D221/D306

10.7000 only 1103, 1327

AUTHOR: Popov, V.G., Aspirant

TITLE: Bending of three-layer cylindrical shells

PERIODICAL: Izvestiya vysshykh uchebnykh zavedeniy. Mashinostroyeniye, no. 6, 1961, 39 - 50

TEXT: Main equations for three-layer cylindrical shells subject to a load symmetrically distributed in respect to their axis (Fig. 1) are quoted by E.I. Grigolyuk (Ref. 1: Konechnyye progiby trekhsloynykh obolochek s zhestkim zapolnitelem, "Izvestiya AN SSSR, OTN", no. 1, 1958) and L.M. Kurshin (Ref. 2: Uravneniya trekhsloynykh tsilindricheskikh obolochek, "Izvestiya AN SSSR, OTN", no. 8, 1958) Assuming a symmetrical structure of the shell, isotropic carrying and filler layers, linear displacements in the filler along the height, identical Poisson coefficient for layers, and the filler being undeformed in the cross-section, the former are given in

$$\alpha+\frac{\partial w}{\partial x}=D_3\frac{\partial^2\alpha}{\partial x^2}+\frac{1}{2}(1-\mu)D_3\cdot\frac{\partial^2\alpha}{\partial y^2}+\frac{1}{2}(1+\mu)D_3\frac{\partial^2\beta}{\partial x\partial y}+ \quad (1)$$

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$$+\frac{D_c}{G_c}\frac{t}{c(c+t)}\left(\frac{\partial^3 w}{\partial x^3}+\frac{\partial^3 w}{\partial y^2 \partial x}\right),$$

$$\beta+\frac{\partial w}{\partial y}=D_3\frac{\partial^2\beta}{\partial y^2}+\frac{1}{2}(1-\mu)D_3\cdot\frac{\partial^2\beta}{\partial x^2}+\frac{1}{2}(1+\mu)D_3\frac{\partial^2\alpha}{\partial x\,\partial y}+ \quad (1)$$

$$+\frac{D_c}{G_c}\frac{t}{c(c+t)}\cdot\left(\frac{\partial^3 w}{\partial y^3}+\frac{\partial^3 w}{\partial y\,\partial x^2}\right);$$

Here, u_u, v_u, u_l and v_l are displacements of point of the central surface in the upper and lower carrying layer along their respective axes; w is the sag which is equal for all points located on the same normal; R is the radius of curvature of shell; t is the thickness of outside layer; c is the thickness of filler; E is the modulus of elasticity of outer layers; E_c and G_c are the moduli of elasticity and shear of filler; μ is the Poisson coefficient; g_{xy}

is the intensity of transversal loading. Remaining factors are given by

$$\alpha = \frac{u_1 - u_u}{c + t}; \quad \beta = \frac{v_1 - v_u}{c + t}; \quad \varphi = \frac{\partial \alpha}{\partial x} + \frac{\partial \beta}{\partial y}; \quad D_o = \frac{Et^3}{12(1 - \mu^2)};$$

$$D_c = \frac{E_c c^3}{12(1 - \mu^2)}; \quad B = \frac{Et(c + t)^2}{2(1 - \mu^2)}; \quad D_3 = \frac{1}{G_c}\left[D_c \frac{1}{c} + B \frac{c}{(c + t)^2}\right].$$

Intersecting forces, T_{xy}, in each of the meridional sections tend to zero, and axial forces, N_y, remain constant due to symmetry. To determine N_y, use is made of Hook's law for a plane stressed condition. The linear deformations of the central surface of the shell in the direction of the tangent circle to its cross section is $\varepsilon_y = -\frac{w}{R}$, and after substitution

$$N_y = -(2tE + cE_c)\frac{w}{R} + \mu N_x \qquad (2)$$

Bending of three-layer cylindrical ...

is obtained for N_y. The axial stress N_x, is constant along the length due to symmetry $N_x = N_y$. After mathematical treatment an equation is deduced with respect to w and which is of a higher order, and its solution is to be found in the form $w = ce^{\lambda x}$. After some manipulation

$$D_1 Z^3 - (D_2 + N_1 D_3) Z^2 + \left(\frac{2tE + cE_c}{R^2} + N_1\right) Z - \frac{2tE + cE_c}{R^2} = 0. \qquad (6)$$

is deduced. When all roots of the latter are real, then the general solution is

$$w = \sum_{i=1}^{3} (c_{2i-1} \operatorname{sh} \gamma_i x + c_{2i} \operatorname{ch} \gamma_i x) + w_{4p}. \qquad (7)$$

The constants are determined from conditions for supporting the shell at its ends. As a result, w and α can be calculated, and this

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Bending of three-layer cylindrical ...

allows the bending moments M_x, and intersecting forces Q_x, to be computed, and also the resulting stresses in outside as well as inside points of carrying layers. In many instances it is possible to disregard the sag due to the bending. The author then deduces

$$M_x = B \frac{d\alpha}{dx} = - B \frac{d^2 w_1}{dx^2} \qquad (16)$$

for the bending moment. The negative sign is due to the fact that for a positive there is a negative angle of twist in the cross section. After transformations

$$\frac{d^4 w_1}{dx^4} - 2m \frac{d^2 w_1}{dx^2} + n^2 w_1 = \qquad (21)$$

$$= \frac{1}{B + N_1 D_3} \left[g_x + \mu \frac{N_1}{R} + \frac{2tE}{R^2} (K_1 x - K_2) \right],$$

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where

$$m = \frac{D_3 \frac{2tE}{R^2} + N_1}{2(B + N_1 D_3)}; \qquad n^2 = \frac{2tE}{R^2 (B + N_1 D_3)}.$$

The roots of Eq. (21) may be either real or imaginary, depending upon the value of m and n. The form of the integral is related to the dimensions of shell, load N_1 and g_x, modulus of normal elasticity of carrying layers, E, and fillers, E_c and G_c. Complex roots are possible when the filler is very rigid. The author then considers three-layer shells that are rigidly clamped along the perimeter and subject to outside all-round and uniform pressure. The symmetry of design and loading permit the central sections to be regarded as an isolated cylindrical shell which is rigidly clamped along its perimeter, and whose length is equal to the distance between diaphragms. When Eq. (21) has real roots, then sag and stresses in the carrying layers at the characteristic points are given by

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Bending of three-layer cylindrical ...

$$w_{x=0} = g\left(1-\frac{\mu}{2}\right)\frac{R^2}{2tE}\left[1+\frac{u_3^2-u_1^2}{u_3^2+u_1\cdot u_2\cdot F_0}u_2F_2+\right.$$

$$\left.+\frac{u_2^2-u_3^2}{u_3^2+n_1u_2F_0}u_1F_1\right], \qquad (28)$$

(28)

$$(\sigma_x)_{x=0} = \pm g\frac{\left(1-\frac{\mu}{2}\right)}{4(1-\mu^2)}\cdot\left(\frac{2R}{l}\right)^2\cdot\frac{u_3^2\cdot u_1\cdot u_2}{u_3^2+u_1\cdot u_2\cdot F_0}\left[\frac{c+t}{t}\ (u_2F_1-u_1F_2)\doteq\right.$$

$$\left.\doteq\left(\frac{u_1^2-u_3^2}{u_3^2}u_1F_2+\frac{u_3^2-u_2^2}{u_3^2}u_2F_1\right)-\frac{1}{4}\frac{gR}{t};\right.$$

$$(\sigma_y)_{x=0} = -\frac{E}{R}(w)_{x=0}+(\mu\sigma_x)_{x=0}.$$

In the case of a long shell, stresses in supports are determined by

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Bending of three-layer cylindrical ...

$$(\sigma_x)_{x=\pm\frac{l}{2}} = \mp g\,\frac{\left(1-\frac{\mu}{2}\right)}{4(1-\mu^2)}\left(\frac{2R}{l}\right)^2\frac{u_3^2\cdot u_1\cdot u_2}{u_3^2+u_1u_2}\left[-\frac{c+t}{t}\mp\right. \tag{31}$$

$$\left.\mp\left(\frac{u_1^2+u_1\cdot u_2+u_2^2}{u_3^2}-1\right)\right]-\frac{1}{4}\,\frac{gR}{t}.$$

The approximate relationships for bending are quite accurate for shells, where the thickness of carrying layers is determined by strength calculation, and the parameters of the filler are chosen so as to ensure the required resistance. On the other hand, as the three-layer shells are relatively long between supports, then the resulting stresses in supporting sections can be assessed by

$$F_0 = \frac{u_1\,\mathrm{sh}\,u_2\,\mathrm{ch}\,u_1 - u_2\,\mathrm{sh}\,u_1\,\mathrm{ch}\,u_2}{u_1\,\mathrm{sh}\,u_1\,\mathrm{ch}\,u_2 - u_2\,\mathrm{sh}\,u_2\,\mathrm{ch}\,u_1}; \tag{30}$$

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Bending of three-layer cylindrical ...

$$F_1 = \frac{\operatorname{sh} u_1}{u_1 \operatorname{sh} u_1 \operatorname{ch} u_2 - u_2 \operatorname{sh} u_2 \cdot \operatorname{ch} u_1};$$

$$F_2 = \frac{\operatorname{sh} u_2}{u_1 \operatorname{sh} u_1 \operatorname{ch} u_2 - u_2 \operatorname{sh} u_2 \cdot \operatorname{ch} u_1};$$

$$F_3 = \frac{\operatorname{sh} u_2 \operatorname{ch} u_1}{u_1 \operatorname{sh} u_1 \operatorname{ch} u_2 - u_2 \operatorname{sh} u_2 \operatorname{ch} u_1}; \qquad (30)$$

$$F_4 = \frac{\operatorname{sh} u_1 \operatorname{ch} u_2}{u_1 \operatorname{sh} u_1 \operatorname{ch} u_2 - u_2 \operatorname{sh} u_2 \operatorname{ch} u_1};$$

$$u_1 = u\sqrt{1+\delta}; \qquad u_2 = u\sqrt{1-\delta}; \qquad u_3 = \frac{l}{2}\sqrt{\frac{1}{D_3}} \qquad (30)$$

$$u = \frac{l}{2}\sqrt{\frac{D_3 \frac{2tE}{R^2} + N_1}{2(B + N_1 D_3)}}; \qquad \delta = \sqrt{1 - \frac{4(B + N_1 D_3)\frac{2tE}{R^2}}{\left(D_3 \frac{2tE}{R^2} + N_1\right)^2}}.$$

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Bending of three-layer cylindrical ...

A formula is also given for determining the sag and stress in the center of the span. Taking into account the symmetry of design, the calculation of stresses in the isolated shell rigidly clamped along the perimeter of transversal diaphragms will suffice. Stresses computed in the numerical example differ little from those, that are determined by Eq. (31). The expounded solution may also be used in assessing the strength of vertical three-layer cylindrical reservoirs for storing oil and its products, as indicated by Ye.I. Lessing, A.F. Lileyev, A.G. Sokoleva (Ref. 6: Stal'nyye listovyye konstruktsii (Steel Plate Structures), Gosstroyizdat, 1956). There are 2 figures and 6 Soviet-bloc references.

ASSOCIATION: Nikolayevskiy korablestroitel'nyy institut (Nikolayev Ship-Building Institute)

SUBMITTED: December 20, 1960

Card 10/11

ARKHANGORODSKIY, A.G., kand.tekhn.nauk; POPOV, V.G., inzh.

Stability of cylindrical shells reinforced with lateral and longitudinal sets of ribs. Izv.vys.ucheb.zav.; mashinostr. no.3:3-13 '60.
(MIRA 14:3)

1. Nikolayevskiy korablestoritel'nyy institut.
(Elastic plates and shells)

POPOV, V.G., kand.sel'skokhozyaystvennykh nauk

Izhma-Pechora Veterinary Research Station. Trudy VIEV 23:373 '59.
(MIRA 13:10)

(Izhma--Veterinary research)

VASIL'CHUK, N.P., glav. inzh.; POPOV, V.G., red.

[Guide book on the rod bolting of mines] Rukovodstvo po krepleniiu vyrabotok shtangovoi krep'iu. Rostov-na-Donu, 1963. 33 p. (MIRA 18:1)

1. Rostov-on-Don. Nauchno-issledovatel'skiy institut po stroitel'stvu.

B. T. R.
V. 3 No. 3
Mar. .954
Welding and
Joining

4255* **New Electric Welding Methods.** (Russian.) V. I. Popov. *Nauka i Zhizn*, v. 20, no. 7, July 195?, p. 5-7.
Discusses automatic welding operations with rods up to 60 mm. in size. Special hydraulic drive secures hydraulic compression of 25 to 30 tons. Application of method increased efficiency seven to eight times. Photographs, diagrams.

GUSEV, N.G.; KOVALEV, Ye.Ye.; OSANOV, D.P.; POPOV, V.I.; MARGULIS, U.Ya., nauchnyy red.; KOKOSOV, L.V., red.; VLASOVA, N.A., tekhn. red.

[Shielding against radiation from extended sources] Zashchita ot izlucheniia protiazhennykh istochnikov. Moskva, Gos.izd-vo lit-ry v oblasti atomnoi nauki i tekhniki, 1961. 287 p. (MIRA 15:2)
(Shielding (Radiation))

L 29942-65 EPF(n)-2/EWT(m)/EWG(m)/EWP(b)/EWP(e)/EWP(t) Pu-4/Pad IJP(c)
WW/JD/HW/JG
ACCESSION NR: AP5005804 S/0089/65/018/002/0136/0140

AUTHOR: Belov, S. P.; Dulin, V. A.; Kazanskiy, Yu. A.; Popov, V. I.; Tsypin, S. G.

TITLE: Experimental investigation of shielding on the RIZ stand

SOURCE: Atomnaya energiya, v. 18, no. 2, 1965, 136-140

TOPIC TAGS: capture gamma radiation, neutron spectrum, uranium water reactor, zero power reactor, radiation shielding, RIZ stand

ABSTRACT: A zero-power reactor stand for studying processes taking place in the shielding directly adjacent to the core is described. The uranium-water reactor, whose prototype was developed under the direction of V. A. Kuznetsov, has a cylindrical core 335 mm in diameter and 275 mm high. By varying the boron thickness in the reflector the neutron spectrum in the reactor stand can be varied in the energy region below 10 kev, thus simulating the neutron spectra of various thermal and intermediate reactors. The results of the measurements of neutron spectra and of the study of shielding materials (iron, nickel, and borated nickel) are given. Orig. art. has: 6 figures and 1 table. [BP]

ASSOCIATION: none

Card 1/2

L 29942-65

ACCESSION NR: AP5005804

SUBMITTED: 02Apr64 ENCL: 00 SUB CODE: NP

NO REF SOV: 005 OTHER: 000 ATD PRESS: 3195

Card 2/2

TABAROVSKIY, I.K.; MANDEL'TSVAYG, Yu.B.; GOFMAN, I.M.; BENYUSH, V.A.; POPOV, V.I.; AKATOV, Yu.A.

Diagnostic scintillation device of the DSU-60 type. Med.rad. no.9:64-67 '61. (MIRA 15:1)

1. Iz otdela radiologicheskikh i rentgenovskikh priborov i apparatov Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo instrumentariya i oborudovaniya Ministerstva zdravookhraneniya SSSR.
(RADIOLOGY, MEDICAL—EQUIPMENT AND SUPPLIES)

POPOV, V.I., starshiy inzhener

This crew lowered the work required to lay track. Transp. stroi. 12 no.5:11 My '62. (MIRA 15:6)

1. Chelyabinskaya normativno-issledovatel'skaya stantsiya. (Mine railroads)

SORIN, N.A., inzh.; POPOV, V.I., inzh.

D.C. locomotives. Vest. elektroprom. 32 no.5:17-20 My '61.
(MIRA 15:5)
(Electric locomotives)

POPOV, V.I., inzh.

Results of the work of the oils and fats industry of the Ukrainian S.S.R. during 1962. Masl.-zhir. prom. 29 no.5:32-34 My '63. (MIRA 16:7)

1. Gosplan UkrSSR.
(Ukraine--Oil industries)

BEGIDZHANOVA, A.P., kand.tekhn.nauk; POPOV, V.I., inzh.

Plastic fuel pipes for tractors. Trakt. i sel'khozmash. 31 no.10:16-18 O '61. (MIRA 14:12)

1. Nauchno-issledovatel'skiy avtotraktornyy institut.
(Tractors--Fuel systems)
(Plastics)

POPOV, V.I.; GAL'PERIN, A.V., red.

[Catalog of light filters for motion-picture photography] Katalog svetofil'trov dlia kinos"emok. Sost. operator V.I.Popov. Moskva, 1960. 95 p. (MIRA 15:1)

1. Moscow. Moskovskaya kinostudiya "Mosfil'm."
(Motion-picture photography—Light filters)

SIDORENKO, M.V., glavnyy red.; ZAREMBO, K.S., red.; KREMS, Ye.A., red.; RAABEN, V.N., red.; RYABTSEV, N.I., red.; BRENTS, A.D., red.; ITSIKSON, B.S., red.; KOMISSAROV, P.G., red.; POPOV, V.I., red.; TESNER, P.A., red.; FAL'KEVICH, A.S., red.; STEPANCHENKO, N.I., vedushchiy red.; NOVIKOVA, M.M., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Ways of developing the gas industry of the U.S.S.R.; transactions of the All-Union Conference on Further Development of the Soviet Gas Industry] Materialy Vsesoyuznogo soveshchaniya po dal'neyshemu razvitiyu gazovoi promyshlennosti SSSR: Puti razvitiia gazovoi promyshlennosti SSSR. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 432 p. (MIRA 12:4)

1. Vsesoyuznoye soveshchaniye po dal'neyshemu razvitiyu gazovoy promyshlennosti SSSR, Moscow, 1957.
(Gas industry)

POPOV

YEREMENKO, V.; POPOV, V.; KHALIF, A.

Production and utilization of natural gasoline in the United States (from "Oil and Gas J.," no.47 1956, no.57 1957, no.27 1958). Gaz. prom. no.9:52-53 S '58. (MIRA 11:10)
(United States--Gasoline)

YEREMENKO, V.S.; POPOV, V.I.; KHALIF, A.L.

Natural-gas gasolines and their use. Gaz. prom. no.8:43-47 Ag '58. (MIRA 11:8)

(Gasoline)

POPOV, V.I.

New main controller EKG-60/20 for №60 electric locomotives.
Elek. i tepl. tiaga 4 no. 9:34-38 S '60. (MIRA 13:12)

1.Rukovoditel' gruppy Spetsial'nogo konstruktorskogo byuro elektrovozostroitel'nogo zavoda.
(Electric locomotives) (Voltage regulators)

PHASE I BOOK EXPLOITATION SOV/1172

Popov, Viktor Ivanovich

Elektricheskiy privod i avtomatika (Electric Drive and Automatic Control) Moscow, Sel'khozgiz, 1957. 442 p. (Series: Uchebniki i uchebnyye posobiya dlya vysshikh sel'skokhozyaystvennykh uchebnykh zavedeniy) 15,000 copies printed.

Ed.-Specialist: Glebovich, A.A.; Ed.: Zuyeva, K.N.; Tech. Ed.: Sokolova, N.N.

PURPOSE: This book is approved as a textbook by the USSR Ministry of Agriculture for students of agricultural vuzes studying rural electrification.

COVERAGE: According to the author the book is a methodical treatment of the theory of electric drives and their control, electric motor protection, fundamentals of automation, and other questions as they relate to applications in agriculture. He states that the study of electric drives as a special branch of technical sciences developed mainly through the efforts of the following Soviet scientists:

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Professors S.A. Rinkevich, V.K. Popov, D.P. Morozov, A.T. Golovan, R.L. Aronov, and Academician V.S. Kulebakin. He thanks the following persons for their help: Professor P.N. Listov, Doctor of Technical Sciences; Docent G.I. Nazarov, Candidate of Technical Sciences; Professor V.N. Kiyanitsa, Doctor of Technical Sciences; Professor A.T. Golovan, Doctor of Technical Sciences; Docent P.F. Shkarbanov, Candidate of Technical Sciences; Docent N.M. Sokolov, Candidate of Technical Sciences; Docent A.A. Klimov, Candidate of Technical Sciences; Docent V.A. Shustov; A. A. Glebovich, Candidate of Technical Sciences; and A.I. Rutskiy. There are 67 references, all Soviet.

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AVAILABLE: Library of Congress (TK4058.P6)

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Card 10/10

POPOV, V.I.; OSIPOV, G.P.

Textbook on rural electrification ("Electric drive, use of electricity in agriculture and technical utilization of rural electric installation. Reviewed by V.I.Popov, G.P.Osipov). Mekh.i elek.sots.sel'khoz. 17 no.5:62 '59. (MIRA 12:12)

(Electricity in agriculture)

POPKOV, V.I.; GRIGOR'YEV, V.V.; BUT, A.I.

Introduce the industrial application of electric and electronic fields in the national economy. Prom.energ. 17 no.2:1-4 F '62. (MIRA 15:3)

(Electric fields) (Technological innovations)

FEDOROV, P.V.; LILIYENBERG, D.A.; POPOV, Vl.I.

New data on the terraces of the Black Sea shore of Bulgaria. Dokl. AN SSSR 144 no.2:431-434 My '62. (MIRA 15:5)

1. Geologicheskiy institut AN SSSR, Institut geografii AN SSSR i Institut geografii Bolgarskoy Akademii nauk. Predstavleno akademikom I.P.Gerasimovym.
(Bulgaria—Geology, Structural)

PARFENT'YEV, A.I.; [redacted] V.I.

[Sound on tape] Zvuk na kinolente. Moskva, Goskinoizdat, 1950. (MIRA 10:11)
71 p.
(Sound--Recording and reproducing)

KREMS, Ye.A., redaktor; POPOV, V.I., redaktor; KOMISSAROV, P.G., redaktor; NOVIKOVA, M.M., vedushchiy redaktor; MUKHINA, M.A., tekhnicheskiy redaktor

[Extraction, separation of light benzine fractions and transportation of oil gas; papers at a scientific engineering conference] Dobycha, otbenzinivanie i transport neftianogo gaza; materialy nauchno-tekhnicheskoi konferentsii. Moskva, Gos. nauchno-tekhn.izd-vo neft.i gorno-toplivnoi lit-ry, 1957. 170 p. (MLRA 10:10)

1. Nauchno-tekhnicheskoye obshchestvo neftyanoy promyshlennosti. 2. Predsedatel' gazovoy sektsii TSentral'nogo pravleniya Nauchno-tekhnicheskogo obshchestva neftianoy promyshlennosti (for Krems)
(Gas, Natural)

POPOV, V. I.

USSR/ Miscellaneous - Glass manufacture

Card 1/1 : Pub. 104 - 9/9

Authors : Bruk, K. N.; Gendlin, I. E.; and Popov, V. I.

Title : Machine for removal and grinding of glass edges

Periodical : Stek. i ker. 8, page 32, Aug 1954

Abstract : A new machine for removing and grinding glass edges, first introduced at the Ulan-Udensk Glass Factory, is described. Drawings.

Institution : ....

Submitted : ....

GURFINKEL', V.S.; ISAKOV, P.K.; MALIKIN; POPOV, V.I.

Coordination of posture and movements in man under conditions of increased and lowered gravitation. Biul.eksp.biol.i med. 48 no.11: 12-18 N '59. (MIRA 13:5)

1. Iz Instituta eksperimental'noy biologii i meditsiny sibirskogo otdeleniya Akademii nauk SSSR (dir. - prof. Ye.N. Meshalikin), Novosibirsk. Predstavlena deystvitel'nym chlenom AMN SSSR V.V. Parinym.

(GRAVITATION)
(POSTURE physiol.)
(MOVEMENTS physiol.)

POPOV, V.I., inzh.

Using mobile plastering units in constructing buildings of few stories. Transp.stroi. 9 no.7:33-34 Jl '59. (MIRA 12:12)

(Plastering--Equipment and supplies)

VDOVTSOVA, Ye.A., kandidat khimicheskikh nauk; TSUKERVANIK, I.P., professor, otvetstvennyy redaktor; SARYMSAKOV, T.A., glavnyy redaktor; RYZHOV, S.N., professor-doktor, zamestitel' glavnogo redaktora; ROMANOVSKIY, V.I., redaktor; KOROVIN, Ye.P., redaktor; MASSON, M.Ye., redaktor; KORZHENEVSKIY, N.L., redaktor; POPOV, V.I., professor-doktor, redaktor; MIROSHKINA, N.M., professor, redaktor; STOLYAROV, D.D., dotsent, redaktor; BONDARENVSKIY, G.L., dotsent, redaktor; KRASNOVAYEV, I.M., dotsent, redaktor; GENTSHKE, L.V., dotsent, redaktor

[Radical and ionic alkylation of aromatic compounds] Radikal'nyi i ionnyi mekhanizmy reaktsii alkilirovaniia aromaticheskikh soedenenii. Erevan, Izd-vo Erevanskogo universiteta, 1953. 92 p. (Tashkent. Universitet. Trudy Sredneaziatskogo gosudarstvennogo universiteta. no.43. Khimicheskie nauki, no.6)

1. Deystvitel'nyy chlen Akademii nauk UzSSR (for Sarymsakov, Romanovskiy, Korovin). 2. Deystvitel'nyy chlen Akademii nauk Turkm. SSR (for Masson). 3. Chlen-korrespondent Akademii nauk UzSSR (for TSukervanik, Korzhenevskiy).

(Arotmatic compounds) (Alkylation)

S/081/62/000/013/052/054
B160/B101

AUTHORS: Baramboym, N. K., Popov, V. I.

TITLE: Physical and chemical modification of СКБ (SKB) with maleic anhydride

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1962, 643, abstract 13P290 (Nauchn. tr. Mosk. tekhnol. in-t legkoy prom-sti, no. 19, 1961, 54 - 58)

TEXT: The introduction of maleic anhydride into СКБ-40 (SKB-40) in cold rolls or in an extruder scarcely affects the plasticity of the mixture as compared with a control, but its solubility in aliphatic and aromatic hydrocarbons is reduced, the moisture absorption of SKB-40 rolled for 20 min with 6% maleic anhydride goes up to 85%, and it becomes possible to vulcanize the material with metal oxides. Vulcanizates of modified SKB-40 are not inferior to others as regards resistance and ageing, and their strength is slightly higher. [Abstracter's note: Complete translation.]

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POPOV, V.I.

YEFIMOV, V.I.; KHUDYAKOV, N.V.; SBITNEV, L.P.; ROMANOVSKIY, V.E.; KHOLIN, I.R.; POPOV, V.I.; OSIPOV, G.P.; PISKAREV, V.S.; AGAFONOV, Ye.F.; DORODNOV, P.G.; STRUKACHEV, V.I.; ZAYTSEV, Yu.A.

A.A.Klimov's book "Electricity in animal husbandry." Reviewed by V.I.Efimov and others. Elektrichestvo no.9:87-88 S '56. (MLRA 9:11)

1. Kafedra primeneniya elektricheskoy energii v sel'skom khozyaystve Stalingradskogo sel'skokhozyaystvennog instituta (for Yefimov, Khudyakov, Sbitnev, Romanovskiy, Kholin). 2. Kafedra primeneniya elektroenergii v sel'skom khozyaystve Saratovskogo instituta mekhanizatsii sel'skogo khozyaystva imeni Kalinina (for Popov, Osipov, Piskarev, Agafonov, Dorodnov, Strukachev, Zaytsev). (Electricity in agriculture) (Stock and stockbreeding)

POPOV, V. I.

KOSTIKYAN, G.K., dots.; POPOV, V.I., kand. sel'skokhozyaystvennykh nauk; KAZARYAN, V.A., assistent.

Subalpine pastures. Nauka i pered. op. v sel'khoz. 7 no.10:45-46 O '57. (MLRA 10:11)

1. Yerevanskiy zooveterinarnyy institut.
(Armenia--Pastures and meadows)

SERGEYEVA, T.Ya.; POPOV, V.I.; SIMONYAN, G.A., vet. vrach.

Specific prophylaxis of swine plague. Veterinariia 35 no.10:38-43 O '58. (MIRA 11:10)

1.Nauchno-proizvodstvennaya laboratoriya Ministerstva sel'skogo khozyaystva RSFSR (for Sergeyeva, Popov). 2.Sovkhoz "Ramenskoye." (for Simonyan).

(Swine plague)

POPOV, V. I., Cand Vet Sci -- (diss) "Epizootology and clinical aspect of listerellisis for hogs." Moscow-Kuz'minki, 1960. 24 pp; (All-Union Inst of Experimental Veterinary -- VASKhNIL); 180 copies; price not given; (KL, 24-60, 134)

SERGEYEVA, T.Ya.; TSAREGRADSKAYA, N.A.; POPOV, V.I.; ANTONOVA, M.Ye.; PAVLOVICH, L.A.; SAKHAROVA, R.M.

Infectious nature of atrophic rhinitis in young pigs. Veterinariia 37 no.4:38-44 Ap'60. (MIRA 16:6)

1. Nauchno-proizvodstvennaya laboratoriya po bor'be s boleznyami molodnyaka sel'skokhosyaystvennykh zhivotnykh Ministerstva sel'skogo khozyaystva RSFSR.
(SWINE—DISEASES AND PESTS)

POPOV, V.I.; KOMUDZHIYEV, Kh.A.

Importance of contrast lymphography in the detection of lymphogenic metastases. Vop. onk. 11 no.8:42-47 '65. (MIRA 18:11)

1. Iz Rostovskogo nauchno-issledovatel'skogo instituta rentgenologii, radiologii i onkologii (direktor - kand.med. nauk A.K.Pankov).

Popov, V.I.

(4) PHASE I BOOK EXPLOITATION SOV/2715

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

Doklady sovetskikh uchenykh; polucheniye i primeneniye izotopov (Reports of Soviet Scientists; Production and Application of Isotopes) Moscow, Atomizdat, 1959. 388 p. (Series: Its: Trudy, vol. 6) 8,000 copies printed.

Eds. (Title page): G.V. Kurdyumov, Academician, and I.I. Novikov, Corresponding Member, USSR Academy of Sciences; Ed. (Inside book): Z.D. Andreyenko; Tech. Ed.: Z.D. Andreyenko.

PURPOSE: This book is intended for scientists, engineers, physicians, and biologists engaged in the production and application of atomic energy to peaceful uses; for professors and graduate and nongraduate students of higher technical schools where nuclear science is taught; and for the general public interested in atomic science and technology.

COVERAGE: This is volume 6 of a 6-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy held in Geneva from September 1 to 13, 1958. Volume 6 contains 32 reports on: 1) modern methods for the production of stable radioactive isotopes and their labeled compounds, 2) research results obtained with the aid of isotopes in the field of chemistry, metallurgy, machine building, and agriculture, and 3) dosimetry of ionizing radiation. Volume 6 was edited by: S.V. Levinskiy, Candidate of Medical Sciences; V.I. Prusakov, Candidate of Chemical Sciences; and V.V. Sedov, Candidate of Medical Sciences. See Sov/2081 for titles of volumes of the set. References appear at the end of the articles.

16. Bibergal', A.V., V.L. Karpov, and V.I. Sinitsyn. Cobalt Sources of High Intensity for Radiative Action (Report No. 2234) 200

17. Gusev, N.G., Ye. Ye. Kovalev, and V.I. Popov. Gamma Radiation Inside and Outside Extended Sources (Report No. 2088) 211

18. Aglintsev, K.K., M.A. Bak, V.V. Bochkarev, Ye.G. Gracheva, Z.V. Yershova, and K.A. Petrzhak. System of Radiometric Measurement of Radioactive Isotopes (Report No. 2087) 227

19. Aglintsev, K.K., V.P. Kasatkin, V.V. Mitrofanov, and V.V. Smirnov. Application of Nuclear Spectroscopy Methods to Beta and Gamma-ray Dosimetry (Report No. 2503) 237

20. Baranov, P.S., V.I. Gol'danskiy, and V.S. Roganov. Instrument for Measuring Small Streams of High-energy Neutrons (Report No. 2083) 244

21. Chubakov, A.A., V.I. Polikarpov, and V.A. Kuleshova. Measuring and Analyzing Air Contamination by Low Concentrations of Aerosol Alpha Emitters (Report No. 2130) 248

22. Zalenskiy, O.V., V.L. Voznesenskiy, and O.A. Semikhatova. Photosynthesis Studies by Quantitative Radiometric Methods (Report No. 2135) 260

23. Rakitin, Yu.V. and A.V. Krylov. Studying the Transfer, Distribution, and Transformation of Certain Physiologically Active Compounds in Plants (Report No. 2133) 274

24. Gunar, I.I., Ye.Ye. Krastina, and A.Ye. Petrov-Spiridonov. Rhythm of Absorption and Secretion in Roots (Report No. 2233) 285

25. Akhromeyko, A.I., and V.A. Shestakova. Effect of the Rhizospheric Microorganisms on the Absorption and Secretion of Phosphorus and Sulfur by the Seedling Roots of Woody Plants (Report No. 2312) 306

26. Razumov, V.I., and N.D. Profanova. Absorption of Phosphorus Tracers by Cultivated Plants in Relation to Their Resistance to Cold (Report No. 2313) 315

27. Andreyev, S.V., A.V. Voyevodin, V.A. Molchanova, and A.V. Khotyanovich. Some Results of Using Radioactive Isotopes for Plant Protection (Report No. 2309) 322

Alloys of Zirconium and Titanium Base by the Radioactive Isotope Method (Report No. 2526) 159

POPOV, Vladimir Ivanovich; OSANOV, Dmitriy Pavlovich; LYUSTIBERG, V.F., inzh., ved. red.; SHTEYNBOK, G.Yu., inzh., red.; SOROKINA, T.M., tekhn. red.

[Diffusion chamber for measuring the α-contamination of water] Diffuzionnaia kamera dlia izmereniia α-zagriaznennosti vody. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 12 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 41. No.P-58-89/4) (MIRA 16:2)
(Cloud chamber) (Alpha rays)

SOV/120-58-5-7/32

AUTHORS: Osanov, D. P. and Popov, V. I.

TITLE: Correction for Self-Absorption of α-Particles in the Measurement of Activity of Plane Specimens (Popravka na samopogloshcheniye α-chastits pri izmerenii aktivnosti ploskikh obraztsov)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 5, pp 32-34 (USSR)

ABSTRACT: In thecalculation and measurement of the number of α-particles emitted by a plane specimen, one often deals with so-called thick specimens in which the absorption of α-particles emitted by the lower layers takes place. Thus, when water is evaporated, in order to determine the concentration of α-active substances contained in it, measurements are made on the dry sediment which is always left behind. In order to obtain sufficiently large sediments of this kind it is desirable to evaporate a large amount of water. However, if the amount of water evaporated is too large, then the thickness of the sediment may be large enough to absorb the α-particles. The connection between the activity of the water Q in curies per litre and the number of α-particles N emitted per minute from the surface of an infinitely thin non-absorbing layer is given by $Q = 9 \times 10^{-10} N/V$, where

Correction for Self-Absorption of α-Particles in the Measurement of Activity of Plane Specimens

V is the volume of the evaporated water in cc. Consider the case where V cc of water have been evaporated and a sediment is left behind with a thickness given by $d = Kd_o$, where $K \leqslant 1$ and d_o is the limiting thickness, i.e. the thickness in mg/cm^2, which is equal to the range of α-particles of the given energy in the material of the layer. The connection between the α-activity of the water and the number of α-particles which leave the layer at the surface is given by:

$$Q = 9.10^{-10} \frac{N}{V} \frac{2}{2 - d/d_o} \quad . \qquad (2)$$

Comparing Eqs.(1) and (2), one sees that the factor $\varepsilon = 2/(2 - d/d_o)$ is a correction for self absorption for deposits whose thickness lies between 0 and d_o mg/cm^2.

Correction for Self-Absorption of α-Particles in the Measurement of Activity of Plane Specimens

Finally, when V cc of water have been evaporated, a layer may be formed whose thickness is greater than the thickness of the limiting layer. In that case, the connection between the activity of the water and the number of α-particles emitted per minute is given by:

$$Q = 9.10^{-10} \frac{N}{V} 2 \frac{d}{d_o} \quad . \qquad (3)$$

A comparison of Eqs.(1) and (3) shows that in this case the correction for self-absorption is $\varepsilon = 2d/d_o$. The above 3 expressions were investigated experimentally and the results obtained are shown in Figs.1 and 2. In Fig.1 the straight line shows the dependence of the number of α-particles emitted at the surface of a deposit on its weight, i.e. the amount of evaporated water, for an idealised case when the layer is "transparent" to α-particles. The experimental curve departs from this straight line, beginning at $d = 0.5$ mg/cm^2. Since the straight line in Fig.1 represents the law $N = A/2$, while the amount of α-radiation from a

Correction for Self-Absorption of α-Particles in the Measurement of Activity of Plane Specimens

limiting layer is $H_0 = A/4$, it follows that the range of α-particles corresponds to the thickness of the layer for which the ordinate of the straight line is twice the ordinate of the experimental curve. In Fig.2 this corresponds to $d_0 = 2.92$ mg/cm^2 or $R = 15\ \mu$. Using curve 2 it is easy to obtain the correction for self-absorption for any thickness of the deposit and the number of α-particles emitted at the surface. In this figure P is the ratio of α-particles emitted by a "transparent" layer and the number of actually emitted α-particles respectively. The lower curve in Fig.2 gives the calculated correction for self-absorption and the upper curve was calculated from the above formulae, using $d_0 = 2.9$ mg/cm^2. The divergence between the theoretical and experimental curves is due to an inaccuracy of the order of 5% in the determination of d_0 and is removed if one assumes that $d_0 = 3$ mg/cm^2. The curve shows that for

Correction for Self-Absorption of α-Particles in the Measurement of Activity of Plane Specimens

deposits whose thickness is less than 0.5 mg/cm^2, self-absorption may be neglected and for $d \geq 2.2$ mg/cm^2,

$P = 1 + 2.3\ d$ (the energy of the α-particles is not given). There are 2 figures and 3 references, 2 of which are Soviet and 1 English. This is an abbreviated translation.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering-Physics Institute)

SUBMITTED: November 16, 1957.

Card 5/5

05442
SOV/120-59-3-13/46

AUTHORS: Kovalev, Ye. Ye. and Popov, V. I.

TITLE: Geometrical Correction Factor for a Cylindrical Ionization Chamber (Popravochnyy geometricheskiy faktor dlya tsilindricheskoy ionizatsionnoy kamery)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3, pp 63-66 (USSR)

ABSTRACT: In the dosimetry of point sources of γ-radiation it is necessary to determine the true ionization density from the readings of the ionization chamber. This is due to the fact that, frequently, ionization chambers are used whose linear dimensions are not sufficiently small in comparison with the distance between the point source and the geometrical centre of the chamber. An expression is obtained for the correction factor for the case where the source is at an arbitrary distance from the centre of the chamber in the radial direction (Eq 8). Graphs are given (Figs 2 and 3) of the values of the geometrical correction factor for a cylindrical ionization chamber. These graphs may be used to determine the true ionization density from the

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POPOV, V.I

PHASE I BOOK EXPLOITATION SOV/5717

Moscow. Inzhenerno-fizicheskiy institut.

Pribory i metody analiza izlucheniy; sbornik nauchnykh rabot, vyp. 2. (Apparatus and Methods for the Analysis of Radiation; Collection of Scientific Papers, no. 2) Moscow, Atomizdat, 1960. 166 p. 4000 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy inzhenerno-fizicheskiy institut.

Ed. (Title page): Ye. L. Stolyarova, Candidate of Physics and Mathematics;
Tech. Ed.: S. M. Popova.

PURPOSE: This collection of articles is intended for specialists in nuclear physics, dosimetry of nuclear radiations, and shielding.

COVERAGE: The articles were prepared by scientists of MIFI (Moscow Physics and Engineering Institute) and presented at the 1957 conference of the Institute. Brief annotations to the articles have been included in the Table of Contents. No personalities are mentioned. References follow each article.

Card 1/8

32999
S/641/61/000/000/026/033
B102/B178

26.2245

AUTHOR: Popov, V. I.

TITLE: Angular distribution of 3.1-Mev neutrons elastically scattered from Al, Si, K, Ca, and Th nuclei

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 306-309

TEXT: Only the angular neutron distribution measurements are given; method, apparatus and evaluation of the experimental data were described earlier (V. I. Popov, "Atomnaya energiya", III, 498, 1957). The neutron source was a heavy-ice target bombarded by 250-kev deuterons. The differential cross sections of elastic scattering were measured in the range from 20 to 150°. Comparing the thorium results with similar published data (insert Refs. 1 and 4) it is seen that at large scattering angles the figures were much greater for Pb and Bi than for Hg and Th. The Hg and Th curves agree with those obtained from calculations with the optical model where elastic scattering from the compound nucleus was neglected. This confirms the suggestion made by Popov, that these

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Angular distribution of...

scattering effects are important in Pb, but not Hg and Th. Similarly, they are of importance in Ca^{40} but not K. A. I. Leypunskiy, Member of the Academy of Sciences UkrSSR, is thanked for interest. There are 3 figures, 1 table, and 4 references: 3 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: D. J. Hughes, I. A. Harvey, Neutron Cross Sections. McGraw-Hill Co., N.Y. 1955.

Table. Integral cross sections given in barn.

Элемент	σ_{el}	σ_{tot}	σ_{in}	σ_{tr}
Al	2,1±0,1	2,5±0,1	0,4±0,1	1,4±0,1
Si	2,0±0,1	2,5±0,1	0,5±0,1	1,3±0,1
K	3,0±0,1	3,4±0,2	0,4±0,2	2,4±0,2
Ca	3,6±0,1	3,6±0,1	0,0	2,3±0,1
Th	3,7±0,1	7,4±0,1	3,7±0,1	4,9±0,1

Card 2/2

33003
S/641/61/000/000/030/033
B102/B138

26.2246

AUTHORS: Nefedov, V.V., Popov, V. I., Yazvitskiy, Yu. S.

TITLE: Gamma radiation in inelastic interaction of neutrons with nuclei

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 324-334

TEXT: Radiative transitions with energies above 3 Mev were studied in nuclei excited with 14-Mev neutrons. An arrangement consisting of a scintillation spectrometer, 14-Mev neutron source and the specimens was used for the γ-spectra measurements. The spectrometer was used to find the gamma energy from the energy of the electron-positron. It consisted of three ФЭУ-6 (FEU-S) photomultipliers with CsI(Tl) crystals and an electronic recording circuit. A tritium-zirconium target bombarded by 300-kev deuterons supplied the neutrons. The following elements were investigated: C^{12}(graphite), O^{16}(water) and Be^{9}, Mg^{24}, Al, Fe and Cu (all as metals). The gamma spectrometer was calibrated with 2.67-Mev RaTh radiation and 4.43-Mev Po-Be radiation. The resolution was between 7 and 14 %, depending on the duration of the measurements, the efficiency was

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S/641/61/000/000/030/033
B102/B138

Gamma radiation in inelastic...

$\sim 10^{-4}$ per quantum at 4.43 Mev. The spectrometer crystals were shielded against background radiation with a lead cone, the external background was eliminated by subtracting the spectrum without, from that with, the specimen. The cross section calculations were made with an accuracy of 20-30 %. The following results were obtained: Li. No gamma radiation with energy higher that 2 Mev was recorded. Be. Its spectrum was studied up to ~ 4 Mev. It has two flat peaks at 2.5 and 3.6 Mev. C^{12}. The spectrum has a high peak at 4.4 Mev which is due to a transition from the first excited state to the ground state. A line at about 3.2 Mev was also found with $\sigma < 0.07$ b (transition from the 7.6-Mev level to the 4.45-Mev level). At higher energies peaks were detected at 6 and 7 Mev (0.023 and 0.013 b), which both occur in $C^{12}(n,n')C^{12*}$ reactions. They are due to transitions from the 10.8- and 11.7-Mev levels to the 4.45-Mev level. 016. The spectrum is a descending curve with peaks at 3.8, 5.0, 6.1 and 7.1 Mev. The corresponding cross sections were 0.06, 0.25, 0.10, 0.07 and 0.45 b. Mg^{24}. The spectrum is a the first time the 4.6-Mev line has been observed. This is probably its sharpest peak at 4.1 Mev (0.28 b), minor peaks at 6.1 and 6.9 Mev caused by $Na^{24}(n,p)Mg^{24}$ reactions and indistinct peaks at 4.8 and 5.3 Mev. Al, Fe, Cu. The Al spectrum has peaks at 3.8, 4.9, 5.6, 6.3 and 6.9 Mev

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Gamma radiation in inelastic...

(0.29, 0.16, 0.09, 0.04 and 0.03 b), the Fe spectrum has indistinct peaks at 7.5, 6.1 and 5.0 Mev (0.29, 0.34 and 0.55 b) and Cu has peaks at 6.1, 5.0 and 4.0 Mev (0.14, 0.25 and 0.47 b). The mean energies carried off by γ-quanta when the excitation energies exceed 4 Mev are 7, 2.3, 3.3, 4.5 and 5.2 Mev for O^{16}, Mg^{24}, Al^{27}, Fe and Cu. I. M. Frank is thanked for interest, I. V. Shtranikh, A. Ye. Voronkov and V. N. Bochkarev for assistance. There are 9 figures, 3 tables, and 10 non-Soviet references. The four most recent references to English-language publications read as follows: Ajzenberg F., Lauritsen T. Rev. Mod. Phys., 27, no. 1, 77 (1955); Battat M. E., Graves E. R. Phys. Rev., 97, 1266 (1955); Rasmussen W. K., Miller D. W., Sampson M. B. Phys. Rev., 100, 181 (1955); Wakatsuki T., Hirao Y., Okada E., Miura J. J. Phys. Soc. Japan, 12, 1778 (1957).

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S/058/61/000/007/010/086
A001/A101

AUTHOR: Popov, V.I.

TITLE: Gamma-emission from extended sources of cylindrical and spherical shape

PERIODICAL: Referativnyy zhurnal. Fizika, no. 7, 1961, 48, abstract 7B122 (V sb. "Pribory i metody analiza izlucheniy", no. 2, Moscow, Atomizdat, 1960, 7 - 21)

TEXT: The author considers the problem of the yield of gamma-emission from extended sources of cylindrical and spherical shapes taking simultaneously into account the geometry and self-absorption at an arbitrary distance from the source. Calculations are performed under the following assumptions: the active substance is distributed uniformly over the entire volume of the source, and the emission of the source is monoenergetic. For the cylindrical source of finite dimensions the distribution of the dose power is determined along three main directions: in radial direction, at points lying on the extension of the cylinder axis, and at points lying on the extension of the cylinder generatrix.

A.M.

[Abstracter's note: Complete translation]

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39477

S/056/62/043/002/005/053
B102/B104

AUTHORS: Otstavnov, P. S., Popov, V. I.

TITLE: Polarization of 3.5-Mev neutrons on scattering

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 2(8), 1962, 385-387

TEXT: As usual, the neutron polarization was calculated from the left-right asymmetry, i.e. from the count ratio $R = [1-P_1(\psi)P_2(\Theta)]/[1+P_1(\psi)P_2(\Theta)]$, where $P_1(\psi)$ is the degree of polarization of the primary neutron beam, and $P_2(\Theta)$ is that after scattering through the angle Θ. The primary beam was obtained from a d-d reaction at E_d = 1 Mev (cascade generator). The deuterium target was in the center of a tub filled with water (diameter 130 cm), ψ was 49°, E_n = 3.5 Mev, and $P(\psi) = -0.140 \pm 0.010$. The second targets were Li, Be, C, liquid N, liquid O, F (CaF_2), Na, Mg, Al, Si, P, S, Cl (NaCl), Ca, Ti, Fe, Cu, Nb, Sb, Pb, Bi, and U. The scattered neutrons

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ACCESSION NR: AP4036406 S/0030/64/000/004/0151/0154

AUTHOR: Popov, V. I.

TITLE: The problems of low and medium energy physics

SOURCE: AN SSSR. Vestnik, no. 4, 1964, 151-154

TOPIC TAGS: nuclear physics, nuclear reaction, low energy physics, photonuclear splitting, lithium six, gamma ray

ABSTRACT: This article was written by V. I. Popov who was a participant of the First Session of the Convention on Nuclear Physics, held in Leningrad on December 3 and 4, 1963. The session was opened with a speech by Academician V. I. Veksler who described the importance of some of the nuclear physics projects worked out by the various Leningrad research organizations. I. M. Frank presided over three meetings at which many reports were read by scientists from the entire country. As a rule, these reports presented the results of unique projects finished and published during recent years, explaining the new trends in nuclear physics research. G. N. Flerov, an associate of the Laboratoriya yadernykh reaktsiy ob"yedinennogo instituta yadernykh issledovaniy (Nuclear Reaction Laboratory of

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ACCESSION NR: AP4036406

the United Institute for Nuclear Research) delivered the first paper concerning the study of the reactions between complex nuclei. This work resulted in the important discovery of the radioactivity with the emission of protons. V. A. Karnaukhov (from Dubno) headed a group of physicists responsible for this discovery. I. Kh. Lemberg(Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii Nauk SSSR)(A. F. Ioffe Physico-tecinical Institute of the Academy of Sciences SSSR) presented the results obtained by his group in the study of heavy ions. A. P. Komar (from the same institute) reported the results obtained in the study of nuclear fission. O. S. Sumbayev spoke on the investigation of the excitation states of the odd-odd nuclei. The results of a photonuclear splitting of Li^6 nuclei by gamma rays (energy to 60 Mev) were described by Ye. P. Bazhanov (also the member of the Lemberg group). I. S. Shapiro of the Institute of Theoretical and Experimental Physics reported on the study of the nuclear reaction mechanism. The topic of the S. T. Belyayev paper from the Institut yadernoy fiziki Sibirskogo otdeleniya (Siberian Branch of the Institute of Nuclear Physics) dealt with the present ideas on the structure of complex atomic nuclei. In closing the session I. M. Frank emphasized the importance of conventions and the valuable results achieved in the discussions of the papers presented.

Card 2/3

ACCESSION NR: AP4036406

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 20May64	ENCL: 00
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Card 3/3

L 45226-66 EWT(m)

ACC NR: AR6028129 SOURCE CODE: UR/0058/66/000/005/V021/V021

AUTHOR: Bazazyants, N. O.; Popov, V. I.

32
B

ORG: none

TITLE: Elastic neutron scattering

SOURCE: Ref. zh. Fizika, Abs. 5V170

REF SOURCE: Byul. Inform. tsentra po yadern. dannym, vyp, 2, 1965, 112-160

TOPIC TAGS: neutron scattering, elastic scattering

ABSTRACT: The paper contains experimental data on elastic neutron scattering in the form of tables and graphs. Information on experimental procedures is given briefly. [DW]

SUB CODE: 20/

Card 1/1 LC

POPOV, V.I.

Probabilities of E^2 and El-transitions from certain excited states of Tb^{159}, Ho^{165}, and Tu^{169}. Izv. AN SSSR. Ser. fiz. 25 no.9:1156-1160 '61. (MIRA 14:8)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.
(Nuclear reactions)

33435
S/048/62/026/001/018/019
B125/B104

24.6300

AUTHOR: Popov, V. I.

TITLE: Collective levels and deformations of nuclei with the neutron number N = 82 - 90

PERIODICAL: Akademiya nauk SSSR. Izvestiya, Seriya fizicheskaya, v. 26, no. 1, 1962, 153 - 160

TEXT: Experimental data on the collective excitation of the levels of a nucleus with Z = 58 - 60 and N = 82 - 90 were systematically compiled and compared with the models of Bohr-Mottelson, the vibration model, and with results of Davydov et al. (eg., A. S. Davydov, G. F. Filippov, Zh. eksperim. i teor. fiz., 35, 440 (1958)), allowing for data on the isotopic shifts and quadrupole moments. Using alpha particles of 14 - 20 Mev, O. Nathan, and V. I. Popov (Nucl. Phys., 21, 631 (1960)) observed very weak gamma lines due to the excitation of high levels (up to 1600 kev). Table 1 summarizes the data available on the excitation energies and reduced probabilities of an electric quadrupole transition from the ground state to an excited state for the first or the first two levels
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Collective levels and deformations ...

of even-even nuclei with N = 82 - 90. Nathan's and Popovic's data listed in the fifth column of this table, are more reliable than the previous values. The following general properties of even-even nuclei with N = 82 - 90 can be seen from Table 1: The excited states of all these nuclei have a spin and a parity 2^+ and a very high value of B(E2) which is indicative of the collective nature of these states. The effective charge of a proton above the filled shell is estimated at 1.5 - 1.7 elementary charges. A greater value of B(E2) corresponds to lower energies of the collective level also in the range considered here. The neutron excess exceeding N = 82 (completely filled shell) plays a significant role. If the neutron shell is completely filled, the effective surface tension C_2 is several times larger than the value to be expected from the hydrodynamic model, but depends on the neutron excess. With an approach to the range of strongly deformed nuclei, C_2 is reduced by one order of magnitude. The mass coefficient which remains unaltered in this range, is 10 to 12 times on an average greater than the hydrodynamic estimate. The description of excited nuclear states with the harmonic oscillator model is meaningful if the effective deformation $\sqrt{<\beta^2>}$ is much

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Collective levels and deformations... S/048/62/026/001/018/018
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greater than the mean deformation $\langle\beta\rangle$, which is not true for N = 88. Data show that the nonsphericity of nuclei on transition from N = 88 to N = 90 increases not abruptly but gradually. The mean deformation and the vibration amplitude presumably have the same order of magnitude for N < 88. From the fact that even-even nuclei with N < 90 do not have the level structure of an axisymmetric rotator is no conclusive proof that these nuclei are spherical. In the range of Z = 58 - 61, the vibration model can be used only to a limited extent. The effective deformation increases when the number of neutrons exceeds N = 82, and the equilibrium shape of these nuclei may become nonspherical. The lower collective levels of even nuclei with N = 88 are described by the model of a rotator with large effective nonaxiality. A. S. Davydov is thanked for a discussion and valuable comments. There are 4 tables and 20 references: 4 Soviet and 16 non-Soviet. The four most recent references to English-language publications read as follows: Davydov A. S., Chaban A. A., Nucl. Phys., 20, 499 (1960); Nathan O., Popov, V. I., Nucl. Phys., 21, 631 (1960); Sheline R. K., Nielsen H. L., Nucl. Phys., 12, 518 (1960); Meligy A. S., Tadros S., El-Wahal M. A., Nucl. Phys., 16, 99 (1960).

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S/048/62/026/001/018/018
B125/B104

Collective levels and deformations...

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

Table 1. Data on the Coulomb excitation of even-even nuclei with N = 82 - 90.
Legend: (1) nucleus; (2) level energy; (3) level spin and level parity; (4) data from other papers.

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BUKAREV, V.A.; POPOV, V.I.

Excitation of La^{139} and Pr^{141} levels in inelastic neutron scattering. IAd. fiz. 1 no.3:443-447 Mr '65. (MIRA 18:5)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.

POPOV, V.I.; NEZDATNYY, M.M.

Possibility of prolonging the viability of homoplastic skin grafts in rabbits with alkylating substances. Pat. fiziol. i eksp. terap. 8 no.1:37-39 Ja-F '64. (MIRA 18:2)

1. Kafedra obshchehy khirurgii (nachal'nik prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova, Leningrad.

POPOV, V.I.; MAKAROVA, S.D.; YURKOVA, Ye.M.; BABADAGLY, V.A.

Facies-paleogeographical maps of Paleogene formations in the South Tajik Depression. Nauch. trudy Tash.GU no.256 Geol. nauki no.22: 52-55 '64 (MIRA 18:2)

BELOV, S.P.; DULIN, V.A.; [illegible], Yu.A.; [illegible], V.I.; [illegible]

Experimental study of shielding on an RIZ test-stand. Atom. energ. 18 no.2:136-140 F '65. (MIRA 18:3)

ALEKSANDROV, I.A.; POPOV, V.I.

Solution of I.E.Basilevich and G.V.Koritskii's problem of star-shaped area of level lines. Sib. mat. zhur. 6 no.1:16-37 Ja-F '65. (MIRA 18:4)

POPOV, V.I.; BABADAGLY, V.A.

Facies-geographical maps of Neogene formations in the South Tajik Depression. Nauch. trudy TashGU no.256 Geol. nauki no.22:56-62 '64 (MIRA 18:2)

POPOV, V.I.

Formation series and their connection with the subsurface structure of the earth's crust. (Report No.9: General principles and methods for the identification of formation series). Nauch. trudy TashGU no. 256 Geol. nauki .22:5-15 '64
(MIRA 18:2)

Ore zoning of artesian oil- and gas-bearing basins. Ibid.: 116-119.