GALICH, P.N.; GUTYRYA, A.A.; GUTYRYA, A.A.; GUTYRYA, V.S.; NEYMARK, I.Ye.

Certain features of the catalysis of alkanes over zeolites (molecular sieves). Dokl.AN SSSR 144 no.1:147-150 My '62. (MIRA 15:5)

1. Institut khimii polimerov i monomerov AN USSR i Institut fizicheskoy khimii AN USSR. 2. Chlen-korrespondent AN SSSR (for Gutyrya).
(Paraffins) (Catalysis) (Zeolites)

GUTYRYA, V.S., glav. red.; KLIMENKO, A.P., zam. glav. red.; GALICH, P.N., red.; KAMAKIN, N.M., red.; MAN'KOVSKAYA, N.K., red.; MASUMYAN, V.Ya., red.; SERDYUK, O.P., red.

[Petroleum chemistry; paraffin petroleum hydrocarbons] Neftekhimiia; parafinovye uglevodorody nefti, ikh vydelenie i pererabotka. Kiev, Naukova dumka, 1964. 138 p. (MIRA 17:10)

1. Akademiya nauk URSR, Kiev. Institut khimii vysokomolekulyarnykh soyedineniy.

KVITKOVSKIY, L.N.; KRAMSKOY, V.P., GUTYRYA, V.S.

Isolation of n-olefins from thermally cracked gasolines. Neftekhimiia 3 no.6:882-885 N-D '63. (MIRA 17:3)

1. Institut khimii polimerov i monomerov AN UkrSSR.

ACCESSION NR: AP4010061 S/0021/64/000/001/0082/0084

AUTHOR: Guty*rya, V. S. (Academician); Kachan, O. O.; Kolbanovs'ky*y, Yu. A.; Polak, L. S.; Nizel's'ky*y, Yu. M.; Frolova, V. S.

TITLE: Radiolysis of cyclohexane adsorbed by synthetic zeolites

SOURCE: AN UkrRSR. Dopovidi, no. 1, 1964, 82-84

TOPIC TAGS: radiation chemistry, radiolysis cation-exchanger, molecular sieve, zeolite, synthetic zeolite, type X molecular sieve

ABSTRACT: The present work was done to determine the influence of the chemical composition of the adsorbents on the composition of the radiolytic products of cyclohexane. Synthetic zeolites (commercial CoX, NaX, NaCaX and NaNiX) were used to adsorb cyclohexane, which was irradiated with Co^{60} gamma-radiation. The radiolytic products were analyzed by gas chromatography. The results indicate that the presence of two cations in the zeolite, one of them of variable valence, is important for the formation of an adsorbent actively affecting radiolysis. Orig. art. has 2 figures and 1 table.

Card 1/2

ACCESSION NR: AP4010061

ASSOCIATION: Insty*tut khimiyi polimeriv i monomeriv AN UkrRSR (Institute of the Chemistry of Polymers and Monomers, AN UkrRSR); Insty*tut naftokhimichnogo sy*ntezu AN SRSR (Institute of Petrochemical Synthesis, AN SRSR /Ukrainian equivalent of SSSR/)

SUBMITTED: 20Jun63	DATE ACQ: 10Feb64	ENCL: 00
SUB CODE: CH, NS	NO REF SOV: 001	OTHER: 003

Card 2/2

GUIYnY1, V. . .

State and prospects for the development of chemical science in the Ukrainian S.S.R. Ukr. khim. zhur. 30 no.7:[illegible] 1964
(MIRA 18:1)

[illegible]

Pyrolytic cleavage of sulfolanes. Ukr. khim. zhur. 30 no.9: 928-931 '64. (MIRA 17:10)

1. Institut vysokomolekulyarnykh soyedineniy AN Ukr.SSR.

BEZMENOVA, T.E.; GUTYRYA, V.S.; KAMAKIN, N.M.

Oxidation of sulfolanes. Ukr.khim.zhur. 30 no.11:1183-1186 '64.
(MIRA 18:2)

1. Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR.

BILAY, V.I.; PIDOPLICHKO, N.N. [Pidoplichko, M.M.]; GUTYRYA, V.S. [Hutyria, V.S.]; BUKHALO, A.S.; V'YUN, A.A. [V'iun, H.A.]; GALICH, P.N. [Halych, P.M.]; KOVAL', E.Z.; MASUMYAN, V.Ya.; MIL'KO, A.A. [Mil'ko, O.O.]

Petroleum hydrocarbons as a source of carbon for microscopic mycelial soil fungi. Mikrobiol. zhur. 27 no.2:3-10 '65. (MIRA 18:5)

1. Institut mikrobiologii i virusologii AN UkrSSR i Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR.

GUTYRYA, V.S. [Hutyria, V.S.], doktor khim.nauk; PATRILYUK, K.I. [Patryliak, K.I.], kand.tekhn.nauk; GALICH, P.N. [Halych, P.M.], kand.tekhn.nauk; MASUMYAN, V.Ya., kand.tekhn.nauk; GAPONENKO, O.I. [Haponenko, O.I.]

Separation of aromatic hydrocarbons from kerosene-gas oil fractions. Khim.prom. [Ukr.] no.2:20-22 Ap-Je '65. (MIRA 18:6)

GALICH, P.N.; GOLUBCHENKO, I.T.; GUTYRYA, V.S.; IL'IN, V.G.; NEYMARK, I.Ye.

Zeolite catalysts with cations of the first group of metals. Dokl. AN SSSR 161 no.3:627-628 Mr '65. (MIRA 18:4)

1. Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR i Institut fizicheskoy khimii im. Pisarzhevskogo AN UkrSSR.
2. Chlen-korrespondent AN SSSR (for Gutyrya).

GALICH, P.N.; GOLUBCHENKO, I.T.; GUTYRYA, V.S.; IL'IN, V.G.; NEYMARK, I.Ye.

Catalysis of synthetic zeolites containing cations of group 1 metals. Ukr. khim. zhur. 31 no. 11:1117-1122 '65

(MIRA 19:1)

1. Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR.

GUTYUK, V.G.; VOL'FOVSKIY, V.D.

Surgery on the heart with incomplete suturing of the pericardium.
Zdrav. Kazakh. 16 no.8:39-40 '56. (MIRA 10:1)

1. Iz khirurgicheskogo otdeleniya Dolinskoy tsentral'noy bol'nitsy Karagandinskoy oblasti (glavnyy vrach - L.I.Garnitskaya)
(HEART--SURGERY) (PERICARDIUM--SURGERY)

GUTYUK, V.G.; TERNOVENKO, A.G.

Three observations on traumatic diaphragmatic hernia. Zdrav. Kazakh. 21 no. 3:20-23 '61. (MIRA 14:4)
(HERNIA)

GUTYUK, V.G. (Karagandinskaya oblast', pochtovoye otdeleniye Dolinka, Sangorodok, d.12, kv.6); SICHINAVA, V.V.; TERNOVENKO, A.G.

Foreign body in the pleural cavity for 15 years. The formation of an external bronchpleural fistula. Klin.khir. no.11:79-80 N '62. (MIRA 16:2)

(PLEURA--FOREIGN BODIES) (FISTULA, BRONCHIAL)

[redacted], Yu. Sh., [redacted], Z. Yu., [redacted], V. A., [redacted], E. D., [redacted], S. L.

"The study of the natural foci of tickborn encephalitis in the TASSR.
Page 69

Desyatoye soveshchaniye po parazitologicheskim problemam i prirodnoochagovym boleznyam. 22-29 Oktyabrye 1959 g. (Tenth Conference on Parasitological Problems and Diseases with Natural Foci 22-29 October 1959), Moscow-Leningrad, 1959, Academy of Medical Sciences USSR and Academy of Sciences USSR, No. 1 254pp.

GUVENTAL', N.I.

Intramuscular administration of biomycin and terramycin. Antibiotiki 1 no.3:38-42 My-Je '56. (MLRA 9:10)

1. Kafedra mikrobiologii (zav. - chlen-korrespondent AMN SSSR prof. Z.V.Yermol'yeva) TSentral'nogo instituta usovershenstvovaniya vrachey.
(ANTIBIOTICS, administration,
biomycin, intramusc. (Rus))
(OXYTETRACYCLINE, administration,
intramusc. (Rus))

GURVICH, A.Ye.; GUVERNIYEVA, L.M.; MYASOYEDOVA, K.N.

Comparing the enzymatic hydrolysates of nonspecific gamma globulins and antibodies of rabbits. Biokhimiia 26 no.3:468-476 My-Je '61. (MIRA 14:6)

1. Laboratory of Pathology, of Protein Metabolism and of Immunochemistry, Institute of Biological and Medical Chemistry, Academy of Medical Sciences of the U.S.S.R., Moscow.

(GAMMA GLOBULIN) (ANTIGENS AND ANTIBODIES)
(PEPTIDES)

KRZHIZHANOVSKIY, G.M., akademik; AIVAZYAN, V.G.; ALAMPIYEV, P.M.; BUYANOVSKIY, M.S.; VARTAZAROV, S.Ya.; VEYTS, V.I.; GUVIN, F.F.; DYMITRASHKO, N.V.; KARAULOV, N.A.; KOCHARYAN, G.A.; KRITSKIY, S.N.; LEBEDEV, M.M.; MURZAYEV, E.M.; FEL'DMAN, M.P.; SHCHENGELIYAN, P.G.; ERISTOV, V.S.

Sukias Efremovich Manaserian; obituary. Izv.AN SSSR. Ser.geog. no.5:143-144 S-O '56. (MLRA 9:11)

(Manaserian, Sukias Efremovich, 1881-1956)

GUVIN, M.M.

Guvin, M.M. "Effect of grading errors on the distortion of the outlay of the earth works and gradients of electrical ratings," Trudy Sib. lesotekh. in-ta, symposium 5, No. 3, 1948, p. 9-25

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

GUVYAT, P.

High indices. Grazhd. av. no.3:15 Mr '61. (MIRA 14:3)

1. Nachal'nik otdela aviatsii spetsial'nogo primeneniya i vozdushnykh s"yemok Zapado-Sibirskgo territorial'nogo upravleniya Grazhdanskogo vozdushnogo flota.
(Aeronautics in agriculture)

GUYDA, T.

Improving the system of deduction from profits. Fin.SSSR 37 no.4:48-54 Ap '63. (MIRA 16:4)
(Moscow Province--Taxation) (Moscow Province--Profit)

GUYEBIS, Yu.M.

Mechanism for cutter disc grinding. Obm.tekh.opyt. [MLP] no.36: 38-39 '56. (MIRA 11:11)
(Tailoring--Equipment and supplies)

L 44768-66 IJP(c) RO

ACC NR: AP6005493 (A) SOURCE CODE: CZ/0078/66/000/001/0013/0013

INVENTOR: Guyenot, Ernest (Dr., Jena); Hahn, Eberhard (Jena)

44
B

ORG: none

TITLE: [Device for measuring and/or indicating radiation intensity] CZ Pat. No. PV 5971-60

SOURCE: Vynalezy, no. 1, 1966, 13

19

TOPIC TAGS: radiation counter, radiation detection device, radiation intensity, electron microscope

6

ABSTRACT: A device is described for measuring and/or indicating radiation intensity for equipment operating with corpuscular radiation, in particular for electron microscopes with a magnifying system of electron optical lenses in which the charges carried by the electron rays in the region of the observed object to be investigated are used for scanning the focusing beam of rays. The distinguishing feature of the device is that the terminal image screen is electrically connected to a deflecting electrode which, viewed in the direction of motion of the rays, is positioned behind the objective. To compensate for the deflection of the beam of rays induced by the

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Card 2/2 blg

L 8848-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/GG

ACC NR: AP5022735 SOURCE CODE: UR/0181/65/007/009/2845/2846

AUTHOR: Guyenok, Ye. P.; Kudzin, A. Yu.

ORG: Dnepropetrovsk State University im. 300th Anniversary of the Reunion of the Ukraine and Russia (Dnepropetrovsk gosudarstvennyy universitet)

TITLE: Effect of vapor from liquid polar compounds on the dielectric properties of barium titanate single crystals with various admixtures

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2845-2846

TOPIC TAGS: single crystal, barium titanate, dielectric property, dielectric constant

ABSTRACT: Some data are given from an investigation of the effect which atmosphere has on the dielectric properties of $BaTiO_3$, both as a pure single crystal and with small additions (<1 mol %) of cobalt, nickel, manganese, tantalum and niobium oxides. The effect of ambient moisture content on the dielectric constant of the specimens was studied. Crystals of pure barium titanate and those with impurities of cobalt, nickel and manganese oxides showed almost no change in the dielectric constant when the relative humidity was changed from 70 to 100%. The properties of crystals with small additions (~0.3%) of Ta_2O_5 or Nb_2O_5 are strongly dependent on ambient humidity. For most crystals with these impurities, an increase in humidity from 70 to 100% caused an increase of 30-60 μμf, which is 25-50% of the original capacitance of the

Card 1/2

L 08048-66

ACC NR: AP5022735

specimen. For some specimens the change was greater than 100%. The capacitance of these specimens was a function not only of water vapor in the air, but of vapor from other liquids as well. It is assumed that the experimentally observed phenomena are due to the effect of adsorbed polar molecules on the surface layer. Orig. art. has: 2 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 05Mar65/ ORIG REF: 001/ OTH REF: 005

BVK

Card 2/2

L 7823-66 EWT(l)/EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(b)/EWP(t) IJP(c)

ACC NR: AP5028110 JD/GG/WH SOURCE CODE: UR/0048/65/029/011/2017/2019

AUTHOR: Guyenok, Ye.P.; Kudzin, A.Yu.; Levkina, A.P.

ORG: Dnepropetrovsk State University (Dnepropetrovskiy gosudarstvennyy universitet)

TITLE: Peculiarieties of polarization of barium titanate single crystals having double hysteresis loops /Report, Fourth All-Union Conference on Ferro-electricity held at Rostov-on-the Don 12-16 Sepgember 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2017-2019

TOPIC TAGS: ferroelectric crystal, single crystal, dielectric constant, electric domain structure, electric field, barium titanate, electric polarization, hysteresis loop

ABSTRACT: Polarization and domain structure have been investigated in $BaTiO_3$ single crystals doped with 0.35 mole % of Ta_2O_5 and grown from solution in a KF melt. Such crystals are known to exhibit double hysteresis loops. At room temperature the investigated crystals had a characteristic fine domain structure consisting only of a-domains. Regions of c-domains appeared when the temperature was raised above about 70°C. When the specimens were cooled from a temperature somewhat above the Curie point, the c-domains persisted to a temperature lower than that at which they appeared on heating, and the characteristic fine a-domain structure was recovered only after the crystals had been held at room temperature for several hours. The dielectric con-

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L 7823-66

ACC NR: AP5028110

stant exhibited a thermal hysteresis (not described in detail), which appears to be associated with this behavior of the domain structure. The dielectric constant was measured with a 60 V/cm 1 Mc field in the presence of dc bias fields up to 12 kV/cm. The dielectric constant remained nearly constant as the bias was increased until a bias of 4-5 kV/cm was reached; when the bias was further increased the dielectric constant decreased rapidly, and at a bias of 12 kV/cm the dielectric constant was close to that of a crystal containing only c-domains. When the bias was decreased the dielectric constant increased less rapidly than it had decreased with increasing bias. In all these measurements the dielectric constant reached a steady value only some time (typically 5-10 minutes) after the corresponding bias was applied. Application of a dc bias had a corresponding influence on the domain structure: c-domain regions began to appear at a bias of 4-5 kV/cm and when the bias reached 12 kV/cm there remained only a few a-domains. When the bias was reduced the c-domains disappeared. The crystals were subjected to 10-30 μsec square voltage pulses and the charging current was observed on an oscilloscope. When the pulse amplitude was low the sample behaved like an ordinary linear capacitor, but at pulse amplitudes above 10 kV/cm there were observed ferroelectric polarization currents. Possible reasons for the observed behavior are discussed briefly. It is suggested that the impurity ions and the vacancies in the barium sublattice are not distributed randomly throughout the volume of the crystal, but are so ordered as to favor the appearance of a stable a-domain structure. Orig. art. has: 1 formula and 4 figures.

SUB CODE: SS, EM SUBM DATE: 00/ ORIG REF: 004 OTH REF: 003

Card 2/2

GUYEV, A.A. (Moskva); POPOV, S.G. (Moskva)

Formation of some vortex surfaces. Izv. AN SSSR. Mekh. i mashinostr. no.6:102-104 N-D '63. (MIRA 17:1)

GUYEYEV, G.

Improving management in unit and small-scale production. Sots. trud no.3:114-120 Mr '57. (MIRA 10:4)

1. Zamestitel' nachal'nika otdela organizatsii proizvodstva Vsesoyuznogo proyektno-tekhnologicheskogo instituta Ministerstva tyazhelogo mashinostroyeniya.
(Industrial management)

GUYGO, E.

Scientific technological congress of food-industry workers in Warsaw. NTO 2 no.7:61 Jl '60. (MIRA 13:7)
(Warsaw--Food industry--Congresses)

GUYGO, E.I.; KAUKHCHESHVILI, E.I.

Designing heat supplying devices for sublimation plants. Izv.vys. ucheb.zav.; pishch. tekh. no.6:119-124 '61. (MIRA 15:2)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti i Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosit.
(Food--Drying)

GUYGO, E.I.

Mechanism of radiant heat supply for sublimation drying. Inzh.-fiz. zhur. 7 no.5:119-120 My '64. (MIRA 17:6)

1. Tekhnologicheskiy institut kholodil'noy promyshlennosti, Leningrad.

GUYGO, Ye.

CA

12

Sublimation drying of casein. E. Geigo and A. Gulyaeva (Leningrad Dairy Ind. Inst.). *Molochnaya Prom.* 11, No. 8, 33-6(1950).—Vacuum drying of casein at 0.3-2 mm. Hg, preferably with infrared lamps as heat source, is described. The product shows more rapid soln. in H_2O than the conventionally dried product. The crumbliness is also retained. G. M. Kosolapoff

1. OZHIGOV, ..; BOYKO, Ye.; ALYAMOVSKAYA, I.

2. USSR (600)

4. Cheese - Analysis

7. Method for speedy determination of moisture in process cheese. Mol. prom. 12, No. 12, 1952.

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

CA 54YGD, 4e

2

Drying by sublimation. E. Gulga (Leningrad Refrig. Dairy Ind. Inst.). *Molochnaya Prom.* 13, No. 4, 32-6 (1952).—The theoretical foundation of sublimation drying, as applicable to *dairy products*, is presented and the drying-rate equations are explained. The crit. moisture content, W_c, at which the 1st phase of drying goes over to the 2nd phase is given by: $W_c = (A\gamma_0^{0.5}h^{(A-1)})/P_m^{0.5}$, and the total time of drying τ is $[(W_h - W_c)h\gamma_0/B_1(P_s - P_c)] + \ln (W_c/W)h^{(A-1)}/K_1\gamma_0^{0.5}P_m^{0.5}$, where B_1, K_1, and A are empirical consts., W_h is initial moisture content, $2h$ is the thickness of the specimen being dried, γ_0 is the d. of dry product, P_s is partial pressure at the sublimation temp., P_c is partial pressure at condensation temp., P_m is the realizable pressure in the system, t_m is final temp. of the specimen, and W is final moisture content. Exptl. values of the consts. are:

for gelatin B_1 15.7, K_1 0.275×10^{-3}, A 6410; for casein 68, 0.51×10^{-3}, and 315, resp. G. M. Kosolapoff

GUYGO, Ye. I.

"Theoretical Principles of Design of Heat Conduction Devices for Industrial Apparatuses of Freeze-drying of Food Stuffs."

Report submitted for the Conference on Heat and Mass Transfer, MINSK, BSSR, June 1961.

GUYGO, Ye. I.

"Intensification of heat and mass transfer in the sublimation drying of materials by the action of electromagnetic and acoustic oscillations."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Leningrad Technological Inst of the Refrigeration Industry.

GUYUMDZHYAN, O.P.

Formation of alkali metasomatites on the contact of the Subkar (Pir-Kaya) intrusion of the Bargushat Ridge. Izv.AN Arm. SSR. Geol.i geog.nauki 16 no.3:29-35 '63. (MIRA 17:2)

1. Institut geologicheskikh nauk AN Armyanskoy SSR.

GUYUMDZHYAN, O.I.

Find of Permian sediments in the Zangezur Range (Armenian S.S.R.). Dokl. AN Arm. SSR 37 no.5:281-284 '63. (MIRA 17:9)

1. Institut geologicheskikh nauk AN Armyanskoy SSR. Predstavleno chlenom-korrespondentom AN Armyanskoy SSR A.A. Gabriyelyanom.

SYUDMAK, N.V.; GUYTER, M.I.; KONDRATCHUK, L.K.

Complexonometric determination of calcium and magnesium in blood serum and other biological fluids. Lab. delo no.9:556-561 '64. (MIRA 17:12)

1. Rovenskaya gorodskaya bol'nitsa (glavnyy vrach S.Z. Khasatan).

GUYTUR, M.I.

Symptom of radicular tension and flexure of the vertebral column in lumbosacral radicular pain. Vrach. delo 4:139-140 Ap '62. (MIRA 15:5)

1. Rovenskaya gorodskaya bol'nitsa.
(SPINE--ABNORMITIES AND DEFORMITIES)

GUYTUR', M.I. (Rovno)

Diagnosis of minor diseases of the lumbosacral region of the peripheral nervous system. Vrach.delo no.3:148 Mr '63.
(MIRA 16:4)

1. Gorodskaya [illegible]ol'nitsa, Rovno.
(NERVES, PERIPHERAL--DISEASES)

MILYUTIN, N.G.; GUZ, A.B.

Susceptibility to tularemia of Spalax microphthalmus Güld. and of Ellobius talpinus Pall. under experimental conditions. Zhur.mikrobiol.epid. i immun. 30 no.3:53 Mr '59. (MIRA 12:5)

1. Iz kafedry zoologii posvonochnykh zhivotnykh Khar'kovskogo gosudarstvennogo universiteta i Khar'kovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.

(TULAREMIA, exper.
Spalax microphthalmus & Ellobius talpinus
susceptibility (Rus))

L 6833-65 EWT(1)/EWA(b) AMD/Pa-4 JK

ACCESSION NR: AP4039939 S/0016/64/000/005/0142/0143

AUTHOR: Milyutin, N. G.; Vedeneva, N. I.; Guz, A. B.

TITLE: Investigation of tularemia natural foci of the floodplain-marshy type in the Poltavskaya Oblast

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 5, 1964, 142-143

TOPIC TAGS: tularemia, epidemic control, tularemia natural focus, Sula River floodplain, Poltavskaya Oblast, water rat, F. tularense culture

ABSTRACT: The tularemia cases reported for the Poltavskaya Oblast since 1934 have been transmitted mostly by water rats found near the Sula River and its tributaries. The existence of tularemia natural foci in the Sula River floodplains was confirmed in 1959 when three F. tularense cultures were isolated from the spleens of 150 water rats taken from a Sula River floodplain in the Orzhitskiy Rayon. Titers of all three cultures proved highly virulent. In tests on white mice infected with doses containing 0.1, 1, and 10 bacteria cells, all animals died on the 5th to 6th day displaying all the characteristic

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ACCESSION NR: AP4039939

2

tularemia pathological changes. In 1960-61 water from the Kremenchug reservoir flooded large areas near the Dnieper and Sula Rivers and greatly reduced the natural foci area. The most potentially dangerous parts of the Poltavskaya Oblast at present are the areas near the Sula River in the Orzhitskiy, Lubenskiy, and Obolonskiy Rayons which have high population densities and great numbers of water rats. Prophylactic measures for these rayons should include a water rat trapping program in addition to mass vaccination and other control measures. Orig. art. has: None.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet i Khar'kovskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya (Kharkov State University and Kharkov Oblast Sanitary-Epidemiological Station)

SUBMITTED: 15Apr63 ENCL: 00 SUB CODE: LS

NR REF SOV: 000 OTHER: 000

Card 2/2

USSR/Pharmacology and Toxicology. Chemotherapeutic Preparations V-7
Antibiotics

Abs Jour : Ref Zhur - Biol., No 15, 1958, No 71275

Author : Guz' A.D.
Inst : Kharkov Scientific Medical Society
Title : Synthomycin in the Treatment of Acute Gonorrhea in Females

Orig Pub : Tr. Khar'kovsk. nauchn. med. o-vo, 1957, vyp. 9, 223-228

Abstract : No abstract

Card : 1/1

GUZ', A.G. (Kotlas)

Conditions for the appearance of voltage resonance at all harmonics in a nonlinear circuit. Elektrichestvo no.10:55-57 O '62. (MIRA 15:12)

(Electric networks)

GUZ', A.N. [Huz', O.M.] (Kiyev)

Concentration of stresses around a circular hole in a spherical anisotropic shell. Prykl.mekh. 7 no.4:427-431 '61. (MIRA 14:9)

1. Institut mekhaniki AN USSR.
(Elastic plates and shells)

GUZ', A. N. [Huz', O. M.] (Kiyev)

Approximate determination of stress concentration around curvilinear holes in shells. Prykl. mekh. 8 no.6:605-612 '62.
(MIRA 15:10)

1. Institut mekhaniki AN UkrSSR.

(Elastic plates and shells)

GUZ', A.N. [Hus', O.M.]

Stress concentration around a circular hole reinforced with a rigid sleeve in a cylindrical orthotropic shell. Dop. AN URSR no.12:1594-1597 '62. (MIRA 16:2)

1. Institut mekhaniki AN UkrSSR. Predstavleno akademikom AN UkrSSR G.N. Savinym [Savin, H.M.].
(Strains and stresses) (Elastic plates and shells)

GUZ', A. N.[Huz', O. M.] (Kiyev)

Approximate solutions of problems in the theory of plates and shallow shells for some doubly connected regions. Prykl. mekh. 9 no.1:103-108 '63. (MIRA 16:4)

1. Institut mekhaniki AN UkrSSR.

(Elastic plates and shells)

GUZ', A.N. [Huz', O.M.]

Representation of solutions to three-dimensional axisymmetric problems in the theory of elasticity of transversally isotropic bodies. Dop. AN URSR no.12:1592-1595 '63. (MIRA 17:9)

1. Institut mekhaniki AN UkrSSR. Predstavil akademik AN UkrSSR G.N. Savinym [Savin, H.N.].

GUZ', A.N. [Huz', O.M.]

Stressed state of shells weakened by a number of holes. Dop. AN URSR no.4:441-444 '65. (MIRA 18:5)

1. Institut mekhaniki AN UkrSSR.

L 40756-65 EPR/EWA(h)/EWP(k)/EWT(d)/EWT(m)/EWA(d)/EWP(w)/EWP(v) pf-4/Peb EM

ACCESSION NR: AP5006161 S/0258/65/005/001/0103/0109

AUTHOR: Guz', A. N.; Savin, G. N.

TITLE: Stressed state near curvilinear reinforced holes in shells

SOURCE: Inzhenernyy zhurnal, v. 5, no. 1, 1965, 103-109

TOPIC TAGS: shell structure, structure analysis, spherical shell structure, stress distribution

ABSTRACT: The article investigates the stressed state in shells near curvilinear holes reinforced by thin elastic rings (regarded as material filaments) that offer resistance to tension, flexure, and torsion. The general formulation of the problem is that of G. N. Savin (Problemy mekhaniki sploshnoy sredy [Problems of mechanics of a continuous medium], AN SSSR, 1961), and the boundary conditions are those written for this case by N. P. Fleyshman (Prikladna mekhanika v. 1, no. 1, 1961). The problem is solved by an approximate method proposed by the authors (Izv. AN SSSR, Otd. tekhn. n., Mekhanika i mashinostroyeniye, no. 6, 1964) for the investigation of the stressed state in shells weakened by curvilinear openings whose contours have no sharp corners. The case of a spherical shell loaded by

Card 1/2

L 40756-65

ACCESSION NR: AP5006161 O

uniform internal pressure and weakened by an elliptic hole with small eccentricity, the edge of which is reinforced by an elastic ring, is considered in detail. It is shown that even small ellipticity of the hole (a/b = 1.2) exerts a strong influence on the stresses near the hole. At a distance of 1.5--2 radii, the stress and moment distribution is close to that near a circular hole, and approaches the main momentless stressed state with further increase in distance. With increasing rigidity of the supporting ring, the concentration of the stresses and of the moments increases on the end of the minor semiaxis and decreases on the end of the major semiaxis. Orig. art. has: 5 figures and 9 formulas.

ASSOCIATION: None

SUBMITTED: 09Apr64 ENCL: 00 SUB CODE: AS

NR REF SOV: 005 OTHER: 000

Card 2/2 mb

L 29133-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EPR/EWP(k)/EWA(h) Pf-4/Pab EM

ACCESSION NR: AP5000609 S/0021/64/000/011/1456/1459

AUTHOR: Savin, G.N. (Savin, G.N.)(Academician AN UkrSSR); Guz', O.M. (Guz', A.N.)

TITLE: Concerning the concentration of stresses around holes in cylindrical shells

SOURCE: AN UkrRSR. Dopovidi, no. 11, 1964, 1456-1459

TOPIC TAGS: cylindrical shell, shell structure stability, cylindrical function, harmonic function

ABSTRACT: The authors consider the behavior of a cylindrical shell weakened by a large hole on the basis of the general formulation of such problems (G. N. Watson, A Treatise on the Theory of Bessel Functions, Cambridge University Press, 1944) and on the basis of a general formulation presented by one of the authors earlier (Savin, Prykladna mekhanika, v. 7, 3, 1961). The problem reduces to the solution of the equation

$$\nabla^4\nabla^2\Phi+8i\beta^3\frac{\partial^2\Phi}{\partial x^3}=0$$

Card 1/2

L 29133-65

ACCESSION NR: AP5000609

which is found in the form of a series in Hankel functions. By expanding the solution in a Fourier series and using certain formulas for cylindrical functions, a final solution is obtained with separated variables, with relations established between the old and the new constants. As an example, the authors consider the portion of a cylindrical shell weakened by a round hole. The solution is presented in the form of expansions in Hankel and hyperbolic functions, and the constants are determined from an infinite system of algebraic equations. Orig. art. has: 16 formulas.

ASSOCIATION: Instytut mekhaniki AN UkrSSR (Institute of Mechanics AN UkrSSR)

SUBMITTED: 30Jun64 ENCL: 00 SUB CODE: AS, MA

NR REF SOV: 012 OTHER: 003

Card 2/2

L 29130-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EPR/EWP(k)/EWA(h) Pf-4/Peb EM

ACCESSION NR: AP5004246 S/0021/65/000/001/0041/0044

AUTHOR: Huz', O. M. (Guz', A.N.)

TITLE: Torsion of a cylindrical shell weakened by an equilateral triangular hole with rounded corners

SOURCE: AN UkrRSR. Dopovidi, no. 1, 1965, 41-44

TOPIC TAGS: cylindrical shell, shell structure stability, shell torsion, weakening by hole

ABSTRACT: The article deals with the stress state of a circular cylindrical shell weakened by an equilateral triangular opening with rounded corners and subjected to torsion. The main stressed state is assumed to be momentless. The problem reduces to the integration of the equation

$$\nabla^2\nabla^2\Phi + 8\beta^2\frac{\partial^2}{\partial x^2}\Phi = 0$$

Card 1/2

L 29130-65

ACCESSION NR: AP5004246

under certain boundary conditions. The solution is obtained by a method perturbing the shape of the boundary, which the author developed in an earlier paper (Prykladna mekhanika v. 8, 605, 1962). The hole is assumed to be small, so that perturbation theory can be used. Solutions are obtained with account of the zeroth, first, and second-order approximations. This report was presented by G. N. Savin. Orig. art. has: 12 formulas and 1 table.

ASSOCIATION: Instytut mekhaniki AN UkrSSR (Institute of Mechanics, AN UkrSSR)

SUBMITTED: 18Oct63 ENCL: 00 SUB CODE: AS

NR REF SOV: 006 OTHER: 000

Card 2/2

ACCESSION NR: AP4010058 S/0021/64/000/001/0054/0058

AUTHOR: Savin, G. N. (Academician); Guz', O. M.

TITLE: Stress concentration around an elliptical hole in a spherical shell

SOURCE: AN UkrRSR. Dopovidi, no. 1, 1964, 54-58

TOPIC TAGS: elasticity, eccentricity, stress, stress concentration, stress concentration factor

ABSTRACT: In a previous work by Savin a solution was constructed for the problem of stress concentration in a spherical shell around an elliptical hole for small values of eccentricity (a/b less than or equal to 1.10). Use of that formula for larger values of eccentricity can give incorrect results. The present work proposes a new solution which gives the possibility of determining the stress concentration factor for much larger values of eccentricity. The solution is obtained by the method of "perturbation of the boundary shape." The zero, first and second approximations are examined and a formula is derived for the values on the contour of the hole with the second approximation taken into consideration. A numerical example is presented which shows the effect of the ellipticity of the hole on the

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ACCESSION NR: AP4010058

stress concentration factor. The solution obtained here may be applied when there is a considerably greater value of eccentricity. Orig. art. has 22 formulas and 1 table.

ASSOCIATION: Insty*tut mekhaniky* AN UkrRSR (Institute of Mechanics, AN UkrRSR)

SUBMITTED: 18May63	DATE ACQ: 10Feb64	ENCL: 00
SUB CODE: PH, MM	NO REF SOV: 005	OTHER: 001

Card 2/2

[redacted] A. [redacted] yev

[redacted]ressed state in the vicinity of a circular hole in a shell of revolution having a shallow arc. Izv. AN SSSR, Mekh. i mashinostr. [illegible]44. Hyvde '64. (MIRA 17:7)

L 35463-65 EPR/EWA(h)/EWP(k)/EWT(d)/EWT(m)/EWP(b)/T/EWA(d)/EWP(w)/EWP(v)/EWP(t)
Pt-8/Pac EM/JD

ACCESSION NR: AP5005177 S/0179/64/000/006/0096/0105

AUTHORS: Savin, G. N. (Kiev); Gus', A. N. (Kiev)

TITLE: Stress conditions near curved openings in shells

SOURCE: AN SSSR. Izvestiya. Mekhanika i mashinostroyeniye, no. 6, 1964, 96-105

TOPIC TAGS: shell theory, stress concentration, stress analysis, stress distribution

ABSTRACT: The method of "perturbation of boundary shape," proposed by F. M. Morse and G. Feshbokh (Metody teoreticheskoy fiziki. Izd-vo inostr. lit., 1960, t. II) for estimating the stress conditions near curved openings in shells, is described and demonstrated. To find the additional stress conditions ($T_n \ldots Q_s$) which are added to known stress conditions ($T_n^0 \ldots Q_s^0$) by a hole, the equations

$$\nabla^2\nabla^2\Phi - i\varkappa^2\nabla_k^2\Phi = 0$$

$$\Phi = w + in\varphi, \quad n = \frac{\sqrt{12(1-\nu^2)}}{Eh^2}, \quad \varkappa = r_0\left(\frac{12(1-\nu^2)}{h^2}\right)^{1/4}$$

have to be solved with appropriate boundary conditions (where r_0 characterizes

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L 35463-65

ACCESSION NR: AP5005177

the size of the opening). The solution is assumed in the form

$$\Phi(r, \theta) = \sum_{k=0}^{\infty} f_k(r)\cos k\theta + g_k(r)\sin k\theta$$

in polar coordinates with hole at origin. The contour G is assumed such that the function

$$z = \omega(\zeta), \qquad \omega(\zeta) = \zeta + \varepsilon f(\zeta)$$

$$(z = re^{i\theta},\ \zeta = \rho e^{i\psi},\ \varepsilon \ll 1)$$

conformally maps an infinite plane with an opening of the shape G. The coefficients of the series solution are obtained and compared with solutions obtained for a flat plate with an arbitrarily shaped hole. As an example, the stress conditions for an almost square hole (rounded corners) and an elliptical hole in an axially stressed cylinder are calculated and compared with flat plate results. It is concluded that the results for the maximum stress concentration factor obtained for a flat plate can be applied to axially stressed cylinders with an arbitrary hole shape with an accuracy of 5-6%. Orig. art. has: 4 figures and 27 formulas.

ASSOCIATION: none

Card 2/3

L 35463-65

ACCESSION NR: AP5005177

SUBMITTED: 08May63 ENCL: 00 SUB CODE: AS, NP, MA

NO REF SOV: 009 OTHER: 002

Card 3/3

L 9041-65 EWT(d)/EWT(m)/EWA(d)/EWP(k)/EWA(h)/EWP(r) Pf-4 APTC(p)/ASD(f)
EM

ACCESSION NR: AP4030391 S/0021/64/000/004/0472/0476

B

AUTHOR: Guz', O.M. (Guz', A.N.)

TITLE: Torsion of a cylindrical shell weakened by a square hole with rounded corners

SOURCE: AN UkrRSR. Dopovidi, no. 4, 1964, 472-476

TOPIC TAGS: shell, cylindrical shell, shell torsion, circular cylindrical shell

ABSTRACT: The stress distribution in a circular cylindrical shell weakened by a square hole with rounded corners is analyzed, assuming that there is no external load on the hole's edge and that the membrane state of stress is the initial state. Using the method of "contour distortion", formulas are derived for the stress concentration around the hole in cases when its diagonal either coincides with or is at an angle of 45° to the generatrix of the shell. The calculated results are tabulated and the stress distribution over the hole edges in a plate and in a shell are shown in figures. Orig. art. has: 2 tables, 2 figures and 11 formulas.

ASSOCIATION: Instytut mekhaniky AN URSR (Institute of Mechanics, AN URSR)

Card 1/2

L 9041-65

ACCESSION NR: AP4030391

SUBMITTED: 18May63 ENCL: 00 SUB CODE: AS

NO REF SOV: 005 OTHER: 000

Card 2/2

GUZ', A.N. [Huz', O.M.]

Concentration of stress near a square hole in a spherical shell. Dop. AN URSR no.9:1145-1150 '64. (MIRA 17:11)

1. Institut mekhaniki AN UkrSSR. Predstavleno akademikom AN UkrSSR G.N. Savinym [Savin, H.M.].

ACCESSION NR: AP4037112 S/0258/64/004/002/0360/0364

AUTHOR: Guz', A. N. (Kiev)

TITLE: Stress concentration about curvilinear apertures on the lateral surface of a circular cylinder

SOURCE: Inzhenerny*y zhurnal, v. 4, no. 2, 1964, 360-364

TOPIC TAGS: stress concentration, curvilinear aperture, circular cylinder, circular aperture, uniform internal pressure

ABSTRACT: The author studies an approximate method for constructing solutions of problems on stress concentration about curvilinear (elliptic, square, and triangular with rounded corners) openings in a cylindrical shell. He claims that only one other author has considered a case other than that of a circular aperture. The basic equation describing the system is

$$\nabla^2\nabla^2\Phi + i\sqrt{12(1-\nu^2)}\,\frac{r_0^2}{lh}\,\frac{\partial^2\Phi}{\partial x^2} = 0, \qquad (1)$$

$$(\Phi = w + i\omega, \quad n = \sqrt{12(1-\nu^2)}/Eh^2),$$

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ACCESSION NR: AP4037112

where h is the thickness of the shell, R is the radius of curvature of the averaged surface, x and y are dimensionless coordinates referred to r_0, the OX axis is directed along the generatrix, the OY axis along the directrix, and r_0 is the mean radius of the aperture. The author studies small apertures and uses separation of variables. For an elliptic aperture, the zeroth approximation coincides with the solution of the problem for a circular aperture. The author tabulates the approximate solutions for certain cases. Tables show that under certain conditions, curvature has an essential influence on the concentration of forces. Orig. art. has: 2 tables and 13 formulas.

ASSOCIATION: none

SUBMITTED: 09Apr63	DATE ACQ: 05Jun64	ENCL: 00
SUB CODE: AP	NO REF SOV: 008	OTHER: 000

Card 2/2

S/0198/64/010/003/0305/0309

ACCESSION NR: AP4037992

AUTHOR: Guz', O. M. (Guz', A. N.) (Kiev)

TITLE: A planar problem of the theory of elasticity of a cylindrically orthotropic body for non-circular regions

SOURCE: Pry*kladna mekhanika, v. 10, no. 3, 1964, 305-309

TOPIC TAGS: elasticity, orthotropy, stress, strain, deformation, elastic equilibrium, boundary condition, boundary value problem

ABSTRACT: A plane problem in the theory of elasticity of a cylindrically orthotropic body is examined for regions which differ slightly from a circle, a plane with a circular opening and a circular ring. It is assumed that the axis of orthotropy coincides in direction with the direction of the normal to the middle of the surface, and the origin of coordinates coincides with the pole of orthotropy. Fundamental equations previously derived by the author are used and their solution is presented in the form of a Fourier series. By using the method of "disturbance of the form of the boundary," previously derived by the author, the problems in each of the approximations are formally reduced to problems for regions bounded by

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ACCESSION NR: AP4037992

circles, and an expression is derived for the components of the stressed state on the curvilinear contour. As an example, the concentration of stresses around an elliptical opening in the case of completely uniform tension is examined. Orig. article has: 30 formulas, 1 figure, and 1 table.

ASSOCIATION: Insty*tut mekhaniky* AN URSR(Institute of Mechanics, AN URSR)

SUBMITTED: 12Oct62	DATE ACQ: 12Jun64	ENCL: 00
SUB CODE: AS, ME	NO REF SOV: 004	OTHER: 002

Card 2/2

L 15004-65 EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(k)/EWA(h) Pf-4/Peb
ASD(f)-2/AFTC(p) EM

ACCESSION NR: AP5000105 S/0198/64/010/006/0594/0599

AUTHORS: Guz', A. N. (Guz', A. N.)(Kiev); Goloborod'ko, S. O. (Goloborod'ko, S. A.) (Kiev)

TITLE: The stress state near a square orifice with rounded corners in a cylindrical shell

SOURCE: Pry*kladna mekhanika, v. 10, no. 6, 1964, 594-599

TOPIC TAGS: shell structure, stress concentration, cylindrical shell

ABSTRACT: This paper supplies a solution to the indicated problem, obtained by disturbance to the "form of the boundary" (O. M. Guz'. Pro nablizheny*y metod viznacheniya kontsentratsiyi napruzhen' bilya kry*voliniyny*kh otvoriv v obolonkakh, Pry*kladna mekhanika, vol. 8, no. 6, 1962) for small orifices, according to A. I. Lur'ye (Kontsentratsiya napryazheniy v oblasti otverstiya na poverkhnosti krugovogo tsilindra, PMM, vol. 10, no. 3, 1946). The stress about the opening has been computed by the formula $T_{\gamma\beta} = T_0^{(0)} + \varepsilon T_1^{(1)} + \varepsilon^2 T_2^{(2)} + \ldots$, with consideration of the zero $\left(T_0^{(0)} = 2p\lambda + 2p\lambda\cos 2\gamma + 2\pi\beta^2 p\lambda\left[1 + \frac{5}{4}\cos 2\gamma\right]\right)$, first

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ACCESSION NR: AP5000105

$(T_s^{(1)} = 2ph\cos 2\gamma + 18ph\cos 4\gamma + 6ph\cos 6\gamma + \pi\beta^2 ph\left[\frac{1}{2} + \left|\frac{7}{2}\cos 2\gamma + 12\cos 4\gamma + \frac{15}{2}\cos 6\gamma\right|\right)$, and second $(T_s^{(2)} = 2ph\cos 2\gamma + 6ph\cos 6\gamma + 54\,ph\cos 8\gamma + 18ph\cos 10\gamma +$ $+ \pi\beta^2 ph\left[5 + 9\cos 2\gamma + 3\cos 4\gamma + \frac{21}{2}\cos 6\gamma + 36\cos 8\gamma + \frac{45}{2}\cos 10\gamma\right|)$ approximations. For the case when $\nu = 0.3$, formulas are given for determining T_s at the edge of the orifice when the diagonal of the square is directed along the generatrix $(T_s|_r = ph\{3 + 2{,}25\cos 2\gamma + 2\cos 4\gamma + 0{,}74\cos 6\gamma + 0{,}67\cos 8\gamma + 0{,}22\cos 10\gamma + 0{,}65\frac{r_0^2}{Rh}[4{,}26 +$ $+ |6{,}00\cos 2\gamma + 3{,}41\cos 4\gamma + 1{,}93\cos 6\gamma + 0{,}89\cos 8\gamma + 0{,}56\cos 10\gamma|])$ (see Fig. 1 on the Enclosures) and at an angle $\pi/4$ to the generatrix $T_s|_r = ph\{3 + 1{,}80\cos 2\gamma - 2\cos 4\gamma - 0{,}59\cos 6\gamma + 0{,}67\cos 8\gamma + 0{,}22\cos 10\gamma + 0{,}65\frac{r_0^2}{Rh}[4{,}01 +$ $+ 4{,}44\cos 2\gamma - 2{,}59\cos 4\gamma - 1{,}41\cos 6\gamma + 0{,}89\cos 8\gamma + 0{,}56\cos 10\gamma|]$ (see Fig. 2 on the Enclosures). Table 1 on the Enclosures gives the values of the concentration coefficient for the plate and the shell at the zero, first, and second

L 15004-65

ACCESSION NR: AP5000105

approximations at different points about the orifice. The numerical results given in this table show the nature of the convergence of the solution obtained. Furthermore, from this, one must conclude that the maximal coefficient of stress concentration for the square orifice in the shell, as well as in the plate, differs substantially from k_{max} for a circular orifice. Table 2 on the Enclosures shows the effect of curvature on the stress concentration. Orig. art. has: 2 figures, 2 tables, and 13 formulas.

ASSOCIATION: Instytut mekhaniky* AN URSR (Institute of Mechanics, AN Ukr SSR)

SUBMITTED: 28May63 ENCL: 02

SUB CODE: AS NO REF SOV: 005 OTHER: 000

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L 15004-65

ACCESSION NR: AP5000105

ENCLOSURE: 01

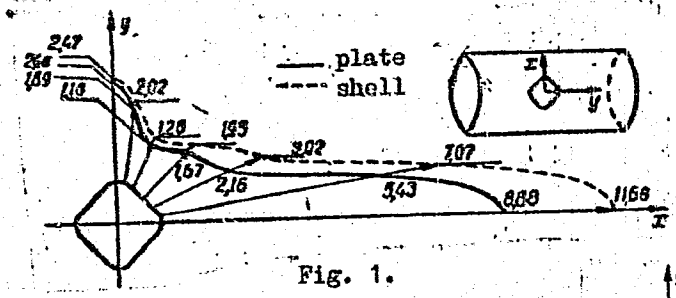

Fig. 1.

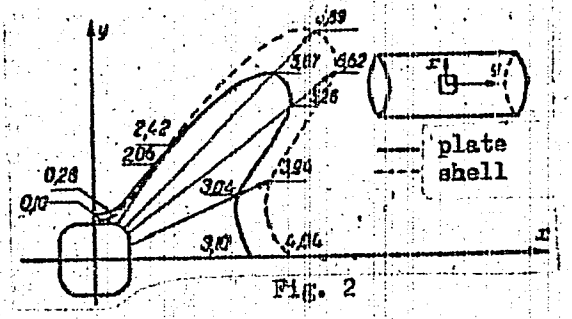

Fig. 2

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L 15004-65

ACCESSION NR: AP5000105

ENCLOSURE: 02

Approximation	zero	first	second	Exact Solution
$k^{pl}/_{\gamma=0}$	5	7,89	8,88	9,33
$k^{sh}/_{\gamma=0}$	7,11	11,23	12,67	—
$k^{pl}/_{\gamma=\frac{\pi}{2}}$	1	2,11	2,46	2,61
$k^{sh}/_{\gamma=\frac{\pi}{2}}$	0,76	1,95	2,48	—
$k^{pl}/_{\gamma=\frac{\pi}{6}}$	3	1	1,07	1,50
$k^{sh}/_{\gamma=\frac{\pi}{6}}$	3,94	1,55	2,06	—

Table 1

$\frac{r_0}{\sqrt{Rh}}$	0,6	0,5	0,4	0,3	0,2	0,1	0,0
$\varepsilon=\frac{1}{9}$; $k^{\infty}/_{\gamma=0}$	12,87	11,68	10,67	9,95	9,32	8,99	8,83
$\varepsilon=\frac{1}{9}$; $k^{\infty}/_{\gamma=\frac{\pi}{2}}$	2,48	2,473	2,468	2,465	2,462	2,461	2,46
$\varepsilon=\frac{1}{9}$; $k^{\infty}/_{\gamma=\frac{\pi}{6}}$	2,08	1,95	1,85	1,77	1,72	1,69	1,67
$\varepsilon=-\frac{1}{9}$; $k^{\infty}/_{\gamma=\frac{\pi}{6}}$	7,42	6,89	6,45	6,11	5,88	5,72	5,67

Table 2

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L 38143-65 EWT(m)/EWP(w)/EPR ES

ACCESSION NR: AP5001620 P/0033/64/016/004/1009/1021

AUTHOR: Guz', A. N. (Kiev); Savin, G. N. (Kiev); Tsurpal, I. A. (Kiev)

TITLE: Stress concentration around curvilinear openings in a physically nonlinear elastic plate

SOURCE: Archiwum mechaniki stosowanej, v. 16, no. 4, 1964, 1009-1021

TOPIC TAGS: stress concentration, nonlinear elasticity theory, elliptical hole, nonlinear plate, elastic plate, stress strain curve, conformal mapping

ABSTRACT: The stress concentration near curvilinear openings without edge points in a thin plate made of a material in which the stress-strain relationship is nonlinear even during relatively small deformations is discussed. For the deformations under consideration, all geometric elasticity relationships remain linear, i.e., one considers a version of the physically nonlinear theory of elasticity having a very specific nonlinearity law. G. N. Savin (Prikl. Mekh., 1, 9, 1963; 1. 10, 1964) previously used conformal mapping of the region under consideration onto the exterior region of a unit circle and, using the Kolosov-Muskhelishvili complex potential, studied the problem in the case of the nonlinear elasticity l

$$e_r = \frac{1}{3K} k(s_0)\sigma_0 + \frac{1}{2G} g(I_0^2)(\sigma_r - \sigma_0),$$

Card 1/2

L 38243-65
ACCESSION NR: AP5001620

$$\varepsilon_\varphi = \frac{1}{3K} k(\varepsilon_0)\sigma_0 + \frac{1}{2G} g(I_0^2)(\sigma_\varphi - \sigma_0),$$

$$\varepsilon_{r\varphi} = \frac{1}{G} g(I_0^2)\tau_{r\varphi},$$

In the present paper, the problem is solved for the same law by means of the "boundary shape perturbation" approximation method (see P. M. Morse, H. Feshbach, Methods of Theoretical Physics, II, McGraw-Hill Book Company, Inc.). The solutions are represented in the form of power expansions. The determination of the stress function reduces, for each approximation, to the integration of a set of nonlinear differential equations. As an example, the authors calculate the stress concentration around an elliptical hole in the zeroth, first, and second approximation. The stress concentration found along the contour of the hole depends on the tensile forces, the ellipticity of the hole, and a parameter characterizing the mechanical properties of the plate, and its values are tabulated for the case of linear and nonlinear theories. Orig. art. has: 45 formulas, 1 figure, and 2 tables.

ASSOCIATION: Institut mekhaniki, Akademiya nauk Ukrainskoy SSR (Institute of Mechanics, Academy of Sciences of the Ukrainian SSR)

SUBMITTED: 08Jan64 ENCL: 00 SUB CODE: ME, AS

NO REF SOV: 008 OTHER: 002

Card 2/2 OKL

L 14823-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(k)/EWA(h) Pf-4/Peb AEDC(a)/ASD(f)-2 EM

ACCESSION NR: AP4048029 S/0020/64/158/006/1281/1284

AUTHOR: Gaz', A. N.

TITLE: Solution of problems for a mildly sloping spherical shell in the case of multiply connected regions

SOURCE: AN SSSR. Doklady*, v. 158, no. 6, 1964, 1281-1284

TOPIC TAGS: stress calculation, spherical shell, flat plate

ABSTRACT: Instead of solving the problem by successive approximations, as was done by G. N. Savin et al (Pry*kladna mekhanika v. 7, 495, 1961), the author reduces the problem to that of solving an infinite system of algebraic equations for the components of the stressed and deformed states, obtained by representing the solution of the original differential equations in the form of an expansion in special functions as given by D. I. Sherman (Izv. AN SSSR, OTN, 840, 1952). The stress components can be determined in any coordinate

Card 1/2

system. The application of the method is illustrated with examples of the stressed state in a spherical shell near two equal holes, and it is shown that the solution differs from that obtained by approximating the spherical shell with a plane shell even in the first approximation. This report was presented by A. Yu. Ishlinskiy. Orig. art. has: 2 figures and 11 formulas.

ASSOCIATION: Institut mekhaniki Akademii nauk UkrSSR (Institute of Mechanics, Academy of Sciences UkrSSR)

SUBMITTED: 25Apr64 ENCL: 00

SUB CODE: AS NR REF SOV: 006 OTHER: 001

GUZ', A.N. [Huz', O.M.]

Torsion of a cylindrical shell weakened by an equilateral triangular hole with rounded corners. Dop. AN URSR no.1:43-44 '65. (MIRA 18:2)

1. Institut mekhaniki AN UkrSSR. Predstavleno akademikom AN UkrSSR G.N. Savinym [Savin, H.N.].

L 53788-65 EWT(d)/EWT(m)/EW(w)/EWA(d)/EWP(v)/EPR/EWP(k)/EWA(h)
Pab/Pl-4 WW/EM
ACCESSION NR: AP5014822 UR/0198/65/001/005/0021/0028

AUTHORS: Guz', A. N. (Kiev); Shnerenko, K. I. (Kiev)

TITLE: Stressed state of shell weakened by two curvilinear holes

SOURCE: Prikladnaya mekhanika, v. 1, no. 5, 1965, 21-28

TOPIC TAGS: shell theory, shell structure, stress concentration, approximation method, spherical shell

ABSTRACT: The stress distribution in a shell weakened by circular or other types of holes was calculated. It is assumed that the initial, fundamental stress is known, and the additional stress distribution due to the holes is necessary. The governing equation is given by

$$\nabla^2\nabla^2\Phi - ix^2\nabla_k^2\Phi_* = 0$$

$$\Phi = w + in\varphi; \quad x = \sqrt{\frac{12(1-\nu^2)}{h^2}}r_0; \quad n = \frac{\nu\sqrt{12(1-\nu^2)}}{Eh^2};$$

Card 1/3

and the contour of the curvilinear holes is defined by

$$z = \zeta + \varepsilon f(\zeta), \qquad |z = re^{i\theta}, \ \zeta = \rho e^{i\gamma}, \ \varepsilon < 1|_{,}$$

The solution is written in the form

$$\Phi = \Phi_1^{(0)}(\eta, \varphi) + \sum_{j=0}^{\infty} \varepsilon^j \Phi_{j2}^{(0)}(r, \theta) + \sum_{k=1}^{\infty} \sum_{j=0}^{\infty} \varepsilon^j [\Phi_{j12}^{(k)}(\eta, \varphi) + \Phi_{j21}^{(k)}(r, \theta)],$$

and an expression is given for the stress around the contour of the hole in terms of the deformations Φ. The case of a spherical shell is considered which is weakened by circular and elliptic holes. Conditions at the circular holes are given by

$$T_\eta|_{\eta=\eta_0} = -P_0 h; \qquad S_{\eta\varphi}|_{\eta=\eta_0} = 0; \qquad G_\eta|_{\eta=\eta_0} = 0; \qquad \tilde{Q}_\eta|_{\eta=\eta_0} = -\frac{pR_0}{2}$$

and at the elliptic contour, by

$$T_n|_{r=1} = -P_0 h; \qquad S_{ns}|_{r=1} = 0; \qquad G_n|_{r=1} = 0; \qquad \tilde{Q}_n|_{r=1} = F_4(\gamma, \varepsilon),$$

For the latter, the solution is limited to terms of order ε, or

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$$\Phi = \Phi_1^{(0)}(\eta, \varphi) + \Phi_{02}^{(0)}(r, \theta) + \varepsilon\Phi_{12}^{(0)}(r, \theta) + \sum_{k=1}^{\infty} \{\Phi_{012}^{(k)}(\eta, \varphi) +$$

$$+ \Phi_{021}^{(k)}(r, \theta) + \varepsilon[\Phi_{112}^{(k)}(\eta, \varphi) + \Phi_{121}^{(k)}(r, \theta)]\}.$$

A numerical example is given where the stress around a circular contour at $\vartheta = 0$ is given by

$$T_s|_{\varphi=0} = P_0 t\left(4{,}5811 - \frac{a-b}{a+b}\cdot 2{,}7691\right).$$

Orig. art. has: 16 equations, 1 figure, and 1 table.

ASSOCIATION: Institut mekhaniki AN UkrSSR (Institute of Mechanics, AN UkrSSR)

SUBMITTED: 24Dec64 ENCL: 00 SUB CODE: AS, MM

NO REF SOV: 011 OTHER: 001

Card 3/3

L 60958-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(k)/EWA(h) Pe-5/Pt-4 WW/EM

ACCESSION NR: AP5016266 UR/0258/65/005/003/0477/0482
539.4.013

AUTHOR: Guz', A. N. (Kiev) 24

TITLE: Stressed state of a conical shell weakened by circular hole 31 30 13

SOURCE: Inzhenernyy zhurnal, v. 5, no. 3, 1965, 477-482

TOPIC TAGS: stress load, stress concentration, conical shell, approximation method, tensile stress, continuum mechanics

ABSTRACT: The stress distribution in a conical shell weakened by a circular hole was calculated using an expansion technique. Figure 1 on the Enclosure shows the coordinate system for the problem. Using polar coordinates, the following stress components are obtained $T_r = -\frac{1}{nr_0^2}\left(\frac{1}{r}\frac{\partial}{\partial r}+\frac{1}{r^2}\frac{\partial^2}{\partial\theta^2}\right)\operatorname{Im}\Phi$, $T_\theta = -\frac{1}{nr_0^2}\frac{\partial^2}{\partial r^2}\operatorname{Im}\Phi$,

$$S_{r\theta} = \frac{1}{nr_0^2}\frac{\partial^2}{\partial r\,\partial\theta}\frac{\operatorname{Im}\Phi}{r},\quad G_r = -\frac{D}{r_0^2}\left[\frac{\partial^2}{\partial r^2}+\nu\left(\frac{1}{r}\frac{\partial}{\partial r}+\frac{1}{r^2}\frac{\partial^2}{\partial\theta^2}\right)\right]\operatorname{Re}\Phi,$$

$$G_\theta = -\frac{D}{r_0^2}\left[\frac{1}{r}\frac{\partial}{\partial r}+\frac{1}{r^2}\frac{\partial^2}{\partial\theta^2}+\nu\frac{\partial^2}{\partial r^2}\right]\operatorname{Re}\Phi,$$

$$Q_r = -\frac{D}{r_0^2}\left[\frac{\partial}{\partial r}\nabla^2+\frac{1-\nu}{r}\frac{\partial^2}{\partial r\,\partial\theta^2}\frac{1}{r}\right]\operatorname{Re}\Phi$$

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ACCESSION NR: AP5016266

with the boundary conditions at the hole contour given by

$$T_r + T_r^0 = 0,\ S_{r\theta} + S_{r\theta}^0 = 0,\ G_r + G_r^0 = 0,\ \tilde{Q}_r + \tilde{Q}_r^0 = f(\theta).$$

The various stress functions Φ, T, Q are subsequently expanded in powers of the small parameter $\varepsilon = r_0/R_0 \tan\alpha < 1$. The solution of the resulting homogeneous equation for Φ is obtained for small β,

$$\beta = \frac{r_0}{\sqrt{R_0 h}} \frac{\sqrt[4]{3(1-\nu^2)}}{2},$$

correct up to β^2. The tensile stress around the circular contour is then determined for a force of intensity ph placed at x = -a. This yields

$$T_\theta^*|_{r=1} = p_0 h \left\{1 - 2\left(1 + \frac{1}{4}\pi\beta^2\right)\cos 2\theta + \varepsilon\left[-\cos\theta + \frac{40}{16}\left(1 + \frac{2}{147}\pi\beta^2\right) \times \right.\right.$$
$$\left.\left. \times \cos 3\theta + \frac{9}{192}\pi\beta^2 \cos 5\theta\right]\right\}.$$

A similar expression is obtained for a torsional load of intensity Th, or

$$T_\theta^*|_{r=1} = \tau_0 h \left\{-4\left(1 + \frac{1}{2}\pi\beta^2\right)\sin 2\theta + \varepsilon\left[\frac{1}{4}\left(1 + \frac{1}{2}\pi\beta^2\right)\sin\theta + \right.\right.$$
$$\left.\left. + \frac{63}{8}\left(1 + \frac{5}{378}\pi\beta^2\right)\sin 3\theta + \frac{3}{16}\pi\beta^2 \sin 5\theta\right]\right\}.$$

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These results show that for small β, $k_{max} = T^*/p_0 h$ for the cone is only slightly different from the corresponding k_{max} for the cylinder with a radius of curvature R_0 and $\varepsilon \sim 0.1$. For $\varepsilon > 0.10$ in torsion and $\varepsilon > 0.15$ under tension k_{max} for the cone is considerably larger than for the corresponding cylinder. Orig. art. has: 18 equations, 3 figures, and 2 tables.

ASSOCIATION: none

SUBMITTED: 23Oct63 ENCL: 01 SUB CODE: AS, ME

NO REF SOV: 004 OTHER: 000

Card 3/4

L 60958-65

ACCESSION NR: AP5016266 ENCLOSURE: 01

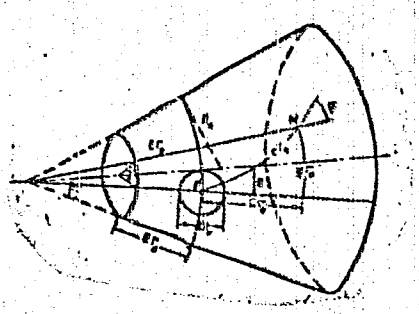

Fig. 1

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Equilibrium of a spherical shell weakened by an equilateral triangular hole. Prikl. mekh. 1 no.3:35-40 '65.

(MIRA 18:7)

1. Institut mekhaniki AN UkrSSR.

L 8098-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(k)/EWA(h)/ETC(m) WW/EM

ACC NR: AP6000236 SOURCE CODE: UR/0198/65/001/010/0007/0014

AUTHOR: Guz', A. N. (Kiev); Ryndyuk, M. A. (Kiev); Cherney, L. I. (Kiev)

33
B

ORG: Institute of Mechanics, AN UkrSSR (Institut mekhaniki, AN UkrSSR)

TITLE: Effect of stiffening rings on stress distribution in a spherical shell weakened by two equal circular holes

24

SOURCE: Prikladnaya mekhanika, v. 1, no. 10, 1965, 7-14

TOPIC TAGS: spheric shell structure, stress concentration, stress distribution, hole weakened shell

ABSTRACT: The state of stress in a spherical shell weakened by two equal circular holes with edges reinforced by identical elastic rings is analyzed. The holes are provided with covers, and the shell is under constant internal pressure. It is assumed that the distance between the centers of the holes is such that the additional field of stresses caused by the presence of the holes can be described by equations of the shallow-shell theory; the membrane-stress state is taken as the initial one. The stiffening rings are treated as flexible bars resisting tension, flexure, and torsion. Equations are given from which the stress and strain components can be determined in cases when the covers 1) can transmit only the shear forces, and 2) are perfectly rigid. Successive-approximation formulas for determining the stress-distribution components along the line connecting the centers of the holes are also given. The results

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ACC NR: AP6000236 O

from calculating the stress distribution in a hole-weakened spherical shell of given dimensions are presented and illustrated by diagrams. The effect of the rigidity of stiffening rings on the stress distribution in the neck between the holes is discussed, taking into account the mutual influence of holes on the stress distribution around each other. A comparison of these results with those obtained in the case when the mutual influence of the holes is disregarded leads to a conclusion which is important for the practical calculations: the mutual effect of the holes (stiffened or not stiffened by rings) on the stress distribution around them is negligible in cases when the neck between the holes is equal to or larger than the diameter of the bigger hole (in the case of unequal holes). The stress distribution in the neck in case (1) with the mutual influence of the holes taken into account is discussed, the results of the calculations are given in a table and the behavior of the shell is compared with that of an analogously hole-weakened plate by plotting the stress-concentration coefficients in a diagram. Orig. art. has: 6 figures, 1 table, and 8 formulas. [VK]

SUB CODE: 20/ SUBM DATE: 15Jun64/ ORIG REF: 007/ ATD PRESS: 4147

Card 2/2

GUZ', A.N. (Kiyev)

Stressed state of a conic shell weakened by a circular hole.
Inzh. zhur. 5 no.3:477-482 '65. (MIRA 18:7)

L 17623-66 EWT(d)/EWT(m)/EWP(w) IJP(c) EM

ACC NR: AP6007542 SOURCE CODE: UR/0198/66/002/001/0003/0019

AUTHOR: Savin, G. N. (Kiev); Guz', A. N. (Kiev)

ORG: Institute of Mechanics, AN UkrSSR (Institut mekhaniki AN UkrSSR)

TITLE: One method for solving the plane problems of the elasticity theory for multiply connected domains

SOURCE: Prikladnaya mekhanika, v. 2, no. 1, 1966, 3-19

TOPIC TAGS: elasticity theory, plane elasticity theory, stress distribution, strain distribution

ABSTRACT: The method for determining the state of stress and strain in an infinite plane weakened by a finite number of arbitrarily located holes whose contours are smooth curves is presented, under the assumption that the stress-strain state is described by fundamental equations of the plane theory of elasticity in which bending moments are taken into account. The boundary-value problems for determining the distribution of stress, strain, and moment components in such a multiple-connected domain is reduced to a series of boundary-value problems for a multiple-connected domain with circular contours. The reduction of the solution of such boundary-value problems to the solution of an infinite system of algebraic equations written in a

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canonic form is shown. Relations are derived which make it possible to prove under sufficiently general conditions of the stress and moment components that the derived infinite system of algebraic equations is quasi-regular and has a unique solution. (The case of a finite number of disjoint holes was considered.) To illustrate the method, the state of stress and strain in an infinite plate weakened by two equal circular holes is analyzed under the assumption that the plate carries symmetrical loads (with respect to coordinate axes) applied to circular contours. Orig. art. has: 69 formulas. [LK]

SUB CODE: 20/ SUBM DATE: 30Aug65/ ORIG REF: 015/ OTH REF: 003
ATD PRESS: 4210

Card 2/2 MJS

L 04605-67 EWT(m)/EWP(w) LIP(c) JM

ACC NR: AP6033203 SOURCE CODE: UR/0040/66/030/005/0882/0888

AUTHOR: Guz', A. N. (Kiev); Savin, G. N. (Kiev)

27
B

ORG: none

TITLE: Plane problem of the couple-stress elasticity theory for an infinite plane weakened by a finite number of circular holes

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 5, 1966, 882-888

TOPIC TAGS: couple stress, ~~couple stress elasticity~~, stress concentration, hole weakened plate, multiply connected domain, ELASTICITY THEORY

ABSTRACT: A method is proposed for solving problems of an infinite plane with a finite number of separate arbitrarily spaced holes by means of the theory of elasticity with couple stresses taken into account. A method for reducing these problems to the solution of infinite systems of algebraic equations is explained; fundamental inequalities and relationships are obtained which are necessary to prove the quasi-regularity of these systems and singularity of their solutions. The fundamental equations for the plane strain of elasticity theory with couple-stress, the compatibility equations, and relationships for normal and tangential stresses and for couple-stress are used in analyzing the stress distribution in an infinite plane weakened by M circular holes of different circumferences L_k (K = 1.2...m). The solution of the problem is reduced to that for an m-tuply connected domain with

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ACC NR: AP6033203 O

a contour $L = L_1 + \ldots + Lm$. The solution satisfies the conditions of single-valuedness for displacements, and of dying-out in infinity of stress and strain components. For the sake of simplicity, the stress distribution around two equal circular holes in an infinite plate is analyzed in detail, and both the quasi-regularity and singularity of solution of the obtained infinite systems of algebraic equations in a canonical form are proved under following conditions: 1) self-balanced loads are applied to the edges of holes; 2) the normal and tangential stress components are continuous functions whose first derivatives satisfy the Dirichlet condition; and 3) the couple stresses and their first derivatives are continuous functions, and the second derivatives satisfy the Dirichlet condition. The proposed method can be used for solving other plane problems of elasticity theory with couple-stress. Orig. art. has: 2 figures and 44 formulas.

SUB CODE: 20/ SUBM DATE: 20Sep65/ ORIG REF: 006/ OTH REF: 002/ ATD PRESS: 5100

Card 2/2 egk

L 08042-67 EWT(m)/EWP(t)/ETI JD/HW

ACC NR: AP7001660 SOURCE CODE: UR/0198/66/002/006/0037/0048

AUTHOR: Guz', A. N. (Kiev); Shnerenko, K. I. (Kiev)

ORG: Institute of Mechanics, Academy of Sciences Ukrainian SSR (Institut mekhaniki AN UkrSSR)

TITLE: Equilibrium of a spherical shell in the form of an eccentric ring

SOURCE: Prikladnaya mekhanika, v. 2, no. 6, 1966, 37-48

TOPIC TAGS: spheric shell structure, algebraic equation

ABSTRACT: A method reported earlier by GUZ' (DAN SSSR, Vol 158, No 6, 1964) reduced the problem of the stress condition of hollow spherical shells with multiconnected regions to a solution of infinite systems of algebraic equations; a more recent work by the same author (Guz', A. N., Prikladnaya Mekhanika, Vol 2, No 3, 1966) demonstrated the quasi-regularity and uniqueness of the solution of such systems for the case of finite regions, but did not consider the case of finite multiconnected regions. In the present work a method is given for solving the problem of the stressed condition of a hollow spherical shell with an eccentric ring configuration. A study is made of the obtained infinite system of algebraic equations, and the quasi-regularity and uniqueness of the solution of the system for a finite annular region is demonstrated for the case of noncontiguous contours. The example given is that of the stressed condition in a shell under an internal pressure load for the case where the inner contour is free and the outer contour rigidly clamped. Zero, first and second approximation data are tabulated. Orig. art. has: 2 figures, 3 formulas and 1 table. [JPRS: 37,655]

SUB CODE: 20, 12 / SUBM DATE: 22Jan66 / ORIG REF: 008

Card 1/1 mc

ACC NR: AP6024327 SOURCE CODE: UR/0021/66/000/004/0437/0441

AUTHOR: Buyvol, V. M. -- Buyvol, V. N.; Huz', O. M. -- Guz', A. N.

ORG: Institute of Hydromechanics, AN UkrSSR (Instytut hidromekhaniky AN URSR); Institute of Engineering, AN UkrSSR (Instytut mekhaniky AN URSR)

TITLE: Two cylindrical shells in an incompressible flow

SOURCE: AnUkrRSR. Dopovidi, no. 4, 1966, 437-441

TOPIC TAGS: cylindric shell, shell structure, incompressible flow

ABSTRACT: The dynamic phenomena occurring in an elastic cylindrical shell in a potential incompressible flow have been studied in detail by V. V. Bolotin (Fizmatgiz, 1961), who assumed that the shell was thin and infinitely long, whereas the flow was along the generatrix of the shell. This paper makes the same assumptions in studying two identical parallel cylindrical shells of thickness h and radius R. The authors start from the theory of sloping shells where the tangential components of the energy forces may be neglected and from linearized hydrodynamic equations. Subjects treated are waves of certain phase velocity propagating along the shells, the contents involved, resultant finite equations, application of Kramer's rule, lowest flutter rate, and application of Il'yushin's "law of plane intersections." The paper was presented by Academician AN UkrSSR H. M. Savin. Orig. art. has: 16 formulas.

SUB CODE: 20/ SUBM DATE: 07Aug65/ ORIG REF: 008/ OTH REF: 001

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