APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

L 27583-66 EWT(m)/T

ACC NR: AP6018378 SOURCE CODE: UR/0185/65/010/004/0452/0453

29
B

AUTHOR: Mal'ko, O. I.; Pasichnyk, M. V.; Saltykov, L. S.

ORG: Institute of Physics, AN UkrSSR, Kiev (Instytut fizyky AN UkrSSR)

TITLE: Asymmetry of angular distribution of products of reaction Si sup 28 (d,d) Si sup 28 with polarized deuterons

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 4, 1965, 452-453

TOPIC TAGS: cyclotron, angular distribution, deuteron, polarization, deuteron scattering, coulomb scattering

ABSTRACT: The classical equation for the above type of reaction is given, together with results of experiments performed on the IF cyclotron of the USSR Academy of Sciences. B/A asymmetry at small angles, where Coulomb scattering predominates, is small and increases as the scattering angle increases, attaining a maximum at 37° (laboratory). It subsequently falls and at 54° passes through zero and changes sign. Type C/A asymmetry is large when the B/A-type asymmetry is large. It always remains positive and reaches a minimum when asymmetry of the B/A type is zero. The authors thank M. M. Pucherov for his interest in the work and for his discussions of the results. Orig. art. has: 5 formulas and 1 table. [JPRS]

SUB CODE: 20 / SUBM DATE: 28Nov64 / OTH REF: 003

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MELAKHOV, N.L.; KAGRAMANYAN, E.A.; MAYKO, N.S.

Improving the quality of commercial-grade limonite of the Krivoy Rog Basin. Gor. zhur. no.9:56-57 S '64. (MIRA 17:12)

1. Rudoupravleniye "Ingulets", Krivoy Rog.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, M.N., inzh.

Elastic plastic properties of high-grade concretes used for prestressed reinforced-concrete span structures. Trudy MIIT no.126:84-101 '60. (MIRA 13:10)

(Concrete--Testing)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, M.N., inzh.

Reusable end clamp for high-strength reinforcing bundles.
Transp.stroi. 9 no.9:58-59 S '59. (MIRA 13:2)
(Prestressed concrete)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

IOSILEVSKIY, L.I., kand. tekhn. nauk; MAL'KO, M.N., inzh.

Precast latticed spans made of prestressed reinforced concrete members. Trudy MIIT no.101:54-80 '58. (MIRA 11:6)
(Prestressed concrete construction)
(Trusses) (Railroad bridges)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

97 - 1 - 4/10

TITLE: Techniques in Prestressing and Post-Stressing Reinforced Concrete Constructions. (Stendovaya tekhnologiya izgotovleniya predvaritel'no napryazhennykh zhelezobetonnykh proletnykh stroeniy.)

simultaneous prestressing, continuous concreting, and the exclusion of injection processes. The advantages of prestressing over post-stressing are pointed out and the importance of selecting the right type of anchoring is emphasized. Further, the elimination of non-linear reinforcement, the simplification of the wire grouping and stressing equipment, and the elimination of lifting the unit during production are discussed.

There are 9 drawings and 1 table, also 2 footnotes.

ASSOCIATION: ---

PRESENTED BY: ---

SUBMITTED: ---

AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

97 - 1 - 4/10

TITLE: Techniques in Prestressing and Post-stressing Reinforced Concrete Constructions
(Stendovaya tekhnologiya izgotovleniya predvaritel'no napryazhennykh zhelezobetonnykh proletnykh stroeniy)

special equipment. The reinforcement consists of 32 five millimeter diameter wires (fig. 1.). This reinforcement is led at the far end over a drum and a series of hydraulic jacks are used for stressing. The reinforcement ГОСТ 7348 - 55 has a break limit of 16.000 kg/cm^2. This method is also used by the Leningrad "MostostroY" factory and by the Dmitrovsk Factory for Reinforced Concrete Products. Improved working installations (situated partly underground) for long prestressed trusses make it possible to dispense with various obstructive super-structures (fig.6) Results of investigations on deflections and internal stresses are shown in diagram No. 7 and the dependence of the quality of cement on these factors is pointed out. Tables (8) and (9) give the technical and economic aspects of the МИИТ and the ЦНИИС methods with regard to the waste of labour material and time. It is concluded that simultaneous stressing of all reinforcement is necessary. Uninterrupted truss casting should be provided as well as a shortening of the production cycle by

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

97 - 1 - 4/10

AUTHOR: IOSILEVSKIY, L.I., Cand.Tech.Sci. and MALKO, M.N. Engineer

TITLE: Techniques in Prestressing and Post-stressing Reinforced Concrete Constructions (Stendovaya tekhnologiya izgotovleniya predvaritel'no napryazhennykh zhelezobetonnykh proletnykh stroeniy)

PERIODICAL: Beton i Zhelezobeton, 1957, No. 1., pp. 12- 19. (U.S.S.R.)

ABSTRACT: A method of post-stressing trusses for long spans was developed by the ЦНИИС Минтрансстрой Prestressing for industrial mass production purposes was found to be uneconomical. The new method consists in casting concrete trusses with continuous voids in order to be able to place the reinforcement. This is inserted into the voids after the concrete is allowed to mature. Then the voids are injected with cement grout. The defects of this methods lie in the complicated equipment, waste of reinforcement in the case of trusses of different spans, damage to the plant in the case of wire breakage, the necessity of large capacity cranes for manipulating purposes during processing. A prestressing method used in the Laboratory For Investigating and Testing Bridge Constructions (Mostoispytatel'naya Laboratoriya МИИТ(ref.:1) was carried out with

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IOSILEVSKIY, L.I., kandidat tekhnicheskikh nauk; MAL'KO, M.N., inzhener.

Tapered anchor bolts with iron rings for prestressed reinforced construction. Bet.i zhel.-bet. no.9:330-334 S '56. (MLRA 9:10)
(Prestressed reinforced construction)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, M.N.

IOSILEVSKIY, L.I., kandidat tekhnicheskikh nauk; MAL'KO, M.N., inzhener.

Double loop bundles for prestressed span construction. Transp.stroi. 6 no.12:13-15 D '56. (MLRA 10:3)
(Prestressed concrete) (Bridges, Concrete)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

L 07147-67
ACC NR: AP7001024

and the southern boundary of the zone is displaced up to 5° in a period of a relatively quiet sun and up to 10° in the IGY period. With the same value of the K_p index the southern boundary is displaced to more southern latitudes in a period of high solar activity than in a period of a relatively quiet sun. With a constant level of magnetic activity the diurnal displacement of the southern boundary of auroras is about 6° at the time of low activity and about 8° at a time of a high level of magnetic activity. Orig. art. has: 5 figures. [JPRS: 35,809]

SUB CODE: 04 / SUBM DATE: 03Mar65 / ORIG REF: 007 / OTH REF: 006

Card 2/2 mLE

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

L 07147-67 EWT(1)/FCC GW SOURCE CODE: UR/0203/66/006/002/0307/0311
ACC NR: AP7001024

AUTHOR: Mal'ko, L. N.

ORG: Polar Geophysical Institute, Kola Section AN SSSR (Polyarnyy geofizicheskiy institut Kol'skogo filiala AN SSSR)

TITLE: Auroral zone

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 2, 1966, 307-311

TOPIC TAGS: aurora, solar activity

ABSTRACT:
This paper defines the position of the zone of increased frequency of the occurrence of auroras in the northern hemisphere in the IGY period and the position of the zone in the period of low solar activity. The paper is based on photographic observations made at 77 stations in the northern hemisphere during the period November 1957 through March 1958 and November 1958 through March 1959 and data from visual observations from September 1962 to April 1963, made exclusively in the USSR. Analysis of the data, presented in the form of curves, shows that in the northern hemisphere there is one zone of high frequency of occurrence of auroras whose position is controlled by local time and the level of magnetic activity. With an increase of the level of magnetic activity the center of the zone is displaced to lower latitudes by a distance of about 2-3°

UDC: 550.388.8

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L 52333-65

ACCESSION NR: AT5012351

latitudinal limits. The total drift at night is on the order of 10 or 15°. The drift velocity in the north-south direction and back reaches 1000 m/sec. The average velocity based on 180 measurements is 400 m/sec. No differences were observed in the velocity of auroras from one zone to another. Orig. art. has: 11 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 27Nov64 ENCL: 00 SUB CODE: ES

NO REF SOV: 003 OTHER: 003

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L 52633-65 EWT(1)/EWG(v)/FCC/EEC(t) Po-4/Pe-5/Pq-4/Pt-7/Pi-4 GS/GW

ACCESSION NR: AT5012351 UR/0000/65/000/000/0017/0023

36
B+1

AUTHOR: Mal'ko, L. N.

TITLE: Some characteristics of the latitudinal drift of polar auroras

SOURCE: AN SSSR. Kol'skiy filial. Polyarnyy geofizicheskiy institut. Issledovaniye polyarnykh siyaniy, geomagnitnykh vozmushcheniy i ionosfery v vysokikh shirotakh (Investigation of auroras, geomagnetic disturbances, and the ionosphere at high latitudes). Moscow, Izd-vo Nauka, 1965, 17-23

TOPIC TAGS: polar aurora, aurora drift

ABSTRACT: Based on data reported for 1957-1959 by various Arctic stations, the pattern of movement of polar auroras is as follows: the strong glow of an auroral band is superimposed on the approximately uniform glow of an auroral band. This band becomes visible at the zenith with the arrival of nighttime at certain latitudes. The stronger the disturbances in the magnetic field, the lower the latitudes at which the glow flares up during evening hours. The band then expands to the south and north, its width changing during the night. It undergoes breaks which may be observed in a decrease of intensity. The auroral forms are not preserved over the entire band, and their coincidence may be completely accidental. When daytime arrives, the band moves northward, but does not come close to the pole, i.e., has

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ACCESSION NR: AT4035385

the Earth's atmosphere was also introduced. Such photographs were made at the stations of Murmansk ($\phi = 64.1^{\circ}, \Lambda = 126.5^{\circ}$), the island of Dikson ($\phi = 63^{\circ}$, $\Lambda = 161.4^{\circ}$), SP-6 ($\phi = 69^{\circ}, \Lambda = 200^{\circ}$) and SP-7 ($\phi = 77.5^{\circ}, \Lambda = 199^{\circ}$) during the period from November 1957 through March 1958 and at the station of Salekhard ($\phi = 57.3^{\circ}, \Lambda = 149.7^{\circ}$) during March, 1958. Brightness evaluation was made at 15-minute intervals at the same place near the magnetic zenith. A total of 3,124 measurements during 48 nights were made at the five stations. Three sets of curves are presented and analyzed in the article and an attempt at a statistical interpretation of the derived data is made. Orig. art. has: 3 figures.

ASSOCIATION: Polyarnyy geofizicheskiy institut, Kol'skiy filial AN SSSR (Institute of Polar Geophysics, Kola Branch AN SSSR)

SUBMITTED: 28Jan64 DATE ACQ: 07May64 ENCL: 00

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

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ACCESSION NR: AT4035385

because of their weak intensity. On the basis of the pictures of the entire sky obtained with the camera at northern stations, a judgement can be made regarding the brightness of the auroras and the night sky at higher latitudes. An evaluation of the brilliance of the glowing surface was made on the basis of the degree of blackening of the photographic film. Measurements of the optical densities of the film were done on an MF-4 microphotometer with maximum slot size, scale zero being set according to the optical density of that place on the film which had not been subjected to the effect of light. In order to express sky brightness in absolute units, theoptical density of each measured point was compared with that of an image (on the same film) of an absolute standard, whose brightness could easily be expressed in photometric units. A reference standard or standard pictures of standard wedges were imprinted on each film before development by means of an FSR-41 sensitometer. The wedges for the measurement were taken with a 20-second exposure. Having measured the optical density of each field of the sensitogram, a characteristic curve can be plotted to express the optical densities of the sensitogram fields as a function of illumination. By means of such a curve, absolute brightness can be expressed in photometric units. For processing, those pictures were selected on which the images of stars of the fourth magnitude could be seen. A correction factor for the fact that night-sky photography was through

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ACCESSION NR: AT4035385 S/0000/64/000/000/0039/0045

AUTHOR: Mal'ko, L. N.

TITLE: The brilliance of the aurora borealis and the night sky according to pictures taken with the S-180 camera

SOURCE: AN SSSR. Kol'skiy filial. Polyarny*y geofizicheskiy institut. Issledovaniye geofizicheskikh yavleniy elektromagnitnogo kompleksa v vy*sokikh shirotakh (investigating geophysical phenomena of the electromagnetic complex at higher latitudes). Moscow, Izd-vo "Nauka," 1964, 39-45

TOPIC TAGS: meteorology, geophysics, aurora, aurora borealis, nightglow, atmospheric emission

ABSTRACT: The author notes that, when subjected to photometric evaluation, the pictures taken with the S-180 camera yield the limits of change in the brilliance of the aurora borealis and night sky in stilbs. On the basis of the obtained brilliance distribution of the aurora and the night sky at higher latitudes, it is shown that the mean brightness of the sky falls off in both directions from the basic zone of the aurora borealis: to the South by virtue of the reduced probability of the occurrence of auroras and to the North for the same reason and

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24042
S/020/61/138/003/014/017
B104/B205

Theory of fronts

direction.. A. F. Dyubyuk (Meteorologiya i gidrologiya, no. 4 - 5 (1937); Tr. Tsentr. inst. pogody, no. 26 (53) (1951); Isv. AN SSSR, ser. geofiz., no. 9 (1956)) is mentioned. There are 4 figures and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The reference to English-language publications reads as follows: F. K. Ball, Quart. J. Roy. Meteorolog. Soc., 86, no. 367 (1960).

ASSOCIATION: Kabardino-Balkarskoye otdeleniye Instituta prikladnoy geofiziki Akademii nauk SSSR (Kabardino-Balkarian Department of the Institute of Applied Geophysics of the Academy of Sciences USSR)

PRESENTED: January 11, 1961, by A. A. Dorodnitsyn, Academician

SUBMITTED: January 10, 1961

Card 5/6

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B104/B205

Theory of fronts

This is the mass of air expressed in kg, which passes from the warm to the cold air mass in one second per unit length of the front. Next, the following expressions are obtained from (2) and (10):

$$u_1 = u_2 + B(\eta - \xi), \quad u_2 = u + e^{-\xi}[A(\eta)\sin\xi - B(\eta)\cos\xi],$$
$$v_1 = v_2 - A(\eta - \xi), \quad v_2 = v + e^{-\xi}[B(\eta)\sin\xi + A(\eta)\cos\xi]. \qquad (12)$$

where $\xi = z\sqrt{1/\nu 2r}$; $\eta = h\sqrt{1/\nu 2r}$; $A(\eta) = (\mathrm{ch}\,\eta\cos\eta - 1)u_g\, d\eta/d\xi$; $B(\eta) = \mathrm{sh}\,\eta$ $\cdot\sin\eta\, u_g\, d\eta/d\xi$; $\xi_g = xlu_g\sqrt{1/\nu 2r}$; $u = u_g(1-e^{-\xi}\cos\xi) - v_g e^{-\xi}\sin\xi$; $v = u_g e^{-\xi}$ $\cdot\sin\xi + v_g(1-e^{-\xi}\cos\xi)$. η is determined by

$$\frac{d\eta}{d\xi} = -\frac{1 + V - 2(1-C)\eta - e^{-\eta}[(V+1)\cos\eta + (V-1)\sin\eta]}{3/2 - 2e^{-\eta}(\cos\eta + \sin\eta) + 1/2 e^{-2\eta}(\cos 2\eta + \sin 2\eta)}, \qquad (13)$$

Here, $V = v_g/u_g$; $C = c/u_g$. The numerical integration of (13) is discussed in all detail. The results obtained are graphically represented in Figs. 3 and 4. Fig. 3 shows a section through the fronts ($\theta = -10^\circ$; $C = 0.25$; $V = -0.5$) in the coordinate system moving along with them. Fig. 4 shows a cold front ($\theta = -10$ C; $C = 1.5$; $V = 1.5$). Arrows indicate the wind

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B104/B203

masses on the earth's surface, and $\Delta\theta$ denotes the difference between the vertical temperature gradients of these air masses; $\Delta\theta$ and $\Delta\gamma$ are considered to be constant. The boundary conditions for this problem read

$$u_1 = v_1 = w_1 = 0 \quad \text{при} \quad z = 0, \tag{5}$$

$$u_1 = u_2, \quad v_1 = v_2, \quad \frac{\partial u_1}{\partial z} = \frac{\partial u_2}{\partial z}, \quad \frac{\partial v_1}{\partial z} = \frac{\partial v_2}{\partial z} \quad \text{при } z = h(x); \tag{6}$$

$$w_1 = w_2 = (u_1 - c)\, h'(x), \quad p_1' = p_2' \quad \text{при } z = h(x); \tag{7}$$

$$u_2 = u_0, \quad v_2 = v_0, \quad p_2' = 0 \quad \text{при } z = \infty, \tag{8}$$

Taking account of (7) and (8),

$$\frac{p_1'}{\rho} = \frac{1}{\rho(0)}\left[\mu(h - z) + \frac{1}{2} m (h^2 - z^2)\right], \quad p_2' = 0, \tag{9}$$

is obtained by integration of Eq. (4). Thus, Eq. (1) acquires the form

$$l(v_1 - v_0) + \nu \frac{\partial^2 u_1}{\partial z^2} = \mu h'(x) + mhh'(x) \tag{10}$$

Integration of (3) over z from 0 to h leads to $\int_0^h (u_1 - c)\, e^{-\alpha z}\, dz = \frac{Q}{\rho_0}$, (11)

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B104/B205

Theory of fronts

$$-R\theta\frac{\partial}{\partial x}\left(\frac{p'_k}{P}\right)+l\,(v_k-v_g)+\nu\frac{\partial^2 u_k}{\partial z^2}=0; \qquad (1)$$

$$-l\,(u_k-u_g)+\nu\frac{\partial^2 v_k}{\partial z^2}=0; \qquad (2)$$

$$\frac{\partial u_k e^{-\sigma z}}{\partial x}+\frac{\partial w_k e^{-\sigma z}}{\partial z}=0 \quad \left(\sigma=\frac{g-R\gamma}{R\theta}\right); \qquad (3)$$

$$R\theta\frac{\partial}{\partial z}\left(\frac{p'_k}{P}\right)=\lambda\vartheta_k \quad \left(\lambda=\frac{g}{\theta}\right). \qquad (4)$$

u_k, v_k, and w_k are the components of velocity relative to the earth; ϑ_k and p'_k are the deviations of temperature and pressure, respectively, from their mean values θ and P; u_g and v_g are the given and the constant components, respectively, of the geostrophic wind; the subscripts 1 and 2 refer to cold and warm air masses; g is the gravitational constant; $l = 2\omega\sin\varphi$, where ω indicates the angular velocity of the earth's rotation and φ is the geographic latitude. It is further assumed that the temperature fluctuations are known and are given by $\vartheta_1 = \Delta\theta - z\Delta\gamma$, $\vartheta_2 = 0$, where $\Delta\theta$ stands for the difference in temperature between cold and warm air

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E104/E205

3.5110

AUTHORS: Gutman, L. N. and Kaikko, L. I.

TITLE: Theory of fronts

PERIODICAL: Doklady Akademii nauk SSSR, v. 138, no. 3, 1961, 587 - 590

TEXT: The hydrodynamic equations for the atmosphere are simplified on the following assumptions: 1) Horizontal motion occurs between 100 and 1000 km. Thus, it is possible to use the Cartesian coordinate system (x and y indicate the horizontal plane) and static equations. 2) Fluctuations of temperature and pressure are insignificant. 3) Acceleration in the direction of motion are negligible. 4) All elements of motion are independent of y, and the front is, therefore, a cylindrical surface having an element directed along the y-axis. 5) The front is shifted in the positive x-direction at a constant velocity $c \geq 0$ without changing its form. Based on this assumption, the processes occurring in the coordinate system moving along with the front can be considered to be steady. Accordingly, the hydrodynamic equations for the atmosphere read:

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MAL'KO, I.P., uchitel'

Work of the school circle of young naturalists. Biol. v shkole no.5:52-55 S-O '58. (MIRA 11:11)

1. Semiletnyaya shkola No.10, Pyatigorsk.
(Agriculture--Study and teaching)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, Ivan Matveyevich; GOLOVACH, A.G., kand. biol. nauk, nauchn. red.

[Gardens in yards and within residential areas] Dvorovye i vnutrikvartal'nye sady. Leningrad, Stroiizdat, 1965. 76 p. (MIRA 18:3)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, Ivan Matveyevich; GOLOVACH, A.G., red.; DOLGOVA, K.N., red. izd-va; KHENOKH, F.M., tekhn. red.

[Construction and care of gardens and parks]Sudovo-parkovoe stroitel'stvo i khoziaistvo. Izd.3., ispr. i dop. Moskva, Izd-vo M-va kommun.khoz. RSFSR, 1962. 199 p. (MIRA 16:1)
(Landscape architecture)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, I.M.

[Landscape gardening] Dekorativnoe sadovodstvo. Moskva, Izd-vo M-va kommun. khoz. RSFSR, 1960. 214 p. (MIRA 14:11)
(Landscape gardening) (Plants, Ornamental)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, Iv. M., inzhener.

Urgent problems in lawn maintenance. Zhil.-kom.khoz. 6 no.4: 22-23 '56. (MLRA 9:8)

(Lawns)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, I.I., inzh.; TIMKOV, N.V., inzh.

Making 461 M of drift in one month. Shakht. stroi. 8 no.2: 21-22 F '64. (MIRA 17:3)

1. Kiselevskoye shakhtostroyupravleniye.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, I. inzh.

New achievements of a fine brigade. Mast. ugl. 7 no. 5:14-15 My '58. (MIRA 11:7)

(Kuznetsk Basin--Coal mines and mining)

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1. MAL'KO, I, Eng.

2. USSR (600)

4. Shaft Sinking

7. Valuable experience of Kochemarov's brigade. Mast. ugl. 2, No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

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PHASE I BOOK EXPLOITATION SOV/4034

Poluprovodnikovyye pribory i ikh primeneniye; sbornik statey, vyp. 4.
(Semiconductor Devices and Their Application; Collection of Articles, No. 4)
Moscow, Izd-vo "Sovetskoye radio," 1960. 421 p. Errata slip inserted.
No. of copies printed not given.

Ed. (Title page): Ya. A. Fedotov; Ed. (Inside book): I. M. Volkova; Tech. Ed.: A. A. Sveshnikov; Editorial Board: Ya. A. Fedotov (Resp. Ed.), N. A. Barkanov, I. G. Bergel'son, A. M. Broyde, Ye. I. Gal'perin (Deputy Resp. Ed.), Yu. A. Kamenetskiy, S. F. Kausov, A. V. Krasilov, A. A. Kulikovskiy, I. F. Nikolayevskiy, N. A. Penin, and I. P. Stepanenko.

PURPOSE: This collection of articles is for technicians and scientists working in the field of semiconductors.

COVERAGE: These articles cover the following problems: physical processes occurring in semiconductor diodes and transistors; transistor parameters, and methods and instruments for measuring them; special features of transistor operation in amplifying and oscillating circuits; and circuits and systems utilizing transistors. Several articles mention personalities. References accompany most articles.

Novitskiy, P.V., Ye.S. Levshina, and G.N. Novopashennyy. Method of Designing LC-Generators Using Transistors With Stabilized Temperature Amplitude 265
The method proposed uses static transistor characteristics obtained under various temperatures.

Komrakov, Ye.T., and Ye.I. Semenov. Diagram of Phase Automatic Frequency Control Using Semiconductor Components 271
The circuit is examined, selection of components considered, and some experimental results are given.

Mal'ko, G.B. Analysis of the Operation of a Transistorized Square-Wave Voltage Generator. 273
The article examines the operating principle of a push-pull blocking oscillator using transistor triodes with a saturable transformer.

Zakharov, Yu.K. Use of Transistors For D-C Conversion 293
The article contains experimental data on the use of transistors for d-c converters.

Oliferenko, G.I. Calculation of Rectilinear Sawtooth Current in a Transistor Triode Oscillator 308
The article describes the method of calculating the rectilinear sawtooth current of a television scanning oscillator using transistors. Specifications are given for deflecting coils of vidicon type camera tubes.

Yakovlev, V.N. Research on a Junction Transistor Blocking Oscillator 323
The article describes processes occurring during the formation of the pulse peak. Conditions of blocking oscillator self-excitation are examined and the formula for determining pulse duration is derived. Processes in delay line blocking oscillators are analyzed and formulas are given for calculating delay line parameters.

Shestakov, I.A. Blocking-Oscillator Using Saturable Transistor 340
Processes occurring in a blocking-oscillator using junction triode operating under saturation conditions analyzed.
The article demonstrates that transistor parameters have no substantial effect on pulse shape.

Kulya, V.I. Operation Analysis of a Symmetrical Multivibrator Using Junction Transistors 357
Basic ratios for design of multivibrators under various operating conditions are derived on the basis of a simplified multivibrator circuit using a junction transistor.

Yakovlev, V.N. Comparative Evaluation of Multivibrators Using Point-Contact Transistors, and Fields of Their Application 367
Special features of pulse oscillators using point-contact transistors are examined.

Mizyuk, M.G., and N.I. Smirnov. D-C Multivibrator Using Junction Triodes 374
A device for measuring low constant e.m.f. sources is described.

Bobrovnikov, L.E. Transistor Phase Meters for the Infra-Supersonic Frequency Band 396
Three types of phase meter transistor circuits are described.

Vasil'yev, V.P. Indication of the States of a Decade Transistor Counter By Means of Incandescent Lamps 406
A decade counter based entirely upon semiconductor devices is described.

Orinkevich, V.A. Development of a High Speed Digital Computer Arithmetic Unit Using Junction Transistors 414
The unit, which uses transistors of the P 16 type, was successfully tested.

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RYAPUNIN, P.; MALIKO, B.

Wood - Preservation

House fungi and insects, destroyers of wood, and the fight against them. [illegible] (44)(1952)

Monthly List of Russian Accessions, Library of Congress, August, 1953. UNCLASSIFIED.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ROBTSER, A. N.; MAL'KO, A. T.

Method of tagging cattle at meat-packing plants and of notifying sanitary-epidemiological stations on the appearance of cysticercosis. Med. paraz. i paraz. bol. no.6:675-677 '61. (MIRA 15:6)

1. Iz otdela meditsinskoy parazitologii (zav. A. N. Robtser) Khar'kovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii i otdela proizvodstvennogo veterinarnogo kontrolya (nach. A. T. Mal'ko) Khar'kovskogo myasokombinata.

(SYSTICERCOSIS)
(KHARKOV--MEAT INDUSTRY--HYGIENIC ASPECTS)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, A.I. [Mal'ko, O.I.]

Determining the parameters of deuteron polarization from experiments on double scattering on nuclei. Ukr.fiz.zhur. 10 no.10:1077-1082 O '65.

(MIRA 19:1)

1. Institut fiziki AN UkrSSR, Kiyev. Submitted November 28, 1964.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAL'KO, A.I. [Mal'ko, O.I.]; PASECHNIK, M.V. [Pasichnyk, M.V.]; SALTYKOV, L.S.

Asymmetry of the angular distribution of the products of the reaction $Si^{28}(d, d)Si^{28}$ with polarized deuterons. Ukr. fiz. zhur. 10 no.4:452-453 Ap '65. (MIRA 18:5)

1. Institut fiziki AN UkrSSR, Kiyev.

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MALKIYEL', M.S., red.; BUDANOV, G.V., otv. za vypusk; REZNIKOV, A.I., otv. za vypusk; PETROVA, V.V., red.izd-va; NAUMOVA, G.D., tekhn.red.

[Price list for equipment installation] TSennik na montazh oborudovaniia. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam. No.8. [Electric installations. Supplement 9: Tables of weights of different brands and cross sections] Elektricheskie ustanovki. Prilozhenie 9; tablitsy vesov kabelei razlichnykh marok i sechenii. 1960. 58 p. (MIRA 13:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva.
(Electric cables)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MALKIYEL', M.G.

Treatment of obliterating endarteritis by intracaseous novocaine blocks. Khirurgiia 40 no.1:123-128 Ja '64.

(MIRA 17:11)

1. Sanatoriy "Latviya" (nauchnyye rukovoditeli - prof. I.M. Vekslar [deceased]) i kand. med. nauk G.A. Yankovskiy) i sektor kurortologii (zav. - prof. [illegible]) Instituta eksperimental'noy meditsiny Akademii nauk Latviyskoy SSR.

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MALKIYEL, G. S.

431

β SPECTROMETER WITH MAGNETIC PRISMS AND ONE MAGNETIC LENS. V. M. Kel'man, N. M. Dussev, G. S. Malkiel, and N. N. Novodulskii. Zhur. Eksptl. i Teoret. Fiz. 26, 108-9(1954) Jan. (In Russian)

The design and the testing of a β spectrometer analogous to the optical prismatic spectrograph with one lens are described. (tr-auth)

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FD 410

MALKIEL, G. S.

USSR/Physics - Beta-spectrometer

Card 1/1

Author : Kel'man, V. M., Dusayev, G. S., Malkiel', G. S., and Nevodnichiy, N. N.

Title : Beta-spectrometer with magnetic prism and one magnetic lens

Periodical : Zhur. eksp. i teor. fiz. 26, 107-108, Jan 1954

Abstract : Describes the construction and testing of a beta-spectrometer similar to an optical prismatic spectrometer with one lens. Follow the principles of construction discussed by V. M. Kel'man and D. L. Kaminskiy in their work appearing in this journal (Vol 21, 555, 1951)

Institution : Leningrad Physicotechnical Institute, Acad Sci USSR

Submitted : November 5, 1951

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

YEZERSKIY, G.Ye.; MALKIYEL', B.Z.

The best styles of shoes for children of all ages. Kozh.obuv. prom. 4 no.11:14-19 N '62. (MIRA 15:11)

1. Glavnyy inzh. Moskovskogo Doma modeley obuvi (for Yezerskiy).
2. Otvetstvennyy redaktor sbornika "Modeli obuvi" (for Malkiyel').
(Moscow--Shoe manufacture)

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BAKINOV, V.S.; MAIKIYEL', B.F.

Greater attention to improving the selection of knit goods. Leg. prom. 17 no.5:11-12 My '57. (MLRA 10:6)
(Knit goods industry)

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L 60945-65

ACCESSION NR: AP5019022

SUBMITTED: 04Nov63 ENCL: 00 SUB CODE: MM, EC

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4059

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L 60945-65 EWT(d)/EWP(e)/EWA(h)-2/EWT(m)/EPF(c)/EWP(i)/EWP(c)/EWA(d)/EWP(v)/EPA(w)-2/EWP(j)/T/EWP(k)/EWP(h)/EWP(b)/EWP(l) Pq-4/Pf-4/Pr-4/Pa-4/Pt-7

ACCESSION NR: AP5019022 WW/RM/WH UR/0286/65/000/012/0045/0045

621 791 77.037

621.385.832

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B

AUTHOR: Marchenko, I. S.; Malkiyel', B. S.; Felizhanko, V. V.; Litvakh, F. Kh.; Shevchenko, I. G.; Krivich, Yu. A.; Piontkovskiy, A. B.

TITLE: Semiautomatic system for sealing metal to glass in cathode-ray tubes. Class 21, No. 171947

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 45

TOPIC TAGS: semiautomatic sealing system, cathode ray tube, cathode ray tube construction

ABSTRACT: An Author Certificate has been issued for a system for sealing metal to glass in cathode-ray tubes. To improve the efficiency of the system, eliminate intermediate furnace annealing, and maintain the desired temperature in the interval between the glass neck and metallic cone, the system is equipped with an electric heater. [TS]

ASSOCIATION: L'vovskiy elektrolampovyy zavod (L'vov Electric Lamp Factory)

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L 8386-65
ACCESSION NR: AP4048782

reinforced by a tension band to prevent implosion (3-atmosphere test). The kinescopes have a deflection angle of 110°, magnetic deflection and electrostatic focusing. The electronic optical system has no ion trap. The luminescent screen is aluminized.

ASSOCIATION: SKB elektrovakuumny*kh priborov i istochnikov sveta Lvovskogo ekonomicheskogo administrativnogo rayona (Special Design Office of Electrovacuum Instruments and Light Sources of the Lvovskiy Economic Administrative Region)

SUBMITTED: 00 ENCL: 00 SUB CODE: EC

NO REF SOV: 003 OTHER: 003 JPRS

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L 8386-65 EWT(1)/EEC(b)-2/EWA(h) AFWL/AFETR/SSD/ESD(c)/ESD(gs)/RAEM(t) JT

ACCESSION NR: AP4048782 S/0187/64/000/007/0055/0058

AUTHOR: Maikyel', B. S.; Medvid', O. V.; Marty*nova, V. P.; Geyzler, Ye. S.; Zelinskaya, L. P.

TITLE: New kinescopes

SOURCE: Tekhnika kino i televideniya, no. 7, 1964, 55-58

TOPIC TAGS: kinescope, picture tube, television, television equipment

Abstract: This article gives the characteristics of new Soviet kinescopes, the 47LK1B and 59LK1B (with diagonals of 47 and 59 cm respectively) for black-and-white television. As regards electrical and lighting engineering parameters these kinescopes are interchangeable with the German A47-91 and A59-90 picture tubes, and differ from previous Soviet models by having larger diagonals, changes in the ratio of the sides (from 3:4 to 4:5), increase in the useful area of the screen and increase in the radius of curvature (giving an almost flat screen). The envelopes are made completely of barium-lithium glass covered with a vacuum-format polyethylene film and

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MALKIYEL', B.P.

Methods of investigating the bilateral interaction of olfactory and visual analysors under normal and pathological conditions. Probl.fiziol. opt. 12:112-119 '58 (MIRA 11:6)

1. Bol'nitsa No.36, Moskva.
(BRAIN--DISEASES--DIAGNOSIS)
(SENSES AND SENSATION)
(PHYSIOLOGY, PATHOLOGICAL)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

BASSIN, F. B.; MALKIYEL', B. P.; YUSEVICH, Yu. S.

Possibilities of investigation of electric activity of the lower segments of the cerebro-spinal fluid in man. Vopr. neirokhir. 15 no. 6:3-10 Nov-Dec 1951. (CLML 21:3)

1. Of the Laboratory of the Physiology and Pathology of Movement (Head -- Doctor Medical Sciences L. B. Perel'man), Institute of Neurology (Director -- Prof. N. V. Konovalov, Active Member of the Academy of Medical Sciences USSR) of the Academy of Medical Sciences USSR.

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MALKIYEL', B. P.

Malkiyel', B. P. "The diagnosis of intracranial hematomas in nonpenetrating wounds to the skull, and operations on them during the acute phase", in the collection: Nevrologiya voyen. vremeni, Vol. I, Moscow, 1949, p. 57-65.

SO: U-4411, 17 July 1953, (Letopis 'Zhurnal 'nykh Statey, no. 20, 1949)

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ARNOL'D, R.R.; APOLLONOVA, L.P., red.; VAYNBOYM, V.S., red.; VASILEVSKIY, D.P., red.; VROBLEVSKIY, A.A., red.; GRIBKOVA, G.L., red.; GRIGORASH, G.L., red.; KAZNACHEY, B.Ye., red.; PARKHOMENKO, V.I., red.; PUSSET, L.A., red.; PEGIRET, Ye.I., red.; ROZENBLAT, M.A., red.; MALKIYEL', B.A., red.

[Magnetic heads for sound recording apparatus] Magnitnye golovki dlia apparatury zvukozapisi. Moskva, 1958. 153 p. (Moskva. Vsesoiuznyi nauchno-issledovatel'skii institut zvukozapisi. Trudy, no.3). (MIRA 12:4)

(Magnetic recorders and recording--Equipment and supplies)

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MALKIS, I.S.

Screening effect of a petroleum and gas pipeline on a communications cable beside it. Neft. khoz. 43 no.2:60-65 F '65. (MIRA 18:4)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

BESPALOV, Nikolay Vasil'yevich; VLADIMIROV, Pavel Fedorovich;
MALKIS Iosif Solomonovich; NEUPLOV, Vyacheslav Ivanovich;
KOZLOV, S.S., red.; VRONSKIY, L.N., ved. red.

[Communications in pipeline transportation] Sviaz' na tru-
oprovodnom transporte. Moskva, Izd-vo "Nedra," 1964. 198 p.
(MIRA 17:8)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

BESPALOV, Nikolay Vasil'yevich; MALKIN, Iosif Solomonovich;
VRONSKIY, L.N., ved. red.

[Automatic control of communications in petroleum pipeline transportation] Avtomatizatsiia sviazi na nefteprovode. Moskva, Izd-vo "Nedra," 1964. 53 p. (MIRA 17:7)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MAIKIS, I.S.; BESPALOV, N.V.

Chief operator's switchboard using transistor elements. Transp. i Khran.nefti i nefteprod. no. 2:28-31 '64. (MIRA 17:5)

1. Kontora svyazi Glavnogo upravleniya po transportu i snabzheniyu neft'yu i nefteproduktami RSFSR.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

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BESPALOV, N.V.; MALKIS, I.S.

Remote control of the UPDU-57 electric drainage. Neft. khoz. 40 no.7:56-59 Jl '62. (MIRA 17:3)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

BESPALOV, N.V.; MALKIS, I.S., inzh.

Telephone apparatus with transistor amplifiers. Avtom., telem.i sviaz' 6 no.2:25-26 F '62. (MIRA 15:3)

1. Nachal'nik kontory svyazi Glavnogo upravleniya po sbytu nefti (for Bespalov). 2. Kontora svyazi Glavnogo upravleniya po sbytu nefti (for Malkis).
(Telephone--Equipment and supplies) (Transistor amplifiers)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

BESPALOV, N.V.; MALKIS, I.S.

Communication systems on petroleum pipelines. Neft. khoz. 39 no.12:50-55 D '61. (MIRA 14:12)

(Petroleum--Pipelines)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

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BESPALOV, N.V.; MALKIS, I.S.

Special radio relay apparatus are needed for pipelines. Neft. khoz. 36 no.5:54-57 My '58. (MIRA 11:6)
(Pipelines) (Radio relay systems)

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Utilization of Communication Channels for Purposes of Telemechanics in Pipeline Transportation. (Contd). 93-4-11/20

signals employed by a telemechanized intermediate pipeline station into three groups: In the first group are the "on" and "off" signals actuating such equipment as pumps, electrical and Diesel engines, gate valves, etc. Two signals are required to operate each of the above mentioned units. The total number of signals is double the number of actuated units, although it is possible to operate the same number of units with half as many signals, by repeating the same signal twice, the first time using it to switch the unit on, the second time to turn it off. Selectors and resonance relays are recommended for signaling with the first group of signals. The second group are telemetering signals. These select one of many identical units and connect it with the main telephone line for a certain period of time. These signals are used to measure levels in storage tanks, pressures, flows, temperatures, etc. The number of required signals equals the number of units to be actuated, plus one. Step-by-step switches are used with this group of signals. To the third group of signals belong continuous signals, whose number is determined by the specific requirements of various operating conditions.

Card 4/4

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channel can be divided into narrow bands of 140 cycles each, every band representing one station along the right-of-way. Signals are transmitted by step-by-step switches. In telemetering a special commutator bar is used. A switch with 20 contacts (n = 20) can transmit 20 signals. If a greater number of signals is required, additional commutator bars must be installed, so that N(number of signals) = na where n = number of contacts and a = number of switches. In this case frequency generators and step-by-step switches are required (Fig.3). Another method involving channels of 100-200 cycles calls for selectors with accompanying rectifiers (Fig.4). By increasing the number of impulses to 29 (maximum for each selector) the total number of signal combinations is increased to 300. As the number of combinations increases, the receivers become more complicated. Thus, by using selectors, filters, voice-frequency telegraph devices, step-by-step switches for automatic telephone stations and other Soviet-made devices, various signaling systems can be devised for one telephone channel. In conclusion the author divides

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93-4-11/20

Utilization of Communication Channels for Purposes of Telemechanics in Pipeline Transportation. (Contd)

distance corresponding to the average distance between the pumping (booster) stations located along the pipeline. Figure 1a shows a wiring diagram with several remote control devices. The call signal is sent from an intermediate pumping station in three d.c. groups of impulses, the total number of impulses being 19 of which 17 are actuating impulses. This arrangement allows 78 different impulse combinations. Figure 1b shows a slightly different wiring diagram permitting 19 actuating impulses. Figure 2 shows still another diagram, similar to that shown in Figure 1a, but modified by a "Kaylo" coil. Subsequently the author describes how telephones operating on high frequency channels could be utilized for remote control and telemetering purposes. The ordinary telephone channel operates on 300 to 2700 cycles. By using special filters used in voice-frequency telegraphy, the 300-270 cycle

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

93-4-11/20

AUTHOR: Bespalov, N. V., Malkis, I. S.

TITLE: Utilization of Communication Channels for Purposes of Telemechanics in Pipeline Transportation (K voprosu ispol'zovaniye kanalov svyazi v truboprovodnom transporte dlya tseley telemekhaniki)

PERIODICAL: Neftyanoye Khozyaystvo, Nr. 4, April 1957, pp. 42-46 (USSR)

ABSTRACT: The remote control of equipment located along a pipeline's right-of-way is effected by means of communication lines installed along the pipeline. Telephone wires are used primarily for administrative and dispatcher-service purposes. Due to the limited number (3-15) of wires used for this purpose, only one or two telephone wires are usually set aside for telemechanical purposes. This article deals with the number of signals which the existing communication lines and equipment built by the Soviet industry can transmit for telemechanical and telemetering purposes. The messages are transmitted over the selected communication lines in the form of coded signals. Amplifying stations are located every 150-200 km, this

Card 1/4

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ACCESSION NR: AP4037292

has: 2 diagrams and 1 table.

ASSOCIATION: Moscovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology); Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elementoorganic Compounds, AN SSSR)

SUBMITTED: 09Jul63 DATE ACQ: 09Jun64

SUB CODE: MT, OC NO REF SOV: 001 ENCL: 00

OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ACCESSION NR: AP4037292

S/0190/64/006/005/0957/0961

AUTHORS: Maloshitskiy, A. S.; Kolesnikov, G. S.; Malinovskaya, T. P.

TITLE: Carbochain polymers and copolymers. 54. Polymerization of methylmethacrylate in the presence of n-butylboryldifluoride

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 5, 1964, 957-961

TOPIC TAGS: methylmethacrylate polymerization, butylboryldifluoride polymerization initiator, water catalysis, dilatometric technique

ABSTRACT: The polymerization of methylmethacrylate (MMC) in the presence of 0.15 mole% n-butylboryldifluoride (BBD) was conducted in a dilatometer at 30C in an atmosphere of argon. Since no reaction took place in absolutely dry ingredients, the opportunity was presented to study the effect of water on the polymerization process. From 10 to 80 mole% of water per mole of MMC were added to the ampules containing the MMC and BBD, and the mixture was heated for 2 to 45 hours, yielding 0.33-4.75% polymer. It was found that the maximum polymerization rate was obtained at 50 mole% of water per mole of MMC. A detailed description and drawings of the apparatus used for adding the BBD and MMC to the ampule are presented. Orig. art.

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KUROKHTINA, T.P.; MALKINMAN, I.I.; PARFENOVA, O. I.

Anoxemia

Changes in content of phosphocreating and adenosine-triphosphoric anid in the cortes of the cerebrum in cases of anozia. Ukr. biokhim. zhur., 22, No. 1, 1950.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

L 15998-66

ACC NR: AP5024142

during the development of a method for the determination of 0.5 - 5% Nb in zirconium-base alloys without separation of Zr. The following procedure was used. Take a 50 mg sample of alloy, dissolve (by heating in a 100 ml glass) the sample with 3 ml of concentrated H_2SO_4 and 2g of ammonium sulfate, and heat the solution until it is almost dry. Dissolve the residue while heating in 5% tartaric acid, cool the solution, pour into a 100-ml measuring flask, and add a solution of tartaric acid. Take an aliquot part of the solution, containing $\geqq 10\ \gamma$ Nb, into a 25-ml measuring flask, add 6 ml of 6N HCl, 0.5 ml of 5% solution of complexon III, 2 ml of acetone, and 1 ml of 0.05% solution of sulfochlorphenol C, and bring almost to the mark by adding H_2O. Measure the optic density by comparing with the sulfochlorphenol C containing all the compounds mentioned above. The method permits the determination of niobium with separation of zirconium. Orig. art. has: 4 figures and 1 formula.

SUB CODE: 07, 11 SUBM DATE: 08Jun64/ ORIG REF: 012/ OTH REF: 002

Card 2/2

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

L 15998-66 EPF(n)-2/EWT(m)/EWP(t) IJP(c) WW/JD/JG

ACC NR: AP5024142 SOURCE CODE: UR/0075/65/020/009/0947/0950

AUTHOR: Savvin, S. B.; Bortsova, V. A.; Malkina, Ye. N.

48
B

ORG: Institute of Geochemistry and Analytical Chemistry im. V. I. Vernadskiy, AN SSSR, Moscow (Institut geokhimii i analiticheskoy khimii AN SSSR).

TITLE: Photometric determination of niobium in zirconium alloys using sulfochlorophenol C

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 9, 1965, 947-950

TOPIC TAGS: photometry, columbium, zirconium base alloy

ABSTRACT: Sulfochlorphenol C (2.7 bis[azo-2,3,5-oxysulfochlorbenzene] -1.8-dioxynaphthalene-3.6 disulfoacid), similarly to other bisazo-derivatives of chromotropic acid, is capable of forming with other elements compounds which do not decompose in a strongly acid medium. This property of sulfochlorphenol C was used

Card 1/2 UDC: 543.70

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ARTYUKHOVA, Viktoriya Iosifovna; KOVALENKO, Vasiliy Yegorovich; MALKINA, Yelena Borisovna; GEL'FENBEYN, L.L., otv.red.; PLETENITSKIY, V.Yu., tekhn.red.

[Collection of texts in the English language for use in chemical engineering schools] Sbornik tekstov na angliiskom iazyke dlia khimiko-tekhnologicheskikh vuzov. Khar'kov, Izd-vo Khar'kovskogo gos.univ., 1960. 273 p. (MIRA 13:12)
(Chemical engineering) (English language--Translating)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MALKINA, V.M.

Search for optimum regimes for the sterilization of blood serum and blood substitute solutions in an ultrasonc field. Probl. gemat.i perel.krovi no.7:40-43 '62. (MIRA 15:9)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta perelivaniya krovi (dir. - dotsent A.D. Belyakov).
(ULTRASONIC WAVES—THERAPEUTIC USE)
(SERUM ALBUMIN—STERILIZATION)
(BLOOD PLASMA SUBSTITUTES—STERILIZATION)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MALKINA, V.M.

Action of ultrasonic waves on microorganisms during the sterilization of blood preparations. TSitologiia 4 no.1:61-63 Ja-F '62. (MIRA 15:4)

1. Laboratoriya preparatov krovi i korvozameniteley Instituta perelivaniya krovi, Leningrad.
(ULTRASONIC WAVES--PHYSIOLOGICAL EFFECT) (BLOOD--MICROBIOLOGY)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

[illegible]

[illegible] of large amounts of copper by differential photometry. Zhur. anal. khim. 19 no.5:668-676 '64.
(MIRA 18:3)

1. Ural'skiy politekhnicheskiy institut imeni Kirova i Ural'skiy filial Vsesoyuznogo [illegible] instituta, Sverdlovsk.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MALKINA, T. A.

"The Comparative Physiological Characteristics of Xerophil and Mesophil Grasses,"

SO: Dok. AN, 67, No. 1, 1949. Mbr., Botanical Inst. im. V. L. Komorov, Dept. Biol. Sci., Acad. Sci., -c1949-.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MALKINA, S. N., STEINBERG, L. D.

Determination of susceptibility of tuberculosis in vaccinated children. Vopr. pediat. 18:3, 1950. p. 28-31

1. Of the Department of Faculty Pediatrics, Voronezh Medical Institute (Head of Department--Prof. L. D. Shteynberg) and of Oblast Tuberculosis Dispensary (Head--N. S. Pokhvisneva).

CIML 19, 5, Nov., 1950

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ENCLOSURE: 01

ACCESSION NR: AP4033042

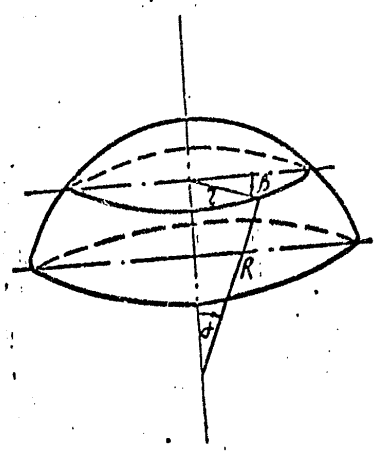

Fig. 1

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ACCESSION NR: AP4033042

along the meridians and along the longitudinal parallels), the author reaches the following solution

$$\omega_m = \frac{1}{R}\sqrt{\frac{Eg}{\gamma}}\sqrt{1+\frac{\pi^4 h^{*2}\left(j-\frac{m}{2}\right)^4}{a_1^4}}, \qquad (11)$$

$$j = 1, 2, \ldots, \quad m = 1, 2, \ldots, \quad j \gg m,$$

$$\omega = \frac{1}{R}\sqrt{\frac{Eg}{\gamma}}\sqrt{1+\frac{\pi^4 h^{*2}\left(j-\frac{m}{2}\right)^4}{a_1^4}}, \quad j \gg m. \qquad (12)$$

It is pointed out that the higher the unknown frequency, the more accurate are the results provided by formulae (11) and (12). Orig. art. has: 1 figure and 47 formulas.

ASSOCIATION: none

SUBMITTED: 17Jun63

SUB CODE: AC, AS

DATE ACQ: 11May64

NO REF SOV: 002

ENCL: 01

OTHER: 001

Card 5/6

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ACCESSION NR: AP4033042

the author considered a general case involving the vibrations of a spherical cupola; that is, when waves are formed not only along the meridians, but also the direction of parallel circles. A set of equations

$$u_m(\alpha) = -\frac{(1+\nu)}{EhR}\frac{d\varphi_m}{d\alpha} + (p^2-1)B_{1m}\int \operatorname{tg}^m\frac{\alpha}{2}\,d\alpha + B_{3m},$$

$$v_m = \frac{\sin\alpha}{m}\left\{u\operatorname{ctg}\alpha - w + \frac{1}{REh}\left[\varphi''_m - \nu\left(\operatorname{ctg}\alpha\,\varphi'_m - \frac{m^2\varphi_m}{\sin^2\alpha}\right)\right]\right\}, \qquad (8\text{-}10)$$

$$\varphi_m = D_{1m}\operatorname{tg}^m\frac{\alpha}{2} - \frac{EhR}{b^2}\left[B_{1m}P^m_{n1}(\cos\alpha) - B_{2m}P^m_{n2}(\cos\alpha)\right] -$$

$$- EhRp^2B_0m\operatorname{ctg}^m\frac{\alpha}{2}\int \operatorname{tg}^{2m+1}\frac{\alpha}{2}\,d\alpha + B_{m4},$$

is derived, by means of which the displacements u_m, v_m, w_m are found in the case when the index of variability of the stress and strain states in meridian directions is greater than in the directions of the parallel circles; that is, when, at vibrations, more waves form along the meridian than along the longitudinal parallel. In the third and final section of the paper, the author took up the problem of the frequency equations, considering the axio-symmetrical vibrations of the cupola. For a general case (with waves forming both

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ACCESSION NR: AP4033042

After this introduction, the author considers the problem of axio-symmetrical vibrations of a spherical cupola; that is, such vibrations at which waves are formed only in meridian directions. Equations (5) are presented in the form:

$$\frac{d^2w^*}{d\alpha^2} + \operatorname{ctg}\alpha\frac{dw^*}{d\alpha} + n_1(n_1+1)w^* = 0, \quad n_1(n_1+1) = b^2,$$
$$\frac{d^2w^*}{d\alpha^2} + \operatorname{ctg}\alpha\frac{dw^*}{d\alpha} + n_2(n_2+1)w^* = 0, \quad n_2(n_2+1) = -b^2. \tag{6}$$

The general solution of this equation, regular at the pole of the sphere, must not contain second-order Legendre polynominals. The author finally derives

$$w(\alpha) = B_1P_{n1}(\cos\alpha) + B_2P_{n2}(\cos\alpha),$$
$$u(\alpha) = \frac{1+\nu}{b^2}[B_1P'_{n1}(\cos\alpha) - B_2P'_{n2}(\cos\alpha)] + B_3. \tag{7}$$

The fundamental equations (1) are valid not only for a sloped sphere, but for any spherical shell for which the index of variability of the stress and strain states is sufficiently large. Equations (7) are valid if enough waves are formed in the meridian direction at vibrations. Moreover, equations (7) can under certain conditions be reduced to a simpler form, convenient for the calculation of free vibration frequencies. In the second part of the article,

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the author sets

$$w(\alpha, \beta, t) = w(\alpha, \beta)\cos\omega t, \quad \varphi(\alpha, \beta, t) = \varphi(\alpha, \beta)\cos\omega t, \tag{2}$$

where w is the radial displacement, φ is the stress function, E is the elasticity modulus, h is the shell thickness, D is the cylindrical strength, $\frac{\gamma}{g}$ is the density of the material, t is the time, and ω is the frequency of the free vibrations. The remaining notation is given in Fig. 1 of the Enclosure. This gives

$$\Delta = \frac{1}{\sin\alpha}\frac{\partial}{\partial\alpha}\left(\sin\alpha\frac{\partial}{\partial\alpha}\right) + \frac{1}{\sin^2\alpha}\frac{\partial^2}{\partial\beta^2}, \tag{3}$$

the notation

$$\Delta w = w^*, \tag{4}$$

is introduced, and Eqn. 3 breaks down into the following two equations:

$$\begin{aligned} \Delta w^*(\alpha, \beta) + b^2 w^*(\alpha, \beta) &= 0, \\ \Delta w^*(\alpha, \beta) - b^2 w^*(\alpha, \beta) &= 0. \end{aligned} \tag{5}$$

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ACCESSION NR: AP4033042 S/0147/64/000/001/0067/0074

AUTHOR: Malkina, R. L.

TITLE: Free vibrations of a spherical cupola

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 1, 1964, 67-74

TOPIC TAGS: cupola, cupola vibration, vibration, spherical cupola, spherical shell, shell, vibration frequency

ABSTRACT: The present article proposes a solution for several problems involving free vibrations of a spherical cupola (see Fig. 1 of the Enclosure). The study is based on equations with a large index of variability. In the vibration equations of a spherical shell

$$\frac{1}{Eh}\Delta\Delta\varphi - \frac{1}{R}\Delta w = 0, \qquad (1)$$

$$\frac{1}{R}\Delta\varphi + D\Delta\Delta w + \frac{\gamma h}{g}\frac{\partial^2 w}{\partial t^2} = 0,$$

$$\Delta = \frac{1}{R^2 \sin\alpha}\left[\frac{\partial}{\partial\alpha}\left(\sin\alpha\frac{\partial}{\partial\alpha}\right) + \frac{1}{\sin\alpha}\frac{\partial^2}{\partial\beta^2}\right]$$

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ACCESSION NR: AP4040371

Gol'denveyzer has called characteristic. Examples are given for the formulation of equations for spherical shell frequencies. In the concluding section, the author takes up the problem of the free oscillations of arbitrary shells of rotation, differing little from the spherical in form (on the assumption that the shell has a positive curvature and is closed with respect to the axis of symmetry). Equations are derived which are easily solvable through the use of the method of asymptotic integration explained earlier in the article. Orig. art. has: 54 formulas and 1 figure.

ASSOCIATION: none

SUBMITTED: 02Nov63 ENCL: 00

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

Card 3/3

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ACCESSION NR: AP4040971

which are valid if the index of variability is positive. The oscillations of a spherical shell are considered. Assuming $R_1 = R_2 = R$ and excluding the function $\emptyset$, the following equation for the oscillations of a spherical shell is obtained

$$D\Delta\Delta\Delta w + \left(\frac{Eh}{R^2} - p^2\right)\Delta w = 0, \qquad (2)$$

$$p^2 = \frac{\gamma\omega^2 h}{g},$$

$$\Delta = \frac{1}{R^2 \sin\alpha}\left[\frac{\partial}{\partial\alpha}\left(\sin\alpha\frac{\partial}{\partial\alpha}\right) + \frac{1}{\sin\alpha}\left(\frac{\partial^2}{\partial\beta^2}\right)\right].$$

Various cases are considered (a segment of a spherical shell limited by parallels $\alpha = \alpha_1$ and $\alpha = \alpha_2$; shell oscillations at which more waves form along the meridian than along the parallel; axiosymmetrical oscillations at which waves form only along the meridians). The essential features of the method of asymptotic integration, as applicable to the problem of the oscillations of a spherical shell, are studied, using as an example the integration of eq. (2). The index of variability τ is introduced on the selection of which depend the density of the nodal lines and the frequency of the natural oscillations. Frequencies of oscillation are sought which correspond to a variability index of $\tau = 0.5$, which

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

ACCESSION NR: AP4040971 S/0147/64/000/002/0047/0056

AUTHOR: Malkina, R. L.

TITLE: Application of the method of asymptotic integration to problems involving the oscillations of shells of rotation, approximating spherical shells in form

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1964, 47-56

TOPIC TAGS: shell, rotation shell, spherical shell, shell oscillation, asymptotic integration

ABSTRACT: A solution is outlined for several problems involving the free oscillations of shells of rotation of positive curvature, using the asymptotic method for the integration of differential equations developed by A.L. Gol'denveyzer. In his consideration of the equations for the free oscillations of an arbitrary shell with a high index of variability, the author derives equations

$$\Delta\Delta\varphi - Eh\Delta_k w = 0, \quad \Delta_k\varphi + D\Delta\Delta w + \frac{\gamma h}{g}\frac{\partial^2 w}{\partial t^2} = 0, \tag{1}$$

$$\Delta = \frac{1}{R_1 R_2}\sin^{-1}\alpha\left[\frac{\partial}{\partial\alpha}\left(\frac{R_2\sin\alpha}{R_1}\frac{\partial}{\partial\alpha}\right) + \frac{\partial}{\partial\beta}\left(\frac{R_1}{R_2\sin\alpha}\frac{\partial}{\partial\beta}\right)\right],$$

$$\Delta_k = \frac{1}{R_1 R_2\sin\alpha}\left[\frac{\partial}{\partial\alpha}\left(\frac{\sin\alpha}{R_1}\frac{\partial}{\partial\alpha}\right) + \frac{\partial}{\partial\beta}\left(\frac{1}{R_2\sin\alpha}\frac{\partial}{\partial\beta}\right)\right],$$

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AID Nr. 970-16 17 May

FREE VIBRATIONS [Cont'd] S/147/63/000/001/006/020

does not ignite under a pressure of up to 100 atm. With O_2 concentration decreasing from 100 to 50%, the critical pressure increases from 10 to 80 atm. An increase of temperature from 100 to 300°C has no effect on critical pressure, which however drops sharply with a further increase in temperature; in pure oxygen at 900°C titanium ignites at atmospheric pressures. It does not appear possible to develop ductile titanium sheet alloys that would be stable in an oxygen atmosphere under pressure. [MS]

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

AID Nr. 970-16 17 May

FREE VIBRATIONS [Cont'd] S/147/63/000/001/006/020

specimens were fractured by tension, compression, or bending in atmospheres containing from 35 to 100% O_2, under pressures from 1 to 150 atm, at temperatures from 20 to 1000°C. The experiments showed that self-ignition of Ti-base alloys in oxygen occurs only when the brittle fracture exposes the unoxidized surface of a fresh crystalline crack. In such a case copper or aluminum coatings do not prevent the self-ignition of titanium alloys. In the case of ductile fracture, however, dense poreless coatings substantially reduce the danger of self-ignition. Depending on the alloy composition, the critical pressure of self-ignition at room temperature was found to be 8 or 70 to 75 atm for the BT6 alloy (5% Al, 4% V) or iodide Ti, respectively. The BT1 alloy [AISI iodide Ti] ignites under a pressure of 20 to 25 atm; the OT4 [AISI RS110B], BT8 [AISI C135A Mo], and BT15 [3.0-4.0% Al, 7.0-8.0% Mo, 10.0-15.0% Cr] alloys under pressures of 10, 13, and 12 atm, respectively; and the experimental alloys under pressures ranging from 15 to 50 atm, depending on the degree of alloying. The pressure of self-ignition increases with increasing content of alloying elements. An intermetallic TiAl compound-base alloy (with 30% Al)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

MALKINA, R. L.

AID Nr. 970-16 17 May

FREE VIBRATIONS OF ZERO-CURVATURE SHELLS (USSR)

Malkina, R. L., and V. G. Godzevich. Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya tekhnika, no. 1, 1963, 48-57. S/147/63/000/001/006/020

Axially symmetrical free (natural) vibrations of arbitrary cylindrical and conical shells are discussed under the assumption of multiwave deformation. Differential equations of V. Z. Vlasov for arbitrary shallow shells with a large index of variation are simplified for the case of zero curvature and used to analyze the vibrational behavior of noncircular cylindrical and circular conical shells. The method developed by A. L. Gol'denveyzer for asymptotic integration of differential equations in the theory of shells, as well as B. G. Galerkin's method, are applied in deriving formulas for natural frequencies and modes of vibration. Results of numerical calculations for particular cylindrical and conical shells are given and compared with experimental data obtained in tests conducted with a resonance method in which the vibrations were recorded by the МПО-2 loop oscillograph. The testing equipment used is described briefly. The causes of discrepancies between theoretical and empirical values in some instances are discussed. [VK]

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031900049-6

Plates and shells under ... S/147/62/000/001/007/015
E200/E535

$$W(x,y) = \sum_{n=1,3,5}^{\infty} Y_n(y) \sin \frac{n\pi x}{a}, \quad q = \frac{4q}{\pi} \sum_{n=1,3,5}^{\infty} \frac{1}{n} \sin \frac{n\pi x}{a} \quad (2.4)$$

which can be considered as Levi's general method. Equation for Yn(y) is obtained by substituting Eq.(2.4) in Eq.(2.3). A similar method is used for solving a shallow rectangular cylindrical shell. For low frequency of the vibrating load the final deflection equation for a cylindrical shell coincides with A. I. Lur'ye's equation for static deflection - see Lur'ye's "Statics of thin elastic shells" OGIZ, Gostekhizdat, 1947. The author includes sample calculations of the dynamic coefficients at various frequencies. The dynamic coefficient is the ratio of the amplitude to the maximum deflection under a static load of the same intensity as the dynamic load. There is 1 table.

ASSOCIATION: Kafedra stroitel'noy mekhaniki, Ural'skiy politekhnicheskiy institut (Department of Structural Mechanics, Ural Polytechnical Institute)

Card 3/3

SUBMITTED: March 22, 1961

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2) Rectangular plate or cylindrical shallow shell; equation of forced vibrations of a plate is

$$\Delta\Delta w(x,y,t) + \frac{\gamma h}{gD} \cdot \frac{\partial^2 w(x,y,t)}{\partial t^2} = \frac{q \sin kt}{D}$$

$$\Delta = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \qquad (2.1)$$

if

$$w(x,y,t) = W(x,y) \sin kt \qquad (2.2)$$

Then substituting Eq.(2.2) in (2.1) gives

$$\Delta\Delta W(x,y) - \frac{\gamma h k^2}{gD} W(x,y) = \frac{q}{D} \qquad (2.3)$$

Solution for a plate with two opposing edges simply supported and others fixed is obtained from

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along the generatrix, s - length of the arch, h - thickness.

Assuming that

$$w(\alpha, r, t) = W(\alpha r) \sin kt \tag{1.4}$$

we get

$$\left(\frac{d^2}{dr^2} + \frac{1}{r}\frac{d}{dr}\right)\left(\frac{d^2W}{dr^2} + \frac{1}{r}\frac{dW}{dr}\right) + \left(\frac{Eh}{DR^2} - \frac{\gamma hk^2}{Dg}\right) W = \frac{q}{D} .$$

The solution then is:

$$w(r,t) = \left[c_1 I_o(\alpha r) + c_2 I_o^{*}(\alpha r) - \frac{q}{\alpha^4 D}\right] \sin kt \tag{1.5}$$

where

$$\alpha^4 = \frac{\gamma hk^2}{gD} - \frac{Eh}{DR^2}, \quad D = \frac{Eh^3}{12(1-\nu^2)} \tag{1.6}$$

I_o - Bessel function of the first order, I_o^{*} - hyperbolic Bessel function, c_1 and c_2 - constants.

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10.6300

AUTHOR: Malkina, R.L.

TITLE: Plates and shells under vibrational loading

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no.1, 1962, 57-65

TEXT: Solution of cylindrical and shallow spherical shells and of circular and rectangular plates is discussed. The analysis is based on the fact that all normal forced vibrations of the systems are of the same frequency and phase.
1) Solution of a circular plate or a shallow spherical shell, acted upon by a harmonically changing force $q^x(t) = q \sin kt$, is based on the integration of

$$\left(\frac{\partial^2}{\partial r^2} + \frac{1}{r}\frac{\partial}{\partial r}\right)\left(\frac{\partial^2 w}{\partial r^2} + \frac{1}{r}\frac{\partial w}{\partial r}\right) + \frac{h}{D}\left(\frac{Ew}{R^2} + \frac{\gamma}{g}\frac{\partial^2 w}{\partial t^2}\right) = \frac{q^x}{D} \quad (1.3)$$

Notation: r - radius of plate or shell, R - radius of sphere (for plate $R = \infty$), w - displacement, $\alpha = x/R$, $\beta = s/R$, x - distance

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Free vibrations in cylindrical shells. Trudy Ural. politekh. inst. no.99:61-70 '60. (MIRA 14:5)
(Elastic plates and shells) (Vibration)

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E081/E235

Forced Vibrations of Cylindrical Shells

where q_x (α, t), q_y (α, t), q_z (α, t) are components of the disturbing force. These components are expressed in series form and the governing equations obtained as ordinary differential equations for which solutions in integral equation form are given. There are 6 references: 5 Soviet and 1 non-Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut, Kafedra stroitel'noy mekhaniki (Ural Polytechnical Institute, Department of Structural Mechanics)

SUBMITTED: March 14, 1960

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Forced Vibrations of Cylindrical Shells

The quantities q and ρ are expressed as trigonometric series, and assuming that there are more than three half-waves in the transverse direction, an equation is obtained for the zero order approximation to the frequency of free vibration. A numerical example is worked out which shows that the fundamental frequency of vibration of a cylinder of circular cross-section is higher than that of a cylinder of non-circular cross-section; except for the shape of the cross-section the cylinders are identical. The equations governing the axially symmetrical forced vibrations of circular cylindrical shells are

$$\frac{\partial^2 u}{\partial \alpha^2} + \mu \frac{\partial w}{\partial \alpha} - \frac{R^2 \gamma}{gE}(1-\mu^2)\frac{\partial^2 u}{\partial t^2} = -\frac{(1-\mu^2)R^2}{E\delta} q_x(\alpha, t),$$

$$\frac{1-\mu}{2}\frac{\partial^2 v}{\partial \alpha^2} + \frac{\delta^2}{6R^2}(1-\mu)\frac{\partial^2 v}{\partial \alpha^2} - \frac{(1-\mu^2)R^2\gamma}{Eg}\frac{\partial^2 v}{\partial t^2} = \tag{2.1}$$

$$= \frac{(1-\mu^2)R^2}{E\delta} q_y(\alpha, t), \tag{2.1}$$

$$\mu \frac{\partial u}{\partial \alpha} + \left(1 + \frac{(1-\mu^2)}{Eg} R^2 \gamma \frac{\partial^2}{\partial t^2} + \frac{\delta^2}{12R^2}\frac{\partial^4}{\partial \alpha^4}\right) w = \frac{(1-\mu^2)}{E\delta} R^2 q_z(\alpha, t),$$

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$$\frac{1}{E\delta}\Delta\Delta\varphi - \frac{R}{\rho}\frac{\partial^2 w}{\partial\alpha^2} = 0, \quad \Delta = \frac{\partial^2}{\partial\alpha^2} + \frac{\partial^2}{\partial\beta^2},$$

$$\frac{R}{\rho}\frac{\partial^2\varphi}{\partial\alpha^2} + D\Delta\Delta w + \frac{\gamma\delta R^4}{g}\frac{\partial^2 w}{\partial t^2} = R^4 q(\alpha;\ \beta,\ t). \qquad (1.1) \qquad (1.1)$$

where α (= x/R), β (= s/R) are dimensionless co-ordinates on the middle surface; x is distance along generator; s is distance along arc; ρ = r/R; r is the radius of curvature of the shell; R is an arbitrarily chosen constant; δ is the thickness of the shell; φ is a stress function; w is the component of the displacement vector normal to the surface of the shell; t is time; q is the intensity of the radial disturbing force. Introducing the function $\Phi(\alpha, \beta, t)$ defined by the formulae

$$w = \frac{\rho}{R}\Delta\Delta\Phi, \quad \varphi = E\delta\frac{\partial^2\Phi}{\partial\alpha^2}. \qquad (1.2)$$

into Equations 1.1, the first equation is satisfied identically, and the second becomes

$$c^2\Delta\Delta(\rho\Delta\Delta\Phi) + \frac{1}{\rho}\frac{\partial^4\Phi}{\partial\alpha^4} + \frac{\gamma\rho R^2}{gE}\Delta\Delta\frac{\partial^2\Phi}{\partial t^2} = \frac{R^3}{E\delta}q(\alpha,\ \beta,\ t).$$

$$c^2 = \frac{\delta^2}{12(1-\mu^2)R^2}. \qquad (1.3)$$

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10.9010
26.2145

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E081/E235

AUTHOR: Malkina, R. L.

TITLE: Forced Vibrations of Cylindrical Shells

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1960, No. 4, pp. 51-60

TEXT: The paper is a continuation of previous work (Refs. 4 and 5). The problem of forced vibrations in circular and non-circular closed cylindrical shells is discussed. In the first part of the paper the problem is solved of pure flexural vibrations caused by disturbing forces normal to the median surface of the shell, neglecting tangential inertial forces. The equations of sloping shells are taken as a basis; it is assumed that the conditions under which these equations can be applied to the problem are satisfied. In the second part of the paper axially symmetrical vibrations are discussed; these can occur only in circular cylindrical shells, and both radial and tangential inertial forces, as well as disturbing forces, are allowed for. Neglecting tangential components of inertial forces, the differential equation governing flexural vibrations is

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E081/E535

Vibrations of Non-Circular Cylindrical Shells

and from (13)

$$(\omega_o^2)_{min} = 0.718 \cdot 10^{-3} \frac{Eg}{\gamma R^2}$$

The first order approximation to the frequency is obtained from (17) and (18) and is

$$\omega_{mn}^2 = \omega_o + \varepsilon\omega_1 = \omega_o \left[1 + \varepsilon b_3\right] = 1.204\ \omega_o^2$$

Putting $\rho_c = 1$, $\gamma_1 = 1$ in (12) and (13) gives for a circular cylindrical shell of radius R

$$(m)_{min} = 4, \qquad \omega_{mn}^2 = 0.857 \cdot 10^{-3} \frac{Eg}{\gamma R^2}$$

There are 2 Soviet references.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

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substituting (7) and (8) in (5) leads to the system of equations (9), where F is a stress function given by the recurrence formulae (16) and (17). The periodic solution of Eq (9) has the form (10) which leads to the formula (11) giving the zero order approximation for the square of the frequency. Formula (11) shows that the lowest frequency corresponds to n = 1 with $\nu_1 m$. For thin shells $\nu_1 m$ is nearly always greater than 2; in this case, Eq (12) holds, and (11) takes the simpler form (13). Numerical calculations are carried out using the data at the top of p 175. The first coefficients of the resolution into Fourier series are

$\rho_0 = 1.24$, $\rho_1 = 0.233$, $\rho_2 = 0.204$, $\varepsilon = \rho_1/\rho_0 = 0.188$,

$b_1 = 1$, $b_2 = 0.878$, $b_3 = 1.085$.

Eq (12) then gives

Card 3/4 $(\nu_1 m_1)_{min} = 3.82$, $m_{min} = 3$

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Vibrations of Non-Circular Cylindrical Shells

of the shell, φ is the stress function, w is the component of the displacement vector normal to the surface of the shell, t is time. Introducing a stress function Φ such that

$$w = \frac{\rho}{R}\Delta\Delta\Phi , \quad \varphi = E\delta \frac{\partial^2 \Phi}{\partial \alpha^2}$$

the first equation (1) is satisfied identically, and the second gives Eq (2). A more general equation, valid for any cylindrical shell has been given by Novozhilov and may be written in the form (3). The solution of Eq (3) may be written as the series (4), in which ω is the circular frequency, ℓ is the length of the shell and the A_{mn} are constants. Substituting (4) in (3) leads to the system of ordinary differential equations (5), and for the vibrations of a sloping shell substitution of (4) in (2) leads to (6). For the case of a true oval with two axes of symmetry, ρ is resolved into the Fourier series (7), and the solution of Eq (5) is sought in the form (8);

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AUTHOR: Malkina, R. L. (Sverdlovsk)

TITLE: Vibrations of Non-Circular Cylindrical Shells

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1960, Nr 1, pp 172-175 (USSR)

ABSTRACT: The differential equations for the free vibrations of sloping cylindrical non-circular shells can be obtained from the general equations of the moment theory of shells (Ref 1) by replacing the normal components of the external load by the corresponding components of the inertial forces. Since the dynamic rigidity of the shell in the direction of the middle surface is much higher than the rigidity normal to the surface, the tangential components of the inertial forces can be neglected and the differential equations (1) are obtained, where α, β are dimensionless coordinates on the middle surface, x is the distance along the generator, s is the length of the leading arc, R is an arbitrarily chosen constant, r is the radius of curvature of the shell, δ is the thickness

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ROGITSKIY, Stanislav Andreyevich; MALKINA, R.L., kand. tekhn. nauk, red.; DUGINA, N.A., tekhn. red.

[New method of strength and stability analysis] Novyi metod rascheta na prochnost' i ustoichivost'. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.lit-ry, 1960. 35; p. (MIRA 14:12)
(Strength of materials) (Structures, Theory of)

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report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

168. S. D. Leites (Dnepropetrovsk): On space buckling of columns in the elastic-plastic range.

169. V. S. Lenskii (Moscow): Vibro-creep at room temperature.

170. V. S. Lenskii (Moscow): Plasticity of metals under combined loading.

171. A. I. Leonov (Moscow): Some problems of non-stationary flow of an incompressible visco-elastic (Maxwellian) liquid.

172. A. I. Leonov, M. D. Khainov (Moscow): Some problems of quasi-steady flow of an incompressible visco-elastic (Maxwellian) liquid.

173. M. Ia. Leonov (Lvov): The generalization of the torsion theory of thin-walled bars.

174. M. Ia. Leonov, V. V. Panasyuk (Lvov): The development of micro-cracks.

175. Pe. E. Lenik (Tartu): Plastic flow of circular plates under tension and bending of compression and bending.

176. S. G. Lekhnitskiy (Leningrad): Torsion of an anisotropic curved bar.

177. A. D. Lisarev (Sverdlovsk): Free vibrations and stability of ordinary and prestressed elastic restrained beams.

178. A Lisowski (Cracow): Displacement of rocks due to excavation of sloping layers.

179. N. V. Lityrinov (Kiev): On the application of matrix transformations to the solution of large sets of linear equations of elasticity theory.

180. G. I. Lotkin (Tomsk): The selection of optimal parameters for structures of equal stability consisting of plates and stringers.

181. F. A. Lokosh (Moscow): Large deflections of shallow shells of non-linear elastic materials.

182. Ia. B. Lbin (Yerevan): Methods for the solution of the problems of axisymmetric states of stress in shells of revolution.

183. B. A. Malakhovskii (Omsk): Analysis of an orthotropic circular conical shell under an arbitrary load applied to a ring.

184. S. V. Malashenko (Kiev): On the experimental study of strains in plates and shells.

185. V. I. Malinin (Novosibirsk): Creep strains and ruptures of high polymers.

186. R. L. Malkina (Sverdlovs): Vibrations of non circular cylindrical shells.

187. A. K. Malmeister (Riga): Some problems of combined loading of quasi-isotropic bodies.

188. K. A. Maltsov (Leningrad): The influence of structural discontinuity in concrete on its strength.

189. S. O. Mamedova (Baku): Investigation of the state of stress for a square prism with coaxial cylindrical hole under internal pressure.

190. G. F. Mandzhavidze (Tbilisi): Solving the plane elastic problem for anisotropic bodies by reduction to the problem of linear coupling with "displacements".

191. L. I. Manevich, Yu. A. Cherkiaev (Dnepropetrovsk): The stability of a cylindrical shell in bending.

192. V. M. Marchenko (Moscow): Stress and strain in naturally twisted bars.

193. V. I. Mekhovikov (Taranrog): The problem of conformal transformation and plane elasticity for the exterior of an infinite number of holes.

194. Ia. A. Mechetel (Moscow): The design of finite and infinite beams on elastic foundation including time effects and without adopting the hypothesis of Zimmerman and Winkler.

195. A. S. Melkanovetskii (Stalino): Vibrations of a curved bar in an elastic medium and on elastic supports.

196. S. N. Mostsian (Erevan): An experimental study of basic creep laws for soils.

197. G. S. Migirenko (Novosibirsk): On statically equivalent loadings.

198. M. Sh. Mikeladze (Tbilisi): Contribution to the theory of plastic shells of uniform strength.

199. N. S. Minasian (Erevan): On the bending of a simply supported parallelogram plate.

200. N. V. Mikhailov (Moscow): Evaluation of the rheological properties of elastic, visco-plastic materials in homogeneous strain-rate under constant shearing stress.

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