1. BABKOV, Ye.

2. USSR (600)

4. Pipe

7. Continous casting of pipes. Eng. Tekh. molod. 21 No. 2, 1953.

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

BRASLAVSKIY, M.; SHCHELOKOV, A.; BLATNOV, M.; STROGANOVA, V.; BABKOV, Ye.

Information. Avt. transp. 42 no. 5:55-58 My '64. (MIRA 17:5)

1. Glavnyy inzh. TSentral'nogo konstruktorskogo byuro Ministerstva avtomobil'nogo transporta i shosseynykh dorog RSFSR (for Babkov).

BABKOV, Yevgeniy, inzhener.

Snow plow. Tekh.mol. 22 no.2:18 F '54. (MLRA 7:2)
(Snow plows)

RABKOV-ESTERKIN, V.I., inzh.

Empirical calculation of the fastening of slot and wedge bolt locks. Shakht. stroi. 8 no.9:19-20 S '64.
(MIRA 17:12)

1. Leningradskiy gornyy institut.

BABKOVA, A. A.

USSR/Medicine/Neurology - Dermatology FD-2946

Card 1/1 Pub. 17-10/23

Author : Babkova, A. A.

Title : Electric reaction of the cerebral cortex in skin diseases

Periodical : Byul. eksp. biol. i med. 7, 37-40, July 1955

Abstract : Author reports on her studies of the effect of peripheric irritation on the electric potential of the human cerebral cortex under normal and pathological conditions. She used an encephalograph to study healthy persons, patients with light-induced dermatoses, and those with "tactil" and painful skin irritations. Author determined that even in fairly insignificant and just adequate irritations of the skin changes in the electric activity of the cerebral cortex are noticeable. Changes in the reactivity of the higher divisions of the central nervous system during skin irritations do not depend on changes in disease conditions. Certain electric reactions of the cortex to irritations may result in impulses to healthy as well as diseased parts of the skin. 17 references. 10 USSR, 7 since 1940, no graphs.

Institution : Clinic of Skin Diseases, First Leningrad Medical Institute imeni I. P. Pavlov (Dir. - Active Member Academy Medical Sciences USSR O. N. Podvysotskaya)

Submitted : 3 Sep 1953

BABKOVA, A.A.

Problems of inhibition in skin diseases. Vest.ven. i derm. 30 no.6: 8-14 N-D '56. (MLRA 10:2)

1. Iz laboratorii fiziologii i patologii kozhi Akademii meditsinskikh nauk SSSR prof. O.N.Podvysotskaya), Leningrad.
(REFLEX, in various dis.
impaired inhib. in skin dis.)
(SKIN DISEASES, physiol.
inpaired inhib. of reflexes)

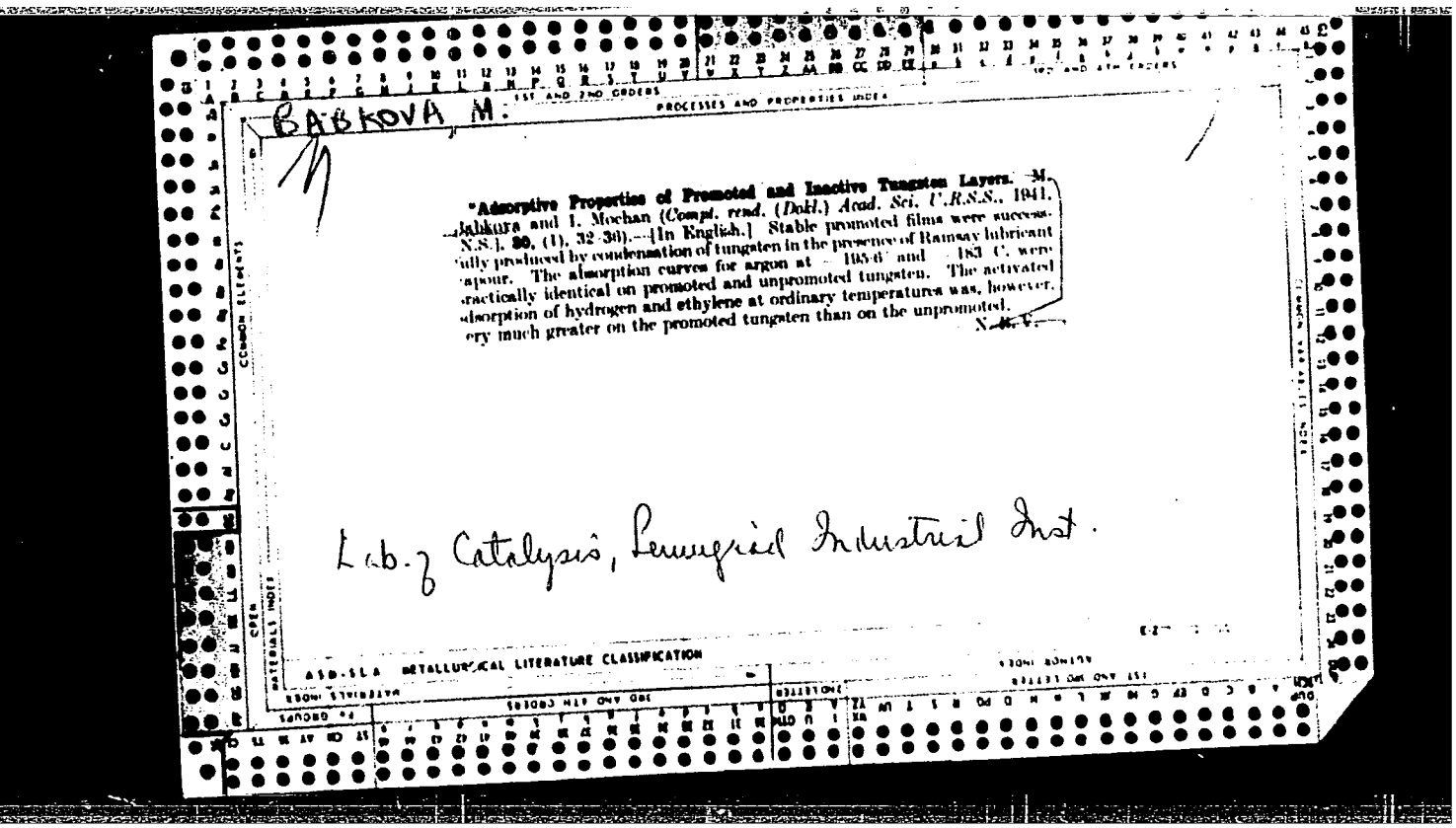
PODLUBNAYA, Ye.T.; BABKOVA, A.N.; EPEL'MAN, A.A.

Ultraviolet absorption spectra of some essential oils and aromatic alcohols. Trudy TSNIISP no. 8:117-122 '59.
(MIRA 14:1)

(Essences and essential oils—Spectra)
(Alcohols—Spectra)

PODLUBNAYA, Ye.T.; BABKOVA, A.N.; EPEL'MAN, A.D.; EPEL'MAN, A.A.

Interferometric method for determining the concentration of essential oils from Δn in solutions. Trudy TSNIISP no. 8:151-157 '59. (MIRA 14:1)
(Essences and essential oils) (Alcohols)



BABKOVA M.

"Adsorptive Properties of Promoted and Inactive Tungsten Layers. M. Babkova and I. Mochan (*Compt. rend. (Dokl.) Acad. Sci. U.R.S.S.*, 1941, N.S.), **30**, (1), 32-36).—[In English.] Stable promoted films were successfully produced by condensation of tungsten in the presence of Ramsay lubricant vapour. The adsorption curves for argon at −195·6° and −183° C. were practically identical on promoted and unpromoted tungsten. The activated adsorption of hydrogen and ethylene at ordinary temperatures was, however, very much greater on the promoted tungsten than on the unpromoted.

Lab. of Catalysis, Leningrad Industrial Inst.

BABAKOVA, Lyubov' Maksimovna, kand. ekon. nauk [deceased]; KANTER, A.I., red.; RAKITIN, I.T., tekhn. red.

[Production management and organization in an industrial enterprise] Upravlenie i organizatsiia proizvodstva na promyshlennom predpriiatii. Moskva, Izd-vo "Znanie," 1961. 39 p. (Narodnyi universitet kul'tury. Fakul'tet tekhniko-ekonomicheskii, no.5) (MIRA 14:10)
(Industrial organization)

RABKOVA, N. M.

"Operation of Axial Compressor Stages on Nonrated Capacities." Cand Tech Sci, Central Sci Res Broiler and Turbine Inst, Leningrad, 1954. (RZhMekh, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

AUTHOR: Babkova, M.M., Candidate of Technical Sciences. 114-6-4/11

TITLE: The dependence of the steepness of the characteristics of an axial compressor stage and its range of stable operation on its design parameters. (Zavisimost' krutizny kharakteristikei diapazona ustoychivoy raboty stupeni osevogo kompressora ot ee raschetnykh parametrov.)

PERIODICAL: "Energomashinostroenie" (Power Generation Machinery Construction) 1957, Vol.3, No.6, pp. 13 - 15 (U.S.S.R.)

ABSTRACT: Axial compressors used in gas turbines and elsewhere are often required to operate stably and efficiently over a wide range of conditions. But the characteristic curves of axial compressors are steep and have a narrow range of change of output for constant speed. Therefore, in designing axial compressors it is often necessary to investigate the possibility of extending the range of stable operation of the compressor by changing the position of the boundary of pumping and changing the steepness of the characteristic. Little work has been published on this question. There are two main reasons why the characteristic curves are steep and the output range at constant speed is narrow. The first reason is the great sensitivity of the characteristic of the blade profiles to change in the angles of attack. The second reason is associated with compressibility of the working medium which, when the working conditions are changed, alters

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The dependence of the steepness of the cha... of
an axial compressor stage and its range of stable ...
on its design parameters. (Cont.) 114-6-4/11

the best ratio between the sectional areas of the different stages.

This article considers several possibilities for improving the compressor characteristics by appropriate selection of design parameters of the initial stages. The problem is examined in its simplest form leaving aside the question of efficiency and using an approximate method of investigation.

A diagram is given of the dimensionless triangle of velocities of a stage, and corresponding mathematical expressions are derived for the coefficients of flow, of theoretical heads and of the degree of reaction. It is shown that characteristics of theoretical head minus coefficient of flow are straight lines which pass through the origin and through certain other points so that the steepness of the theoretical characteristics will be greater for small initial values of the coefficient of flow and of theoretical head, whatever the degree of reaction. It follows that in order to reduce the steepness of the

Card 2/4

The dependence of the steepness of the characteristics of an axial compressor stage and its range of stable operation on its design parameters. (Cont.) 114-6-4/11

characteristics of multi-stage compressors it is advisable to increase the head in the initial stages. Tests results on various compressor stages show that the region of stable operation of a stage is usually characterised by a single value of range of change of angle of attack. Test results are given for stage characteristics with various degrees of reaction and it is found that the range of stable operation diminishes with reduction in the degree of reaction. The experiments confirm the theoretical conclusion that a stage with a greater degree of reaction will have a greater range of output and head than a stage with a small degree of reaction. It is also of interest to compare characteristics which can be obtained by arranging stages with different values of initial reaction using the same blading on the runner. The corresponding characteristics are plotted. A graph is also given of the change of degree of reaction with change in the conditions of operation and a graph of the change in the theoretical head coefficient and degree of reaction with change in the working conditions. It is concluded that the compressor characteristics can be improved by proper attention to design and in particular

Card 3/4

The dependence of the steepness of the characteristics of an axial compressor stage and its range of stable operation on its design parameters. (Cont.) 114-6-4/11

that the steepness of the head characteristic of the stage is greater the less the initial values of the coefficient of flow and of the coefficient of head of the stage. When these initial conditions are constant, and the difference between the angles of attack are approximately the same, the range of stable operation of the stage is increased by increasing the degree of reaction.

There are 5 figures, and 2 literature references (1 Slavic).

AVAILABLE:
Card 4/4

ВАБКОВА М.М.

BABKOVA, M.M., kand.tekhn.nauk.

Effect of the distribution of flow coefficients through stages on the rated characteristics of axial compressors. Energomashinostroenie 3 no.12:27-29 D '57. (MIRA 11:1)
(Gas turbines)

BARKOVA, M.S.

Origin of quartz sands in the western part of the Baikal region. Izv. vys. uchev. zav.; geol. i razv. no.3:57-68 Mr '58. (MIRA 11:10)

1.Irkutskiy gosudarstvennyy universitet im. A.A. Zhdanova.
(Baikal Mountain region--Sand)

DAVIDKOVICH, A.S.; GONCHAROV, Yu.G.; GEYZENBLAZEN, B.Ye.; BABKOVA, T.B.; FRYADKO, V.D.; BELETSKIY, Ye.P.; KOIESNIK, A.S.; LAZARENKO, N.A.

Analysis of the efficiency of work output of the automated ore dressing section in the Krivoy Rog Central Mining and Ore Dressing Combine. Met. i gornorud. prom. no.4:64 Jl-Ag '65. (MIRA 18:10)

BABKOVA, V.I.; MYASNIKOV, A.L., professor.

Demonstration of a patient with non-hemolytic congenital jaundice. Terap. arkh. 25 no.2:81 Mr-Ap '53. (MLRA 6:5)
(Jaundice)

BABKOVA, Ye.I. (st.Ternopol', L'vovskoy dorogi)

At the Ternopol' Division. Put' i put.khoz. 6 no.5:45 '62.
(MIRA 15:4)

(Ternopol' region--Railroads--Maintenance and repair)

БАБЛИДЗЕ Р.А.

AUTHORS: Yesel'son, B. N., Shvets, A. D., Bablidze, R. A. 56-1-38/56

TITLE: On the Film Flow Rate in Solutions of Helium-Isotopes (O skorosti perenosa po plenke u rastvorov izotopov geliya)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34, Nr 1, pp. 233-234 (USSR)

ABSTRACT: The influence of He^3 dissolved in He II upon the film flow is, as is well-known, reduced to the decrease in the flow rate. It was of a certain interest to investigate this fact more thoroughly and therefore the authors made tests with a solution of helium-isotopes with a helium content of 1,5; 4,7; 7,0 and 9,6 %. The apparatus used for these tests consists of two elbows of a thin-walled capillary tube (diameter 1,08 mm) of equal lengths communicating over a helium-film. The film flow rate $R = v\delta$ was measured by the measurement of the rate of change of the liquid level in one of these elbows. In this connection v signifies the rate of the motion of the film and δ - the thickness of the film. The temperature interval immediately following the λ--point was investigated. The results obtained here are illustrated in two diagrams. One of these diagrams

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illustrates the dependence of the film flow rate on the temperature and the other diagram - the dependence of the film flow rate on the content of He^3. According to the results found here the film flow rate increases with increasing concentration of He^3. When having data on the dependence of the density on the temperature for the solutions of the helium-isotopes, the following conclusions can be drawn: The film flow rate in the temperature range investigated here is directly proportional to the density of the superliquid component: $R = A\varrho_s/\varrho$, where $A = 3{,}2 \cdot 10^{-5}$ $cm^3/cmsec$. Moreover the temperature of the phase transition He I - He II for the solutions given here might be determined from the beginning of overflowing over the film. The values obtained in this connection are in satisfactory agreement with the analogous results obtained by other methods. There are 2 figures, 2 tables, and 5 references, 4 of which are Slavic.

ASSOCIATION: Physical-Technical Institute AN Ukrainian SSR
(Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR)

On the Film Flow Rate in Solutions of Helium-Isotopes 56-1-38/56

SUBMITTED: October 5, 1957

AVAILABLE: Library of Congress

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S/056/62/043/004/060/061
B104/B186

24.5200

AUTHORS: Andronikashvili, E. L., Tsakadze, Dzh. S., Bablidze, R. A.

TITLE: Study of rotated He II near its λ-point using the method of secondary sound

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1562-1563

TEXT: H. E. Hall and W. F. Vinen (Proc. Roy. Soc., A 238, 204; 215, 1956) showed that the establishment of a steady motion in He II on transition from rotated He I into rotated He II (i.e., slower formation of Onsager-Feynman vortices) can be studied by reference to the scattering of secondary sound waves from the vortices. The following experiment was made on liquid He contained in the cavity between two coaxial cylinders (ring-resonator). This resonator can be rotated about its axis of symmetry. The emitter and the detector for secondary sound were installed on the inner cylinder. A special device enabled the resonator to be rotated uniformly. The emitter was fed by a highly stabilized audio frequency generator. The signals received at the

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Study of rotated He II near ...

detector were amplified and conducted into an ЭПП-09 (EPP-09) recorder. At temperatures around the λ-point (2.09 and 2.15°K) the resonance frequency was fixed in motionless He. The temperature of the He was then raised to 2.25°K by stopping evacuation. The resonator was set in motion (ω_0 = 0.98 sec^{-1}), and after 3-4 minutes He was again pumped out at a rate of 2 mm Hg per minute. The amplitude of secondary sound was measured at the moment of passing the previously fixed temperature. The same measurements were also made with motionless He. The measurements at a fixed temperature of 2.15°K showed that the maximum amplitude of secondary sound does not change, i.e., the formation of vortices slows down. The amplitude becomes lower when the temperature is raised somewhat above the λ-point and is then again reduced to 2.15°K without the resonator being stopped. The measurements at fixed temperature of 2.09°K give another picture: at the first reduction of temperature the amplitude of secondary sound becomes lower by 20%. The same reduction is reached after 1.5 to 2 minutes rotation at the same angular velocity when the He is kept at a temperature of approximately 2.09°K. The time that elapsed before this slowed down the formation of Onsager-Feynman vortices is estimated to have been 4 minutes (at 2.15°K).

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Study of rotated He II near ...

S/056/62/043/004/060/061
B104/B186

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics of the Academy of Sciences Gruzinskaya SSR)

SUBMITTED: August 31, 1962

Card 3/3

44229

S/056/62/043/006/021/067
B102/B104

24520

AUTHOR: Bablidze, R. A.

TITLE: Transcritical oscillation conditions for He II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2086 - 2093

TEXT: The transcritical oscillation conditions were studied by the method of second-sound attenuation. Axial torsional oscillations were excited by a mechanism that allowed of varying the oscillation period and amplitude of the resonator (Q = 1500 in He II at rest at 1.6°K) between 2.8 and 12.5 sec and 0.06 and 2 radians, respectively. Thus the maximum linear velocities on the resonator periphery could be varied from 0.5 to 90 mm/sec. Second-sound source and detector were applied at top and bottom of the resonator, respectively. The measurements were made at 60 to 3000 cps. The heat flux density dispersion did not exceed $5 \cdot 10^{-4}$ w/cm^2. The sound signals were amplified (amplification factor of resonance amplifier ~10^7) and then fed to an ЭПП-09 (EPP-09) recorder. The appearance and stability of quantized Onsager-Feynman vortices was determined from the additional

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Transcritical oscillation ...

attenuation (γ') of second sound waves on them. The total damping coefficient is given by $\gamma = \gamma_0 + \gamma'(\omega, \varphi)$, where γ_0 refers to the resonator at rest and $\gamma'(\omega, \varphi)$ to a resonator oscillating at the frequency ω and the amplitude φ. $\gamma'(\omega, \varphi) = \frac{\pi \nu_0}{u_2 Q_0} (Q_0/Q - 1)$ where Q is the quality factor of the oscillating resonator and ν_0 and u_2 are the resonance frequency and the second-sound velocity. All measurements were made at 1.6°K and $\partial u_2/\partial T \approx 0$. γ' was measured between the first and the last pulse-height maximum of second-sound signal as $\gamma'(\omega)$ with φ = const and $\gamma'(\varphi)$ with ω=const. The results show that $\gamma'(\omega, \varphi) = C(V_0 - A)^B$ where $A = V_{crit} = 1.28 \pm 0.29$ mm/sec, $B = 1.510 \pm 0.011$, $C = (5.00 \pm 0.21) \cdot 10^{-7}$ sec$^{3/2}$.mm$^{-5/2}$. The time dependence of γ' was obtained as $\gamma'(t) = M\exp(-0.693t/\tau_1) + K\exp(-0.693t/\tau_2)$ with $\tau_1 = 14.20 \pm 0.86$ sec and $\tau_2 = 2.10 \pm 0.28$ sec; $M + K = \gamma'(0)$, $M/(M+K) = P$, where P varies between 0.2 and 0.5. The times $\tau_{1,2}$ are the halflives of two different types of quantized vortices. $\gamma'(t)$ describes the decay of

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Transcritical oscillation ... S/056/62/043/006/021/067
B102/B104

quantum turbulence; the rate of this process is given by $\partial\gamma'/\partial t = -\left[\frac{0.693}{\tau_1} M \exp\left(-\frac{0.693}{\tau_1} t\right) + \frac{0.693}{\tau_2} K \exp\left(-\frac{0.693}{\tau_3} t\right)\right]$. The results agree qualitatively with the Onsager-Feynman vortex concentration. There are 6 figures.

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics of the Academy of Sciences Gruzinskaya SSR)

SUBMITTED: July 20, 1962

Card 3/3

ANDRONIKASHVILI, E.L.; BABLIDZE, R.A.; GUDZHABIDZE, G.V.;
TSAKADZE, D.S. (Tbilisi)

"Experimental study of generation and disappearance of vortices at a phase transition from a quantum liquid into a classical one and vice versa".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

ACCESSION NR: AP4025917 S/0056/64/046/003/0843/0844

AUTHOR: Bablidze, R. A.; Tsakadze, Dzh. S.; Chanishvili, G. V.

TITLE: Concerning the shift of the Lambda point in rotating liquid helium

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 46, no. 3, 1964, 843-844

TOPIC TAGS: liquid helium, Onsager Feynman vortex, Lambda point, Lambda point shift, liquid helium relaxation mechanism, helium I, helium II

ABSTRACT: To ascertain whether the retention of the Onsager-Feynman vortices in liquid helium whose temperature is raised above the λ point is due to a shift of the λ point or due to the relaxation mechanism predicted by E. L. Andronikashvili et al (ZhETF v. 46, 157, 1964), an experiment was set up to determine the λ-point shift by observing the discontinuity in the heating (or cooling) curve of rotating and stationary helium on passing through the λ point. The experiments were made at rotation speeds (0.057 — 0.56 sec^{-1}) higher than used by Andronikashvili (0.055 sec^{-1}) and were accurate to 5×10^{-4} K. It is concluded that with this

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ACCESSION NR: AP4025917

accuracy there is no shift of the λ point towards either higher or lower temperatures over the entire range of employed angular velocities. "The authors take this opportunity to thank E. L. Andronikashvili for his stimulating interest in the present work." Orig. art. has: 1 figure.

ASSOCIATION: Institut fiziki AN GrusSSR (Physics Institute, AN GruzSSR).

SUBMITTED: 30Sep63 DATE ACQ: 16Apr64 ENCL: 01

SUB CODE: PH NR REF SOV: 001 OTHER: 000

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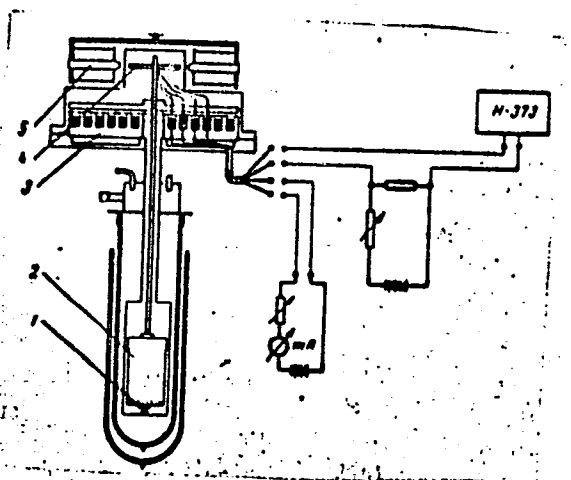
ACCESSION NR: AP4025917

ENCLOSURE: 01

Block diagram of set-up:
1 - resistance thermometer,
2 - organic-glass beaker
3 - mercury contact slip rings
4 - iron core
5 - rotating electromagnet



Card 3/3

BABLIDZE, R. A.; TSAKADZE, Dzh. S.; CHANISHVILI, G. V.

Shifting of the λ-point in rotating liquid helium. Zhur. eksp. i teor. fiz. 46 no. 3:843-844 Mr '64. (MIRA 17:5)

1. Institut fiziki AN Gruzinskoy SSSR.

BABLIDZE, R.A.

Studying the supercritical oscillatory mode in helium II by the method of second sound damping. Trudy Inst. fiz. AN Gruz. SSR 9: 171-183 '63. (MIRA 17:7)

L 22116-66 EWT(d)/EWT(l)/EWT(m)/EPF(n)-2/EWP(t) IJP(c) JD/WW/GG
ACC NR: AP6004916 SOURCE CODE: UR/0056/66/050/001/0046/0050

AUTHORS: Andronikashvili, E. L.; Bablidze, R. A.; Tsakadze, Dzh.S.

ORG: Institute of Physics, Academy of Sciences, Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

TITLE: Damping of second sound in rotating helium on going through the phase transition temperature

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 46-50

TOPIC TAGS: liquid helium, quantum liquid, vortex, rotation, resonator, sound propagation, relaxation process

ABSTRACT: The purpose of the study was to investigate the formation of quantized Onsager-Feynman vortices in rotating helium, which has not been sufficiently studied to date, particularly in those cases when the vortices are formed in rotating helium going through the phase-transition temperature. For the purpose of investigating the kinetics of the vortex formation, the authors constructed a resonator

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in which second sound could propagate in a radial direction. A second axial resonator was constructed, in which the second sound could propagate along the axis of rotation. The experiments have shown that in the immediate vicinity of the phase transition point the rotating helium II becomes foglike, as a result of uniform distribution of vortex nuclei. It is deduced from the experiments that initially there is formed an isotropic mass of vortex nuclei, which gradually become aligned into a system of vortices oriented along the axis of rotation. The relaxation times were measured for different rotating speeds and for different degrees of supercooling, and it is concluded that the relaxation time of the classical type of motion in a rapidly rotating quantum liquid is of the same order as the time of formation of the quantized Onsager-Feynman vortices at large angular velocities. The authors thank Yu. G. Mamaladze for a discussion of the results and N. S. Gavrilidi for help with the experiments. Orig. art. has: 4 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 06Aug65/ ORIG REF: 003/ OTH REF: 001

ACC NR: AP6037062 SOURCE CODE: UR/0056/66/051/005/1341/1343

AUTHOR: Bablidze, R. A.; Gavrilidi, N. S.

ORG: Institute of Physics, Academy of Sciences, Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

TITLE: Concerning the condensation of rotating helium II

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 5, 1966, 1341-1343

TOPIC TAGS: liquid helium, quantum liquid, low temperature research, acoustic speed

ABSTRACT: To check on the cause of the increase in the density of helium II when the latter is rotated, first observed by E. L. Andronikashvili and G. S. Tsakadze (ZhETF Pis'ma v. 2, 278, 1965), the authors have measured the velocity of first sound in rotating helium II at temperatures 1.40 - 2.10K and angular velocities 0 - 70 sec^{-1}. Since the results of Andronikashvili and Tsakadze disagreed with those expected under the assumption that the condensation is due to centrifugal forces, the authors advanced the hypothesis that the condensation is due to the presence of quantized vortices themselves. The measurements were made by a procedure whereby short sound pulses were transmitted to the investigated medium and the travel time of these pulses along a certain segment of definite length was measured. The results show that within the range of angular velocities and temperatures measured, the speed of sound remains constant (within 1%) at all speeds of rotation. This refutes the

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ACC NR: AP6037062

assumption that rotating helium II has some anomalous compressibility, and consequently a different mechanism is necessary to explain the condensation effect. Orig. art. has: 3 formulas.

SUB CODE: 20/ SUBM DATE: 10Jun66/ ORIG REF: 001/ OTH REF: 001

Card 2/2

BALIK, A.

Sheet Metal Surface and Hot-Dip Galvanizing. H. Balik. (Metall, 1953, 7, Nov., 849-851). The effect of surface structure and composition on the nature of the zinc coating is explained by reference to experiments by the author and others. In particular, it is noted that cold working activates the surface with increased attack by zinc and formation of an iron and zinc alloy, particularly in the 'dry' process. The 'sweating' in galvanizing is shown to be due to the presence in the surface of compounds formed during the bright annealing of sheet.—J. H. W.

Metal

1

of

RABLIK, L.

Acuity of hearing following paracentesis. Mschr. Ohrenh 84 no.7-8-9:165-168 Jul-Sep 1950. (CLML 20:1)

1. Of the First Clinic for Ear-Nose-Throat Diseases of Vienna University (Head--Prof. Emil Schlander, M. D.).

JANCZEWSKI, Zygmunt; BABLOK, Leszek; CZAPLICKI, Maciej

Clinical and histopathological evaluation of "false" Klinefelter's syndrome. Endokr. Pol. 15 no.2:253-263 Mr-Ap '64.

1. I Klinika Poloznictwa i Chorob Kobiecych w Warszawie (Kierownik: prof. dr. T. Bulski), Oddzial Endokrynologiczny (Kierownik: doc. dr. J. Teter).

MEYLAKHS, M., master i rekordsmen SSSR po samoletnomu sportu; [illegible], V., komandir samoleta, pilot 2 klassa; EABLINDRA, S., komandir samoleta

Is a second pilot for an An-2 airplane needed? Grazhd. av. 21 no.11:25 N '64. (MIRA 18:3)

L 64572-65

ACCESSION NR: AP5023479 RU/0012/64/000/006/1009/1013 24 B

AUTHOR: Baciu, I. (Lieutenant Colonel, Doctor); Babolea, C. (Lieutenant Colonel, Doctor); Filip, I. (Major, Doctor); Cafrita, A. (Major, Doctor)

TITLE: Observations on a case of mesenteric adenophlegmon, a rare complication of non-characteristic mesenteric lymphadenitis

SOURCE: Revista sanitara militara, no. 6, 1964, 1009-1013

TOPIC TAGS: surgery, gastroenterology, digestive system, digestive system disease

ABSTRACT: The article describes the symptoms of this affliction, the tests carried out on the patient, the surgery and the post-operative treatment, and discusses the possible causes of this infection.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: LS

NR REF SOV: 000 OTHER: 000 JPRS

Card 1/1

BABLOYAN, A.A.

Torsion of prismatic rods of a box-type cross section with a slit.
Iav. AN Arm. SSR. fiz.-mat. nauk 11 no.2:89-97 '58. (MIRA 11:6)

1.Institut matematiki i mekhaniki AN ArmSSR.
(Elastic rods and wires)

AUTHORS: Abramyan, B.L. and Babloyan, A.A. SOV/22-11-4-9/11

TITLE: On the Bending of Thick Round Plates Under Axial Symmetric Load (K izgibu tolstykh kruglykh plit osesimmetrichnoy nagruzkoy)

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR, Seriya fiziko-matematicheskikh nauk, 1958, Vol 11, Nr 4, pp 95 - 106 (USSR)

ABSTRACT: The authors consider a thick round plate which is fastened so that the whole lateral face is free of radial displacements and that a point of the plate axis does not suffer an axial displacement (see Lur'ye [Ref 1]). The authors investigate the bending of the plate under arbitrary axial symmetric load acting on the base surfaces. The problem is solved by the solution of the basic equations of elasticity theory with the aid of the Fourier method. The boundary conditions are assumed to be piecewise continuous and to be of bounded variation. Without giving the intermediate calculations which are probably very extensive, the authors present explicit final expressions for the in-

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tegration constants and the coefficients of the stress function. In two tables and in several diagrams numerical approximative values (probably very inexact) for an example are given.
There are 3 figures, 2 tables, and 11 references, 7 of which are Soviet, 3 English, and 1 German.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute for Mathematics and Mechanics, AS Armenian SSR)

SUBMITTED: April 10, 1958

ABRAMYAN, B.L.; BABLOYAN, A.A.

Torsion in anisotropic cylinders. Dokl.AN Arm.SSR 27 no.5: 269-275 '58. (MIRA 12:5)

1. Institut matematiki i mekhaniki AN ArmSSR i Yerevanskiy gosudarstvennyy universitet. Predstavleno akademikom N.Kh. Arutyunyanom.

(Torsion) (Elastic plates and shells)

16(1), 24(6)

AUTHOR: Babloyan, A. A.

SOV/22-12-3-8/9

TITLE: Torsion of a Shaft With a Thin Strengthening Layer by Single Moments

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko - matematicheskikh nauk, 1959, Vol 12, Nr 3, pp 89-94 (USSR)

ABSTRACT: The author considers a shaft of length 2 l with a circular cross section strengthened by a thin additional outer layer of the thickness δ. At the ends of the shaft there act the same moments of torsion M, in the middle of the shaft there acts the inversely directed moment 2 M. The problem consists in the determination of the tension function $\phi(r,z)$ of the equation

$$(1) \qquad \frac{\partial^2 \phi}{\partial r^2} - \frac{3}{r}\frac{\partial \phi}{\partial r} + \frac{\partial^2 \phi}{\partial z^2} = 0$$

and the boundary conditions

$$(2) \qquad G_1 \phi + G_2 \delta\left(\frac{\partial \phi}{\partial r}\right) = -\int_0^s r^2(s) P(s) ds ,$$

where r(s) is the radius at the considered place and

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Torsion of a Shaft With a Thin Strengthening Layer by Single Moments

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(3) $P(s) = \tau_{r\varphi}\frac{dz}{ds} - \tau_{z\varphi}\frac{dr}{ds}$.

The solution is found as a series in terms of Bessel functions containing the well-known formula of A.Timpe [Ref 2] as a special case ($\delta=0$). The author gives numerical values for the case $\frac{G_2}{G_1} = 10$, $\delta=0.1$, $R=1$, $l=2\pi$. He mentions K.S.Chobanyan.

There are 2 tables, 4 figures, and 3 references, 1 of which is Soviet, 1 German, and 1 English.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics, AS Armenian SSR)

SUBMITTED: April 16, 1959

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S/022/60/013/005/002/008
C111/C222

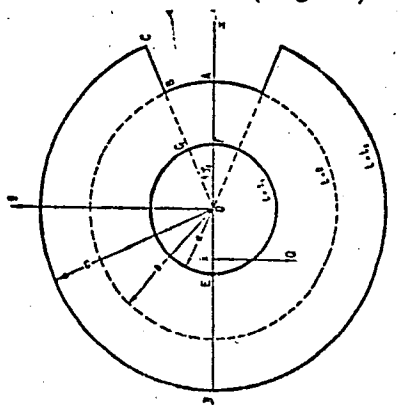
AUTHOR: Babloyan, A.A.

TITLE: Bending of Circular Bars Having Longitudinal Notches at the Side

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol. 13, No. 5, pp. 17-25

TEXT: The author considers the bending of a circular prismatic bar with a central cavity and a lateral notch (fig. 1)

(Fig. 1)



фиг. 1

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The external force Q acts on the free end in the bending center and is parallel for the y-axis. In the cross section the tension function $F(x,y)$ satisfies the equation

$$(1.1) \qquad \nabla^2 F(x,y) = \frac{Q\sigma(x - x_0)}{(1 + \sigma)J} - \frac{Q}{2J} f(x) ,$$

where x_0 is the coordinate of the center of gravity of the cross section, J is the moment of inertia of the cross section with respect to the y-axis, $f(x)$ is an arbitrary function, σ is the Poisson's coefficient. On the boundary of the cross section, $F(x,y)$ satisfies the condition

$$(1.2) \qquad \frac{\partial F}{\partial S} = \frac{Q}{2J}\left[y^2 - f(x)\right]\frac{dx}{dS}$$

Because of the symmetry, the authors only consider the region ABCDEGF , where the normal derivative of $F(x,y)$ must vanish on AF and ED. Putting

$$(1.3) \qquad f(x) = b^2 - x^2$$

and

$$(1.4) \qquad x = be^t \cos\varphi , \quad y = be^t \sin\varphi$$

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then one obtains from (1.1) and (1.2) :

$$(1.5)\quad \nabla^2 F(t,\varphi) = \frac{(1+2\sigma)Qb^3}{(1+\sigma)J} e^{3t}\cos\varphi - \frac{\sigma x_o Qb^2}{(1+\sigma)J} e^{2t}$$

and

$$(1.6)\quad \frac{\partial F}{\partial S} = -\frac{Qb^3}{2J}(1 - e^{2t})\frac{d(e^t\cos\varphi)}{dS} .$$

The tensions $\tau_{z\varphi}$ and $\tau_{r\varphi}$ are expressed by $F(t,\varphi)$:

$$(1.7)\quad \tau_{z\varphi}(t,\varphi) = -\frac{1}{be^t}\frac{\partial F}{\partial t} + \frac{Qb^2}{2J}(e^{2t} - 1)\cos\varphi ,$$

$$\tau_{r\varphi}(t,\varphi) = \frac{1}{be^t}\frac{\partial F}{\partial \varphi} + \frac{Qb^2}{2J}(e^{2t} - 1)\sin\varphi .$$

From (1.6) there follow the boundary conditions (values of $F(0,\varphi)$, $F(t,\varphi_1)$, $F(t_2,\varphi)$, $F(-t_1,\varphi)$, where $t_1 = -\ln\frac{a}{b}$, $t_2 = \ln\frac{c}{b}$).
Corresponding to (Ref. 3) the function $F(t,\varphi)$ is sought with the arrangement

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$$(1.10)\quad F(t,\varphi) = \begin{cases} F_1(t,\varphi) & \text{in the region I} \\ F_2(t,\varphi) & \text{in the region II} \\ F_3(t,\varphi) & \text{in the region III} \end{cases}$$

and corresponding boundary conditions. For the determination of the $F_i(t,\varphi)$, (1.5) is solved by a separation of variables under consideration of these boundary conditions. For the integration constants one obtains two infinite systems of equations being completely regular and having free terms bounded from above and tending to zero. An explicit expression for the coordinate of the bending center is given.

In the numerical example : $\frac{c}{a} = 2.9359$, $2\varphi_1 = \frac{\pi}{5}$, three cases are distinguished :

I. $t_1 = 0.3947$ $t_2 = 0.6823$

II. $t_1 = 0.677$ $t_2 = 0.400$

III. $t_1 = 0.8968$ $t_2 = 0.1801$

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The table 1 gives the estimations of the coordinate of the bending center from above ($\bar{\bar{x}}^{+}$) and from below ($\bar{\bar{x}}^{-}$) and its mean value $\bar{\bar{x}}$.

table 1 :

	$\frac{\bar{\bar{x}}^{-}}{a}$	$\frac{\bar{\bar{x}}^{+}}{a}$	$\frac{\bar{\bar{x}}}{a} = \frac{\bar{\bar{x}}^{-} + \bar{\bar{x}}^{+}}{2a}$
ring sector	-	-	- 3.3102
case I	- 1.5153	- 1.4820	- 1.4987
case II	- 0.5080	- 0.4837	- 0.4959
case III	- 0.2058	- 0.1911	- 0.1985

Table 2 contains value of $\frac{c^2 \tau_{z\varphi}(t, \varphi)}{Q}$ for some points on y = 0

table 2 :

points	(0,0)	$(-t_1,0)$	$(-t_1, \tilde{\kappa})$	$(0, \tilde{\pi})$	$(t_2, \tilde{\pi})$
ringsector	--	--	2.0202	--	0.8592
case I	- 1.5276	-2.1324	1.2283	0.8334	0.5846
case II	- 1.0038	-1.2889	1.0537	0.6413	0.5239
case III	- 0.6592	-1.0783	0.9697	0.5459	0.5008
ring	- 0.5007	-0.9395	0.9395	--	0.5007

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There are 2 tables, 1 figure and 6 Soviet references.

[Abstracter's note : The regions I,II,III are not defined. (Ref. 3) is a paper of B.L. Abramyan and A.A. Babloyan in Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 2, pp. 341 - 349]

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskaya SSR (Institute of Mathematics and Mechanics of the Academy of Sciences Armyanskaya SSR)

SUBMITTED: May 25, 1960

Card 6/6

ABRAMYAN, B.L. (Yerevan); BABLOYAN, A.A. (Yerevan)

Torsion of circular bars having longitudinal grooves or teeth and a central cavity. Prikl. mat. i mekh. 24 no. 2:341-349 Mr-Ap '60. (MIRA 14:5)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Torsion)

ABRAMYAN, B.L., BABLOYAN, A.A.

Torsion of round rods with longitudinal grooves or teeth and a cavity through the center. Dokl.AN Arm.SSR 29 no.5: 203-209 '59. (MIRA 13:6)

1. Institut matematiki i mekhaniki Akademii nauk Armyanskoy SSR. Predstavleno akad. AN Armyanskoy SSR N.Kh. Arutyunyanom.
(Elastic rods and wires) (Torsion)

BABLOYAN, A.A. (Yerevan)

Bending of circular rods having longitudinal side grooves. Izv.AN SSSR. Otd.tekh.nauk.Mekh.i mashinostr. no.5:66-73 '60. (MIRA 13:9)

1. Institut matematiki i mekhaniki AN ArmSSR.
(Elastic rods and wires)

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S/040/60/024/02/19/032

AUTHORS: Abramyan, B. L., Babloyan, A. A. (Yerevan)

TITEL: The Torsion of Round Bars With Grooves and Teeth in Longitudinal Direction and With a Centrally Situated Hollow Space

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 2 pp. 341-349

TEXT: The authors consider the torsion of a round prismatic bar which possesses a centrally situated hollow space and on the outside or inside wall of which there occur symmetrically distributed longitudinal grooves. The side walls of the notchings are planes going through the axis of the bar. With the aid of the method of (Ref.1,2) the authors obtain a rigorous solution. The integration constants must be determined from linear infinite systems of equations which are perfectly regular in the sense of Kantorovich and which possess free terms bounded from above and tending to zero. In two special cases (a.) six notches b.) one notch) a numerical calculation is carried out. The same torsional probelm for notched bars, however without hollow space,

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The Torsion of Round Bars With Grooves and Teeth in Longitudinal Direction and With a Centrally Situated Hollow Space

was investigated in (Ref.3,4).
There are 7 figures, 4 tables, and 5 references: 3 Soviet and 2 Roumanian.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics AS of the Armenian SSR)

SUBMITTED: April 19, 1959

Card 2/2

BABLOYAN, A.A.

Flexure of prismatic rods with cross sections in the form of a ring sector with a groove along the curvilinear portion. Dokl. AN Arm. SSR 31 no. 4:193-200 '60. (MIRA 13:12)

1. Institut matematiki i mekhaniki Akademii nauk Armyanskoy SSR. Predstavleno akademikom AN Armyanskoy SSR N.Kh. Arutyunyanom.
(Flexure) (Elastic rods and wires)

BABLOYAN, A.A.

Flexure of round rods with longitudinal lateral grooves. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 13 no.5:17-25 '60. (MIRA 14:1)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Flexure) (Elastic rods and wires)

S/022/61/014/002/002/008
B112/B203

AUTHOR: Babloyan, A. A.

TITLE: Bending of a round cylinder with longitudinal teeth or a notch

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, v. 14, no. 2, 1961, 31-44

TEXT: The author studies the bending of prismatic rods, the cross sections of which have the shape of a ring sector with symmetrically arranged teeth and of a ring with a sectorial notch. L. S. Leybenzon, A. C. Stevenson, M. Seegar, Ya. Y. Burak, and others were concerned with similar problems. The author applies the external bending force P to the free end of the rod along the symmetry axis of the cross section, i.e., he presupposes free from torsion bending. The stress function $F(x, y)$ satisfies a differential equation:

$$\nabla^2 F(x, y) = \frac{P}{J}\left[\frac{\sigma}{1+\sigma} y - \frac{1}{2} f'(y)\right]$$ with the boundary condition:

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Bending of ...

$$\frac{\partial F}{\partial s} = \frac{P}{J}\left[\frac{x^2}{2} - x_o x - \frac{1}{2} f(y)\right]\frac{dy}{ds}$$, where x_o is the center-of-mass coordinate of the cross section, J the axial moment of inertia of the cross section with respect to the axis η, f(y) an arbitrary function, and σ is Poisson's ratio. The author sets $f(y) = b^2 - y^2$, and introduces new coordinates t, φ : $x = be^t \cos\varphi$, $y = be^t \sin\varphi$, thus, the equation for the stress function takes the form:

$$\nabla^2 F(t, \varphi) = \frac{Pb^3}{J}\frac{1 + 2\sigma}{1 + \sigma} e^{3t} \sin\varphi$$ with the boundary condition:

$$\frac{\partial F}{\partial s} = \frac{Pb^3}{2J}\left[e^{2t} - 1 - 2\frac{x_o}{b} e^t \cos\varphi\right]\frac{d(e^t \sin\varphi)}{ds}$$. These equations are solved separately for each part of the properly subdivided cross section, essentially by the method of separation of variables. The solutions contain coefficients X_k and Y_k which satisfy two infinite linear systems of equations:

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Bending of ...

$X_p = \sum_{k=1}^{\infty} a_{kp}Y_k + P_p$, $Y_p = \sum_{k=1}^{\infty} b_{kp}X_k + Q_p$. The author shows that these systems are completely regular. Then, he considers a number of special cases illustrating them by numerical examples. For the simplest case (solid cylinder without a notch), the stress function has the form:

$$F(t,\varphi) = C \sin\varphi \left[e^{3t} + e^{-3t_1} \frac{\mathrm{sht}}{\mathrm{sht}_1} - \frac{\mathrm{sh}(t_1 + t)}{\mathrm{sht}_1} \right] + \frac{Pb^3 e^{-2t_1}}{J} \mathrm{sht} \cdot \sin\varphi .$$

There are 9 figures, 2 tables, and 10 references: 6 Soviet-bloc and 4 non-Soviet-bloc.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics of the AS Armyanskaya SSR)

SUBMITTED: November 24, 1960

Card 3/3

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S/022/61/014/004/002/010
D299/D302

AUTHOR: Babloyan, A.A.

TITLE: On axisymmetric deformation of a finite circular cylinder of transversely isotropic material

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v.14, no.4, 1961, 61-70

TEXT: An exact solution is obtained for the problem of axisymmetric deformation of a circular cylinder of radius R and height 2h, the external load being symmetrically distributed with respect to the middle plane z=0. The Elliott-Chakravorty formulas are used. It is noted that Elliott's formulas can be derived from S. G. Lekhnitskiy's formulas. In the case of axisymmetric deformation, the stresses and displacements, expressed in terms of 2 "harmonic" functions $\varphi_1(r,z)$ and $\varphi_2(r,z)$ are given by formulas which involve the coefficients k, c and ν, where ν_1^2 and ν_2^2 are the roots of the equation

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$$c_{11}c_{44}v^4 + [c_{13}(c_{13}+2c_{44}) - c_{11}c_{33}]v^2 + c_{33}c_{44} = 0 \qquad (3)$$

k_1 and k_2 are found from

$$\frac{c_{44} + k_i(c_{13} + c_{44})}{c_{11}} = \frac{k_i c_{33}}{(c_{13} + c_{44}) + k_i c_{44}} = v_i^2 \qquad (4)$$

the functions φ_1 and φ_2 satisfy the equations

$$\nabla_1^2\varphi_1 + v_1^2\frac{\partial^2\varphi_1}{\partial z^2} = 0, \quad \nabla_1^2\varphi_2 + v_2^2\frac{\partial^2\varphi_2}{\partial z^2} = 0,$$

On axisymmetric deformation ...

$$\nabla_1^2 \equiv \frac{\partial^2}{\partial r^2} + \frac{1}{r}\frac{\partial}{\partial r} \qquad (5)$$

The roots of Eq. (3) are either real numbers or conjugated complex numbers. Both cases are met in practice. For an isotropic body, when

$$c_{11} = c_{33} = \lambda + 2\mu, \quad c_{12} = c_{13} = \lambda, \quad c_{44} = \mu$$

one obtains

$$\nu_1 = \nu_2 = k_1 = k_2 = 1 \qquad (6)$$

In general, these roots are not equal. Solving Eq. (5) by the method of separation of variables, one obtains the following funda-

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On axisymmetric deformation ...

mental system

$$\varphi_i(r,z) = \begin{cases} [AI_0(\nu_i\lambda r) + BK_0(\nu_i\lambda r)]\,[C\sin\lambda z + D\cos\lambda z\,, \\ \left[A_1 \operatorname{sh}\frac{\mu z}{\nu_i} + B_1 \operatorname{ch}\frac{\mu z}{\nu_i}\right][C_1 J_0(\mu r) + D_1 Y_0(\mu r) \end{cases} \quad (i=1,2) \qquad (7)$$

where λ and μ are arbitrary positive parameters, I, K, J and Y are Bessel functions. The function φ_1 is sought in the form

$$\varphi_i(r,z) = a_i z + b_i\left(\frac{r^2}{2} - \frac{z^2}{\nu_i^2} + \sum_{k=1}^{\infty} A_k^{(i)} I_0(\nu_i\lambda_k r)\cos\lambda_k z + \right.$$

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On axisymmetric deformation ...

$$+ \sum_{k=1}^{\infty} \left(B_k^{(i)} \operatorname{sh} \frac{\mu_k z}{\nu_i} + C_k^{(i)} \operatorname{ch} \frac{\mu_k z}{\nu_i} \right) J_0(\mu_k r), \quad (i=1,2) \qquad (8)$$

where $\lambda_k = k\pi/h$, and μ_k are the roots of the equation $J_1(\mu_k R) = 0$. These values of φ_i are substituted in the formulas for the stresses and displacements. Further, the stressed state of a circular cylinder is considered, described by

$$\tau_{rz}(R, z) = f_1(z) = \sum_{k=1}^{\infty} \gamma_k \sin \lambda_k z,$$

$$(0 \leq z \leq h)$$

$$\sigma_r(R, z) = f_2(z) = \gamma_0' + \sum_{k=1}^{\infty} \gamma_k' \cos \lambda_k z.$$

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On axisymmetric deformation ...

$$\tau_{rz}(r, h) = f_3(r) = \sum_{k=1}^{\infty} \delta_k J_1(\mu_k r),$$

$$(0 \leq r \leq R)$$

$$\sigma_z(r, h) = f_4(r) = \delta_0' + \sum_{k=1}^{\infty} \delta_k' J_0(\mu_k r). \qquad (14)$$

By virtue of the symmetrical load-distribution,

$$\tau_{rz}\ (0,z) = u(0,z) = 0 \qquad (15)$$

$$\tau_{rz}\ (r,0) = w(r,0) = 0 \qquad (16)$$

Expressions are obtained for the unknown coefficients A, b and C; these expressions yield an infinite system of linear equations

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$$X_p = \sum_{k=1}^{\infty} a_{kp} Y_k + \alpha_p,$$

$$(p=1,2,\ldots)$$

$$Y_p = \sum_{k=1}^{\infty} b_{kp} X_k + \beta_p \qquad (21)$$

(a,b,α, β, are given by formulas). It is shown that system (21) is regular and that the coefficients X and Y can be calculated by approximate methods. Substituting the obtained values of the coefficients in Eq. (7), one obtains expressions for φ_1 and φ_2, whence the formulas for the stresses and displacements can be readily derived. The same method can be used for solving the problem with

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On axisymmetric deformation ...

non-symmetrical load-distribution, and the problem of a sloping cylinder. These problems reduce to solving a regular infinite system of linear equations, whose free terms have an upper bound. By altering the boundary conditions, it is possible to solve problems, whose exact solution is obtained without having recourse to infinite systems. There are 1 figure and 15 references: 10 Soviet-bloc and 5 non-Soviet-bloc (including 2 translations). The references to the English-language publications read as follows: H. A. Elliott, Three-dimensional stress distributions in hexagonal Aelotropic crystals. "Proc. Camb. Phil. Soc." 44, 1948, 522-533; J. G. Chakravorty, On the distribution of stress in an infinite circular cylinder of transversely isotropic material caused by a band of uniform pressure on the boundary. "Bull. Cal. Math. Soc.", v. 48, no. 4, 1956; Love, A Treatise on the Mathematical Theory of Elasticity. 4th ed., New York, 1944.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics AS Armenian SSR)

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S/022/61/014/004/002/010
D299/D302

On axisymmetric deformation ...

SUBMITTED: February 11, 1961

Card 9/9

BABLOYAN, A.A.; TONOYAN, V.S.

Some problems of the torsion of shafts of varying cross section with mixed boundary conditions. Izv. AN Arm. SSR. Ser.fiz.-mat. nauk 14 no.6:49-63 '61. (MIRA 15:1)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Boundary value problems)
(Elastic rods and wires)

BABLOYAN, A.A.

Comments on one problem of the axisymmetric deformation of an infinite circular cylinder made from transversely-isotropic material. Dokl. AN Arm. SSR 32 no.4:189-195 '61. (MIRA 14:8)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR. Predstavleno chlenom-korrespondentom AN Armyanskoy SSR S.A. Ambartsumyanom.

(Boundary value problem)
(Deformations (Mechanics))

BABLOYAN, A.A.

Solution of the plane problem of the theory of elasticity for an angular sector in an area of stress. Izv.AN Arm.SSR.Ser. fiz.-mat.nauk 15 no.1:87-101 '62. (MIRA 15:2)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Elasticity)

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D218/D302

24,4200

AUTHORS: Abramyan, B.L., and Babloyan, A.A.

TITLE: On one case of axially symmetric deformation of a hollow cylinder of finite length

PERIODICAL: Akademiya nauk Armyanskoy SSR, Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 15, no. 2, 1962, 87 - 99

TEXT: The authors report an exact solution of the axially symmetric problem of the theory of elasticity for a hollow cylinder of finite length. An arbitrary load is assumed to be applied to the side surface of the cylinder, while normal displacements and tangential stresses are given at the ends. The solution is given in the form of Fourier and Fourier-Dini series. A numerical example of the solution is given. It is pointed out that the previously published solutions were approximate. There are 4 figures, 1 table and 12 references: 10 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: M.A. Binnie, Philosophical Magazine, London 212, 1941, 336-347; D. De Allen, L. Fox and

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S/022/62/015/002/003/009
On one case of axially symmetric ... D218/D302

R.V. Southwell, Phil. Trans. Roy. Soc. London, Ser. A., v. 239, 1946, 501-537.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics, AS Armenian SSR)

SUBMITTED: October 7, 1961

Card 2/2

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S/040/62/026/003/009/020
D407/D301

AUTHORS: Abramyan, B.L., and Babloyan, A.A. (Yerevan)

TITLE: On a contact problem involving the twisting of a hollow half-sphere

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 3, 1962, 471 - 480

TEXT: The twisting of a hollow half-sphere by an arbitrary axisymmetric load is considered. The solution of the problem is obtained by means of conic functions. The equation for the displacement function $\Psi(r, z)$ is

$$\frac{\partial^2\Psi}{\partial r^2} + \frac{3}{r}\frac{\partial\Psi}{\partial r} + \frac{\partial^2\Psi}{\partial z^2} = 0. \qquad (1.1)$$

Passing to a new coordinate-system, Eq. (1.1) is written:

$$\frac{\partial^2\psi}{\partial t^2} + (1-\xi^2)\frac{\partial^2\psi}{\partial\xi^2} + 3\frac{\partial\psi}{\partial t} - 4\xi\frac{\partial\psi}{\partial\xi} = 0 \qquad (1.4)$$

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On a contact problem involving ....

Solving Eq. (1.4) by the method of separation of variables, one obtains the following particular solutions

$$\psi(t,\xi) = e^{-3t/2}\left[A\,\mathrm{sh}\,\frac{(2n+1)}{2}t + B\,\mathrm{ch}\,\frac{(2n+1)}{2}t\right]\varphi_n(\xi) \tag{1.6}$$

(1.6)

$$\psi(t,\xi) = \frac{d}{d\xi}\left[AP_{-1/2+\mu_k i}(\xi) + BQ_{-1/2+\mu_k i}(\xi)\right]T_k(t)$$

where

$$\varphi_n(\xi) = \frac{d}{d\xi}\left[CP_n(\xi) + DQ_n(\xi)\right] \tag{1.7}$$

$$T_k(t) = e^{-3t/2}\left[C\sin\mu_k t + D\cos\mu_k t\right]$$

P_n and Q_n are Legendre functions, $P_{-1/2}$ and $Q_{-1/2}$ are conic functions, A, B, C and D are arbitrary constants, n is a positive natural number. Torsion of a hollow half-sphere with radii b and c (b<c) is considered; the spherical surfaces and the annular part of the plane z = 0 are subjected to tangential stresses, and on the rest of the z-plane the displacements v are given. The boundary conditions are set up. Formulas are obtained for the solution $\Psi(t, \xi)$ (which is

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On a contact problem involving ...

sought in the regions $t<0$ and $t>0$, where $t = \ln(\sqrt{r^2 + z^2}/a)$. In order to satisfy the boundary conditions, the arbitrary functions which enter the formulas for the solution, are expanded in series. The unknown coefficients (in the formulas for $\Psi(t, \xi)$), are obtained by solving two infinite systems of linear equations. These systems are regular and have bounded free terms which tend to zero. This makes it possible to determine the unknown coefficients with the required accuracy. By substituting the obtained values of the unknowns in the formulas for Ψ and for the stresses and displacements, it is possible to determine the latter (τ and v), at any point of the axial section of the half-sphere. Since the first derivatives of the series for the unknown coefficients are convergent everywhere, except at the point $t = 0$, $\xi = 0$, the tangential stresses τ are finite at all the points of the axial section, except (0, 0), where a stress concentration takes place in case of rigidly-fixed end. There is 1 figure.

ASSOCIATION: Institut matematiki i mekhaniki AN ArmSSR (Institute of Mathematics and Mechanics of the AS Armenian SSR)

SUBMITTED: October 17, 1961

Card 3/3

35303
S/022/62/015/001/003/007
D237/D301

24.4200

AUTHOR: Babloyan, A. A.

TITLE: Solving the plane problem of the theory of elasticity for a ring sector, in stresses

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Fiziko-matematicheskiye nauki, v. 35, no. 1, 1962, 87-101

TEXT: The exact solution of the plane problem of the theory of elasticity for a stressed sector bounded by two radii and two concentric circles is given. The x-axis passes through the sector in the radial direction, and the inner stress is distributed symmetrically about the x-axis. Polar coordinates (r,φ) are used, and the author introduces for convenience functions $\varphi_k(t)$ where

$$\varphi_k(t) = \begin{cases} e^t & \text{for } k = 0 \\ \sin\beta_k t + \beta_k \cos\beta_k t & \text{for } k = 1,2,\ldots \end{cases} \qquad (2.1)$$

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Solving the plane problem ...

and shows that the system $\{\varphi_k(t)\}$ ($k = 0, 1, 2...$) is orthogonal and complete in the class $L_2(0,t_1)$, after which he reduces the problem to that of solving infinite systems of linear equations with free terms. In conclusion it is shown that the infinite systems are regular and that their free terms are bounded above. The author notes that the given method can be used in the case of a ring sector with non-symmetrical stress distribution and that a change of boundary conditions makes it possible to obtain a number of solutions without applying the infinite systems. One such example is given. There are 12 Soviet-bloc references.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics, AS Armenian SSR)

SUBMITTED: March 2, 1961

Card 2/2

BABLOYAN, A.A.; TONOYAN, V.S.

Flexure of a two-layer thick circular plate by an axially symmetric load. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 16 no.1:13-32 '63. (MIRA 16:3)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.
(Elastic plates and shells) (Deformations (Mechanics))

BABLOYAN, A.A. (Yerevan)

"On a mixed problem connected with the torsion of a sphere".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

ARUTYUNYAN, N.Kh.; ABRAMYAN, B.L.; BABLOYAN, A.A.

Compression of an elastic sphere with a rigid ring-shaped rim.
Izv.AN Arm.SSR.Ser.fiz.-mat.nauk 17 no.3:55-63 '64. (MIRA 17:9)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.

ACCESSION NR: AP4042535 S/0022/64/017/003/0055/0063

AUTHOR: Arutyunyan, N. Kh.; Abramyan, B. L.; Babloyan, A. A.

TITLE: Compression of an elastic sphere stiffened by a rigid ring

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 17, no. 3, 1964, 55-63

TOPIC TAGS: spherical shell, hollow sphere, ring stiffened spherical shell, ring stiffened hollow sphere, elastic spherical shell, elastic hollow sphere

ABSTRACT: A compression of an elastic hollow sphere stiffened on its outer surface by a rigid belt along the equator and subjected to a normal load symmetrical about the axis and equatorial plane is discussed. Stress-strain relationships in the zone of contact are analyzed, with the assumption that there are no tangential stresses on the whole sphere's surface and no mass forces, starting with equilibrium equations in spherical coordinates with Lame's constants. The solution of the problem is reduced to a determination of the

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L 24684-65 EWP(w) EM

ACCESSION NR: AP4049198 S/0022/64/017/005/0027/0042

AUTHOR: Babloyan, A. A.; Tonoyan, V. S.

TITLE: Plane problem of an orthotropic plate in the form of an annular sector

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 17, no. 5, 1964, 27-42

TOPIC TAGS: orthotropic plate, annular sector plate, plate stress, plate strain

ABSTRACT: Two problems of plane-elasticity theory, concerning an orthotropic plate in the form of an annular sector bounded by two concentric circles and two radii are discussed: a) when boundary conditions on all sector edges are given in stresses b) when stresses are given on cricular edges, and tangential stresses and normal displacements on straight edges. Expressions for determining stresses and displacements are derived for the general case by introducing a stress function. The analysis of the problem a) for symmetrical loading of the edge is reduced to solution of infinite systems of

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ACCESSION NR: AP4049198

linear algebraic equations with free terms having an upper bound. For the problem b) expressions for determining the stress functions are derived without using infinite systems of algebraic equations. The Fourier method is applied to both solutions. Orig. art. has: 2 figures and 54 formulas.

ASSOCIATION: Institut matematiki i mekhaniki AN Armyanskoy SSR (Institute of Mathematics and Mechanics, AN ArmSSR)

SUBMITTED: 13Nov63 ENCL: 00 SUB CODE: AS, ME

NO REF SOV: 012 OTHER: 000

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ABRAMYAN, B.L. (Yerevan); ARUTYUNYAN, N.Kh. (Yerevan); BABLOYAN, A.A. (Yerevan)

Two contact problems for an elastic sphere. Prikl. mat. i mekh. 28 no.4:622-629 Jl-Ag '64 (MIRA 17:8)

1. Institut matematiki i mekhaniki AN Armyanskoy SSR.

BABLOYAN, A.A. (Yerevan)

Bending of thick circular plates by an arbitrary load. Inzh. zhur. 4 no.4.750-758 '64 (MIRA 18:2)

BABLOYAN, A.A.; SAAKYAN, S.M.

Two problems concerning the equilibrium of a rectangular parallelepiped with mixed boundary conditions. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 17 no.6:27-46 '64. (MIRA 18:3)

1. Institut matematiki i mekhaniki AN ArmSSR i Yerevanskiy politekhnicheskiy institut.

L 16684-65 EWT(d) Pg-4 ESD(dp)/AEDC(a)/AFWL/ASD(f)-2/IJP(c)
ACCESSION NR: AP5000272 S/0040/64/028/006/1015/1023

AUTHOR: Babloyan, A. A. (Yerevan)

TITLE: Solution of certain paired integral equations 16

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 6, 1964, 1015-1023

TOPIC TAGS: integral equation, elasticity theory, hydromechanics

ABSTRACT: Using notation and methods of a previous paper (Resheniye nekotory*kh parny*kh ryadov. Dokl. AN ArmSSR, 1964, t. 39, No. 5), the author considers certain paired integral equations containing Legendre functions with complex index and equations containing trigonometric functions. In particular, he studies

$$\int_0^\infty f(\tau) P_{-1/2+i\tau}(\operatorname{ch}\alpha)\, d\tau = g(\alpha) \qquad (0<\alpha<a) \tag{1}$$

$$\int_0^\infty \tau \operatorname{th}\pi\tau\, f(\tau) P_{-1/2+i\tau}(\operatorname{ch}\alpha)\, d\tau = h(\alpha) \qquad (a<\alpha<\infty)\ ;$$

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ACCESSION NR: AP5000272

$$\int_0^\infty \tau f(\tau) P_{-1/2+i\tau}(\operatorname{ch}\alpha)\, d\tau = g(\alpha) \qquad (0<\alpha<a)$$

$$\int_0^\infty \operatorname{th}\pi\tau f(\tau) P_{-1/2+i\tau}(\operatorname{ch}\alpha)\, d\tau = h(\alpha) \qquad (a<\alpha<\infty) \quad ; \quad (2)$$

$$\int_0^\infty \tau^k f(\tau) \sin\tau s\, d\tau = g(s) \qquad (0<s<a)$$

$$(k=\pm 1) \quad (3)$$

$$\int_0^\infty \operatorname{cth}\pi\tau f(\tau) \sin\tau s\, d\tau = h(s) \qquad (a<s<\infty)$$

and

$$\int_0^\infty f(\tau) \cos\tau s\, d\tau = g_1(s) \qquad (0<s<a) \qquad (4)$$

$$\int_0^\infty \tau^k \operatorname{cth}\pi\tau f(\tau) \cos\tau s\, d\tau = h_1(s) \qquad (a<s<\infty) \qquad (k=\pm 1)$$

Formal solutions of these equations are obtained. For one type of equation he proves validity of the obtained solution; this can be done analogously for the others. He treats a special form of paired integral equations in elasticity theory

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in toroidal coordinates. As an example, he studies the problem of torsion of a truncated sphere, where torsion is effected by rotation of a circular stamp fixed centrally on the plane part of the bounding surface. Orig. art. has: 1 figure and 52 formulas.

ASSOCIATION: Institut matematiki i mekhaniki, AN Armyanskoy SSR (Institute of Mathematics and Mechanics, AN Armenian SSR)

SUBMITTED: 07Jul64 ENCL: 00

SUB CODE: MA, ME NO REF SOV: 006 OTHER: 007

BABLOYAN, A.A.

Solution of certain "pair" series. Dokl. AN Arm. SSR 39 no. 3: 149-157 '64. (MIRA 18:1)

1. Institut matematiki i mekhaniki AN ArmSSR. Predstavleno akademikom AN ArmSSR N.Kh.Arutyunyanom.

BABLOYAN, A.A.; PIRUMYAN, O.O.

Some problems involving the dynamic torsion of an infinite cylindrical shaft. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 18 no.1:153-163 '65. (MIRA 18:6)

1. Institut matematiki i mekhaniki AN ArmSSR.

L 21766-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(k)/EWA(h)/ETC(m)-6/ IJP(c) WW/EM
ACC NR: AP6012615 SOURCE CODE: UR/0040/65/029/003/0526/0531

AUTHOR: Arutyunyan, N. Kh.; Babloyan, A. A.

ORG: none

TITLE: Two dynamic contact problems for an elastic sphere

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 3, 1965, 526-531

TOPIC TAGS: elastic deformation, polynomial, linear equation

ABSTRACT: This work gives the solution of two axially symmetric contact problems on stable oscillations of an elastic sphere.
The first problem concerns the axially symmetric deformation of an elastic sphere, over one part of whose surface there is given a normal displacement u_r and over the remaining part the magnitude of normal stress σ_r. For the sake of simplicity, it is assumed that the tangential load $\tau_{r\theta}$ is absent over the surface of the sphere.
The second problem concerns the torsional oscillation of the elastic sphere when this sphere twists by means of a rotary liquid circular press fixed on part of the surface of the sphere. The corresponding static problems have been considered by Babloyan, A. A. (DAN Arm SSR, 1964, Vol. 39, No. 3) and Arutyunyan, N. Kh.; Abramyan, B. L. (PMM, 1964, Vol. 28, Issue 6, pp 1101-1105).
The solutions of these problems are in terms of Legendre polynomials. The determination of constants of integration consists of solving the infinite systems of

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