"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ABRAMOVICH, David Iosifovich, doktor geogr. nauk, prof.; KHYLOV, Georgiy Vasil'yevich, doktor biol. nauk, prof.; NIKOLAYEV, Vladimir Aleksandrovich, kand. geol.-miner. nauk; TERNOVSKIY, Dmitriy Vladimirovich, kand. biol. nauk; STRIGIN, V.M., red.; POLOZHENTSEVA, T.S., mlad. red.; MAL'CHEVSKIY, G.N., red.kart; VILENSKAYA, E.N., tekhn.red.

[West Siberian Plain; a study of its natural history] Zapadno-Sibirskaya nizmennost'; ocherk prirody. [By] D.I.Abramovich i dr. Moskva, Geografgiz, 1963. 261 p. (MIRA 16:12)
(West Siberian Plain--Natural history)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

BANDMAN, M.K.; BUYANTUYEV, B.R.; POMUS, M.I.; RADNAYEV, G.Sh.; GOLOVKIN, D.A.; GRIGOR'YEVA, A.A.; KROTOV, V.A.; DONCHENKO, K.Ya.; KORZHUYEV, S.S.; SHATSILO, Ye.S.; KOSMACHEV, K.P.; NAUMOV, G.V.; LIKHANOV, B.N.; PETUKHOV, V.G.; TIKHONOV, A.V.; NEDESHEV, A.A.; SIMANOVSKIY, G.M.; SHAKHUNOVA, P.A.; SHOTSKIY, V.P.; YEROFEYEV, I.A., red.; POLOZHENTSEVA, T.S., mladshiy red.; GOLITSYN, A.B., red. kart; VILENSKAYA, E.N., tekhn. red.

[Eastern Siberia; economic geography] Vostochnaia Sibir'; ekonomiko-geograficheskaia kharakteristika. Moskva, Geografizdat, 1963. 885 p. (MIRA 16:10)
(Siberia, Eastern--Economic geography)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

KHARITANOVSKIY, Aleksandr Aleksandrovich; DOBRONRAVOVA, K.O., red.; POLOZHENTSEVA, T.S., mlad. red.

[Man with an iron deer; tale about a forgotten feat] Chelovek s zheleznym olenem; povest' o zabitom podvige. Moskva, Mysl', 1965. 221 p. (MIRA 18:12)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

DEMIN, Lev Mikhaylovich; GALITSKAYA, T.M., red.; POLOZHENTSEVA, T.S., mlad. red.

[Across the Tatar Strait; sketches of Sakhalin] Za Tatarskim prolivom; sakhalinskie ocherki. Moskva, Mysl', 1965. 100 p. (MIRA 18:12)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

Applied Mechanics Review

Plastics, Disks, Shells, Membranes

1243. G. N. Polozhii, **On a method of solution of some mixed problems of the theory of thin plates** (in Russian), Doklady Akad. Nauk SSSR 66, no 3, 353 356 (May 1949).

It is shown that the bending of a thin plate bounded by straight lines, with given boundary conditions of deflections and bending moment, can be solved by means of two functions of a complex variable found from the given boundary conditions One of these functions is found by the method of Dirichlet, and the second by the method of Riemann-Hilbert.

M. M. Golobiov, Czechoslovakia

1950

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

AMR

9

2030. Polozhii, G. N., Solution of the third fundamental problem of the plane theory of elasticity for an arbitrary finite convex polygon (in Russian), *Doklady Akad. Nauk SSSR (N.S.)*, **73**, 49-52, 1950.

The third fundamental boundary-value problem of plane elasticity, in author's terminology, is the problem of finding the stresses and displacements in a plane domain G whose boundary is L when the normal displacement and the tangential stress are prescribed on L. An explicit solution of this problem is given in the particular case when L is a bounded convex plane polygon and G is its interior. The solution is based on certain formulas given earlier for the case when the boundary of G is piecewise linear [same *Doklady (N.S.)*, **66**, 177-180, 1949; *Prikl. Mat. Mekh.* **13**, 297-306, 1949; AMR **3**, Rev. 845]. Using Goursat's formula [*Bull. Soc. math. Fr.* **26**, 236-237, 1898] $\varphi(z) + \bar{z}\psi(z)$, $z = x + iy$, for an arbitrary complex valued solution of the biharmonic equation, where φ and ψ are analytic functions, problem reduces to the determination of the analytic functions φ and ψ. The function φ is obtained at once from the boundary data, and ψ is obtained as the solution of a function theoretic boundary-value problem of the type solved in Muskhelishvili ["Singular integral equations . . .," Moscow-Leningrad, OGIZ, 1946, p. 279].

Courtesy of Mathematical Reviews J. B. Diaz, USA

July '51

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

Applied Mechanics Reviews

Elasticity Theory

224. G. N. Polozhii, A new method for the solution of some mixed problems of the plane theory of elasticity (in Russian), Doklady Akad. Nauk SSSR 66, 177-180 (1949).

The author deduces a pair of functional equations for the determination of two analytic functions $\varphi(z)$ and $\psi(z)$ of a complex variable z, giving the solution of the mixed boundary-value problem of two-dimensional isotropic elasticity for a closed simply connected region R bounded by a contour C having a finite number of angular points. On the boundary C the component $t(s)$ (s being the arc parameter of C) of the displacement vector in the direction of the normal to C and the tangential component $T(s)$ of the applied force are specified. This mixed boundary value problem was first solved by N.I. Muschelishvili [same source 3, p. 141 (1934)] for regions that can be mapped conformally on a unit circle $|z| \leq 1$ by rational functions. If the region R is bounded by a rectilinear polygon, the equations for the determination of φ and ψ simplify to read:

$$\mathrm{Im}\,[(k+1)\,\varphi'(z)] = -2\mu(dv/ds) + T(s)$$

$$\mathrm{Im}\,[\psi'(z)e^{i2\alpha}] = T(s) - \mathrm{Im}\,[\bar{z}\,\varphi''(z)e^{i2\alpha}], \text{ on } C,$$

where k and μ are the elastic constants of the medium, α is the angle formed by the exterior normal to C with the z-axis, and the symbol Im denotes the imaginary part of the expression following it. The functions $\varphi(z)$ and $\psi(z)$ can be determined with the [illegible] of the formula of Schwarz and by utilizing the continuity properties of [illegible] and displacements. As an illustration the author solves the mixed boundary value problem for the rectangular region. This solution is new. I. S. Sokolnikoff, USA

1950

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHII, G.

On the problem of the (p,q)-analytic functions of complex variables and their applications. In Russian. p. 327.

REVUE DE MATHEMATIQUES PURES ET APPLIQUEES. JOURNAL OF PURE AND APPLIED MATHEMATICS. (Academia Republicii Populare Romine) Bucuresti. Rumania. Vol. 2, 1957.

Monthly List of East European Accessions (EEAI) LC. Vol. 9, no. 1, January 1960.

Uncl.

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L 01862-67 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD/WW/GD

ACC NR: AT6029304 SOURCE CODE: UR/0000/66/000/000/0007/0026

68
67
B+1

AUTHOR: Petrov, V. I.; Polozhikhin, A. I.; Semenov, A. G.

ORG: none

21

TITLE: Heat transfer to sodium in a small diameter tube at high heat loads

27

SOURCE: Moscow. Energeticheskiy institut. Teploobmen v elementakh energeticheskikh ustanovok (Heat exchange in power installation units). Moscow, Izd-vo Nauka, 1966, 7-26

TOPIC TAGS: convective heat transfer, sodium, heat transfer fluid

ABSTRACT: The article reports the results of a study of heat transfer during the movement of sodium in a heated copper tube with an inside diameter of 0.09 mm. Data were obtained at specific heat loads reaching 20 x 10^6 watts/m^2 over a range of velocities from 1.7-30 meters/sec, at Reynolds numbers Re = (4.5-71) x 10^3 and Peclet numbers from 27 to 485. The circulation loop was made of 1Kh18N9T steel. The article shows an overall scheme of the apparatus and detailed mechanical drawings of the experimental tube. The temperature of the outer surface of the tube was measured with six Chromel-Kopel thermocouples located at intervals of 5 mm. Detailed experimental data are shown in an extensive table (four pages). Based on this data, a figure illustrates the change in the Nusselt number as a function of the Peclet number for a

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Applied Mechanics Review

Elasticity Theory

845. G. N. Polozhii, Solution of the third basic problem of the plane theory of elasticity for an infinite plane with a square opening (in Ru. Cov. Prikl. Mat. Mekh. 13, 207–308 (1949)).

The third fundamental boundary-value problem of plane theory of elasticity is concerned with the determination of stresses in the interior of a two-dimensional region R, when the tangential stresses specified on the boundary C of R, and when displacements in the direction of the normal line to C are known. This problem was solved by N. I. Muschelishvili [Doklady Akad. Nauk SSSR 3 (1934)] for such regions R that can be mapped conformally on a unit circle by means of rational functions. In this paper the third boundary-value problem is solved for an infinite plane region bounded by a square. The solution is obtained by reduction to the solution of known boundary-value problems in the theory of functions of a complex variable. To ensure the existence of solution it is necessary to impose certain hypotheses concerning the rate of growth of stresses in the neighborhood of the angular points of the region.

I. S. Sokolnikoff, USA

1950

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHINTSEV, V.

Selecting the most efficient radio-directional systems. Mor. flot 24 no.9:16-17 S '64. (MIRA 18:5)

1. Nachal'nik kafedry radionavigatsionnykh ustroystv Leningradskogo vysshego inzhenernogo morekhodnogo uchilishcha imeni admirala S.O. Makarova.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHINTSEV, V.

Significance of the propagation of radio waves in radio navigation. Mor. flot 22 no.8:21-23 Ag '62. (MIRA 15:7)

1. Nachal'nik kafedry radionavigatsionnykh ustroystv Leningradskogo vysshego inzhenernogo morskogo uchilishcha im. admirala Makarova.
(Radio in navigation)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHINTSEV, V.

Solving the problem of the reliability of equipment. Mor.flot 21 no.5:17 My '61. (MIRA 14:5)

1. Zaveduyushchiy kafedroy radionaviagatsionnykh ustroystv Leningradskogo vysshego inzhenernogo morskogo uchilishcha im. admirala Makarova. (Marine engineering)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHINTSEV, V.

Development of radio engineering devices for navigation. Mor. flot 19 no.3:5-6 Mr '59. (MIRA 12:4)

1. Zaveduyushchiy kafedroy radionavigatsionnykh ustroystv Leningradskogo vysshego inzhenernogo morskogo uchilishcha im. admirala Makarova.
(Radio in navigation)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

Name: POLOZHINTSEV, V.A.

Author of booklet, "Regenerative and Superheterodyne Reception." This is a supplement to the basic course on radio receivers, and covers information concerning regenerative and superheterodyne receivers, including schematic circuit arrangements.

REF: R. F. #14, p.26, 1938

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

AYZINOV, Mark Moiseyevich; BAYRASHEVSKIY, Aleksandr Mustafovich; POLOZHINTSEV, Vasiliy Alekseyevich; DITRIKH, K.F., red.; GORYANSKIY, Yu.V., red.izd-va; KOTLYAKOVA, O.I., tekhn.red.

[Radio engineering and radio navigation devices]Radiotekhnika i radionavigatsionnye pribory. Leningrad, Izd-vo "Morskoi transport," 1962. 474 p. (MIRA 16:3)
(Radio in navigation) (Radio) (Radar)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

Synthesis of hydrocarbons from carbon oxide and hydrogen over alloyed catalysts. II. I. B. Rapoport and I. Polozhintseva. *Khim. Tverdogo Topliva* 9, 61-70 (1938); cf. C. 1, 20, 761.*; 32, 1688* and *Foreign Petroleum Tech.* 2, 215-46, 293-304 (1938). The gas mixt. (an av. compn. CO 31.7, H_2 63.08, CO_2 0.05, O_2 0.2 and N 4.97%) after purification and drying was passed into a quartz tube filled with a catalyst, from which it passed into a graduated receiver, cooled with ice, then into a charcoal scrubber and then into a gasometer. A portion of the gas was withdrawn for the analysis. The quartz tube was kept at 165-220°. Ni-Al, Co-Al and Co-Si catalysts were used in the powd. and granular forms. The Ni-Al catalyst reduced in the H atm. at 3.0 yielded 140 cc. per cu. m. of gas of hydrocarbon under the optimal conditions vol. velocity 166 at 170°. The Co-Al catalyst reduced with H in the NH_3 atm. at 220° yielded 175 cc. cu. m. of gas hydrocarbon at 200° and vol. velocity of 83. The Co-Si catalyst reduced as the Co-Al catalyst yielded 100.6 cc. cu. m. of gas hydrocarbon at 220° and vol. velocity of 59. All the above data are given for the catalysts in the granular form; the yield of hydrocarbon using powd. catalysts was somewhat lower.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

PROCESSES AND PROPERTIES INDEX

CA

11 E

Efficacy of carotene injections in vitamin A deficiency in older children. S. P. Polochintseva-Demina. *Pediatriya* 1944, No. 2, 30-6.—Introduction of carotene definitely improves the dark-adaptation of the eyes. The improvements are noted in most cases within 2 weeks of beginning of the therapy. Halting the therapy manifestly decreases dark-adaptation within 10 days to 3 weeks. The detn. of the dark-adaptation serves well to diagnose the early stages of vitamin A deficiency. G. M. K.

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PROCESSES AND PROPERTIES INDEX

11F

ca

Resistance of the capillaries as an index of C-hypovitaminosis. S. P. Poloshintseva-Dumina. *Pediatriya* 1941, No. 4, 62-7.—The lower limit of normal resistance of skin capillaries is 170 mm. Hg neg. pressure, at which a few petechiae begin to appear. The av. norm is at 350 mm., in some children at 350-450 mm. The resistance to suction is highest in fall and lowest in spring. This test is suitable for detg. C-hypovitaminosis in practically healthy children. **Dynamics of changes in the resistance of capillaries in measles, and their relation to ascorbic acid variations in blood.** *Ibid.* 1941, No. 6, 21-8.—Observations on 130 children, mostly undernourished at the start, 3 mos. to 12 yrs. old (78 under 3 yrs.), and suffering chiefly from the reactive form of measles, showed an increased brittleness of capillaries, with a max. at the rashy stage of the disease. Reversion to normal was slow: by the end of the disease only 18.4% had normal resistance and 26.9% were nearly normal. In both, diseased and healthy children, capillary brittleness is highest in spring, lowest in fall. Daily doses of 200-300 mg. ascorbic acid, given in the form of rose hip infusion, increase the resistance of capillaries and hasten reversion to normal (33% treated, against 12% untreated), or near normal (55% against 26%, resp.). In older children the resistance is higher than in younger ones. It is also *higher* in undernourished children, than in well fed ones. The method of neg. pressure, as modified by Charkes, is clinically valuable in detg. the resistance of capillaries. T. L.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

PROCESSES AND PROPERTIES INDEX

Solubility of water in liquid hydrocarbons. D. N. TARASENKOV AND E. N. POLOZHINTSEVA. *Zhur. Obshchei Khim.*, Khim. Ser. 1, 71-9(1931).—The existing analytical methods for the detn. of the soly. of water in liquid hydrocarbons are either inaccurate or time-consuming. The "synthetic" method employed here is based on the procedure proposed by Alekseev (*Ann.* 28, 305(1886)) and modified by Rothmund (*Z. physik. Chem.* 26, 433(1898)) whereby definite amts. of the 2 liquids are mixed together to a homogeneous soln. on heating or cooling (in the case of liquids the soly. of which increases with lower temp.), followed by cooling, or heating, and detg. the temp. at which the turbidity or sepn. begins. The soly. of water was detd. at various temps. in C_6H_6, PhMe, $C_6H_4Me_2$, cyclohexane, gasoline, kerosene and paraffin oil. *Conclusions.*—The soly. of water at 20° in the following is by wt.: C_6H_6 0.053, PhMe 0.035, $C_6H_4Me_2$ 0.021, cyclohexane 0.01, Grozny gasoline 0.088, kerosene 0.06 and paraffin oil 0.004%. The soly. of water in aromatic hydrocarbons decreases with increasing mol. wt. of the homologs. A quant. detn. of water in a hydrocarbon may be carried out by finding first by the synthetic method the curve for the soly. of water at various temps. in the given hydrocarbon; then with the help of this curve it is easy to det. the amt. of water dissolved in the hydrocarbon according to the temp. of the appearance of turbidity.

CHAS. BLANC

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PROCESSES AND PROPERTIES INDEX

Equilibriums in the systems: alcohol-benzene-water and alcohol toluene-water.
D. N. TARASENKOV AND E. N. POLOZHINTSEVA. *J. Gen. Chem.* (U. S. S. R.) 2, 84-8 (1932). Miscibility data are shown in the form of equil. diagrams. B. C. A.

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHINTSEVA, E. N.

Catalysts for the synthesis of hydrocarbons. I. B. Rapoport and E. N. Polozhintseva. *Trudy Vsesoyuz. Nauch.-Issledovatel.* [redacted] *Topliva i Gaza* (*VNIGI*) 1, 162-80(1948).—Very active fused catalysts were prepd. The most active catalyst was composed of Ni-Co-Al 1:1:2; it produced up to 228 ml. liquid product/cu. m. gas ($Co:H_2$ = 1:2), while an Fe catalyst promoted with Co produced up to 185 ml./cu. m. gas. These catalysts were crushed to 3-5 mm. size, leached with NaOH, washed with water, and reduced with H. Catalysts pptd. upon kaolin gave higher yields but were not readily reproducible. W. M. Sternberg

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHENTSEVA, T. A., V. G. TEYFEL', A. N. SERGEYEVA, N. P. BARABASHOV, V. I. YEMERSKIY and V. A. FEDORETS

"The Determination of Color Contrasts on the Surface of the Moon by Means of Photographic Spectrophotometry."

Report presented at the Plenary Meeting of the Committee of Planetary Physics, Council of Astronomers, Khar'kov, 20-22 May 1958.
(Vest. Ak Nauk SSSR, 1958, No. 8, p. 113-114)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

1. ZABRODSKIY, A. G. POLOZHISHNIK, A. F.

2. USSR (600)

4. Grain

7. Formation of melanoidin during heat treatment of grain. Biokhimiia 17 no N-D '52.

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

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ZABRODSKIY, A.G.; POLOZHISHNIK, A.F.

Colloido-chemical characteristics of defective corn. Koll.zhur. 15 no.4: 238-245 '53. (MLRA 6:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut spirtovoy promyshlennosti (Kiyevskiy filial). (Colloids) (Corn (Maize))

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHISHNIK, A.F.

Colloid-chemical characteristics of defective maize. A. G. Zabrodskii and A. F. Polozhishnik. *Colloid J. U.S.S.R.* 15, 245-51(1953)(Engl. translation).—See *C.A.* 47, 115825. H. L. H.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHISHNIK, A. F.

USSR/Chemical Technology - Chemical Products and Their Application. Fermentation Industry, I-27

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63539

Author: Zabordskiy, A. G., Polozhishnik, A. F.

Institution: None

Title: Dependence of Colloido-Chemical Properties of Sweet Mash on Temperature of Cooking of the Grain

Original Periodical: Tr. Vses. n.-i. in-ta spirt. prom-sti, 1955, No 5, 33-43

Abstract: Investigated was the possibility of utilizing simplest methods of colloido-chemical analysis for determining changes occurring in sweet-mash grain. To study changes in filterability of mash, depending on grain cooking temperature, filtration analysis was utilized in the form applied to the study of properties of grain and bakery products, in the production of sugar and other industries. Amount of solid phase was determined by chemico-diastatic method from the content of starch remaining in the crushed material. Potentiometric determination

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Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

SOKOLOV, V.Ye.; POLOZHIKHINA, V.F.

Microclimate of the nests of birds and the burrows of rodents under the conditions of a sand desert. Nauch. dokl. vys. shkoly; biol. nauki no.1:45-51 '64. (MIRA 17:4)

1. Rekomendovana kafedroy zoologii pozvonochnykh Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

Polozhishnik A.F.

CH

Do seed fats influence alcoholic fermentation? A. G. Zabrodskiĭ and A. F. Polozhishnik (All-Union Sci. Research Inst. Alc. Ind., Kiev Branch). *Mikrobiologiya* 24, 341-7 (1955).—In yeast fermentation of oat and corn mashes the fats and lipoids, whether from sound or spoiled grain, have no appreciable effect on yield of alc. Yield losses encountered in practice, e.g. in fermenting spoiled grain, are due to degradation products of proteins, not of fats; these products react with carbohydrates to form melanoids which yeasts do not ferment. Julian F. Smith

(1)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ZABRODSKIY, A.G.; POLOZHISHNIK, A.F.; VITKOVSKAYA, V.A.

Biochemical properties of soluble and insoluble malt amylase. Izv.vys.ucheb.zav.; pishch.tekh. no.4:55-61 '59. (MIRA 13:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut spirtovoy i likero-vodochnoy promyshlennosti. Laboratoriya tekhnologii spirtovogo i drozhzhevogo proizvodstva.
(Amylase)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ZOLOTAREV, S.M.; ZABRODSKIY, A.G.; POLOZHISHNIK, A.F.

Separation of corn germs processed in the fermentation industry. Spirt. prom. 28 no.7:20-26 '62. (MIRA 17:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut spirtovoy i likero-vodochnoy promyshlennosti (for Zolotarev, Zabrodskiy).
2. Odesskiy tekhnologicheskiy institut (for Polozhishnik).

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

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POLOZHISHNIK, A.F.; ZABRODSKIY, A.G.

Oil extraction from corn kernels in the distilling industry. Trudy UkrNIISP no.5:35-48 '59.

Biochemical and technological characteristics of germinated grain. Trudy UkrNIISP no.5:63-69 '59. (MIRA 16:11)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ZABRODSKIY, A.G.; POLOZHISHNIK, A.F.

Testing of the readiness of grain and potato pulp cooking in distilleries based on the acidity of the extra vapor condensate. Izv.vys.ucheb.zav.; pishch.tekh. no.1:134-138 '63. (MIRA 16:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut spirtovoy i likerno-vodochnoy promyshlennosti, laboratoriya spirtovogo i drozhzhevogo proizvodstva.

(Distillation)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ZABRODSKIY, A.G.; POLOZHISHNIK, A.F.; RABINOVICH, B.D.

Research concerning the optimum systems for a rapid soft boiling of grains in alcohol distilleries. Izv.vys.ucheb.zav.; pishch.tekh. no.4:94-99 '62. (MIRA 15:11)

1. Ukrainskiy nauchno-issledovatel'skiy institut spirtovoy i likerovodochnoy promyshlennosti; laboratoriya tekhnologii spirtovogo i drozhzhevogo proizvodstva i laboratoriya oborudovaniya, mekhanizatsii i avtomatizatsii proizvodstva. (Distillation)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ZABRODSKIY, A.G.; POLOZHISHNIK, A.F.; VITKOVSKAYA, V.A.

Determining the causes of the decrease in the activity of malt amylase in alcoholic fermentation. Izv.vys.ucheb.zav.: pishch.tekh. no.3:57-64 '59. (MIRA 12:12)

1. Ukrainskiy nauchno-issledovatel'skiy institut spirtovoy i likero-vodochnoy promyshlennosti. Laboratoriya tekhnologii spirtovogo i drozhzhevogo proizvodstva.
(Fermentation)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ZABRODSKIY, A.G.; POLOZHISHNIK, A.F.

Concentration of dry substances in the continuous cooking of grain. Spirt. prom. 25 no.6:4-5 '59. (MIRA 12:12)
(Alcohol)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, A.V.

Analyzing the milk vetch and crazyweed flora of central Siberian steppes. Izv. Tomsk. otd. VBO 4:63-75 '59. (MIRA 14:6)

1. Kafedra botaniki i Gerbariy imeni P. N. Krylova pri Tomskom universitete imeni V. V. Kuybysheva.
(Siberia— Milk vetch)
(Siberia—Crazyweed)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, A.V.; SERGIYEVSKAYA, L.P.

Viktor Vladimirovich Reverdatto; on his 70th birthday. Bot. zhur. 46 no.9:1358-1363 S '61. (MIRA 14:9)

1. Tomskiy gosudarstvennyy universitet im. V.V.Kuybysheva.
(Reverdatto, Viktor Vladimirovich, 1891-)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

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USSR / Weeds and Weed Control N

Abs Jour: Ref Zhur-Biol., 1958, No 17, 77949

Author : Polozhiy, A. V.
Inst : Not given
Title : Weeds Control of the Field Crops of the Tomskaya Oblast.

Orig Pub: V sb.: Vopr. bor'by c vredit., boleznyami i sornyakami s.-kh. rast. v Tomskoy obl. Tomsk. Un-t, 1957, 37-44

Abstract: For the destruction of wheatgrass in fallow land, autumn shallow ploughing to a depth of 12 cm is recommended to provoke the germination of the rootstock. In spring, the increase of fallow land

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POLOZHIY, A.V.; REVERDATTO, V.V., prof., red.; SERGIYEVSKAYA, L.P., prof., red.; OSOVSKIY, A.T., tekhn. red.

[Flora of Krasnoyarsk Territory] Flora Krasnoiarskogo kraia. Tomsk, Izd-vo Tomskogo univ. No.6. [Pea family -Papilionaceae] Bobovye - Papilionaceae. 1960. 93 p. (MIRA 15:2)
(Krasnoyarsk Territory--Papilionaceae)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, A.V.

Materials on the history of the high-mountain flora of the Sayans. Nauch. dokl. vys. shkoly; biol. nauki no. 1:126-130 '61. (MIRA 14:2)

1. Rekomendovana kafedroy botaniki Tomskogo gosudarstvennogo universiteta im. V.V. Kuybysheva.
(SAYAN MOUNTAINS--LEGUMINOSAE)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, A.V.

History of the formation of Arctic flora in central Siberia. Izv. SO AN SSSR no.4. Ser. biol.-med. nauk no.1:6-14'63. (MIRA 16:8)

1. Tomskiy gosudarstvennyy universitet.
(SIBERIA--BOTANY)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, A.V.

Role and methods of studying the history of flora. Izv. SO AN SSSR no.8. Ser.biol.-med.nauk no.2:3-9 '65. (MIRA 18:9)

1. Tomskiy gosudarstvennyy universitet.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, A.V.

A new floristic find from Tuva. Izv. SO AN SSSR no.4. Ser. biol.-med. nauk no.1:74-76'63. (MIRA 16:8)

1. Gerbariy im. P.N.Krylova pri Tomskom gosudarstvennom universitete.

(TUVA A.S.S.R. -- MILK VETCH)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

Polozhiy, A.V.

POLOZHIY, A.V.

Systematics of astragals of the section Onobrychium Bge. Zam. po faune i flore Sib. no.18:67-70 '55. (MIRA 11:1)

1. Gerbariy im. P.N. Krylova pri Tomskom gosudarstvennom universitete imeni V.V. Kuybysheva.
(Siberia--Milk vetches)

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INOZEMTSEV, Pavel Petrovich; POLOZHIY, Fedor Mikhaylovich; SHNAYDMAN, Maks Iosifovich; CHERKASSKIY, Feliks Borisovich, LYUBOSHCHINSKIY, Dmitriy Markovich; POZIN, Yevgeniy Zalomanovich; LEVIN, N.F., otvetstvennyy redaktor; KOLOMIYTSEV, A.D., redaktor izdatel'stva; KOROVENKOVA, Z.A., tekhnicheskiy redaktor

[Mechanization of coal loading in mines of the Karaganda Basin] Mekhanizatsiia navalki uglia na shakhtakh Karagandinskogo ugol'nogo basseina. Moskva, Ugletekhizdat, 1956. 171 p. (MLRA 9:9)
(Karaganda Basin--Coal mining machinery)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

ALTAYEV, Sh.A., kand.tekhn.nauk; POLOZHIY, F.M.; MASTER, A.Z.; ZHISLIN, I.M.; SHAPOSHNIKOVA, I.I.; NABOKIN, V.F.; MAKSIMOVA, A.I.; BOYKO, A.A., red.; LERNER, B.I., red.; MIROSHNICHENKO, V.D., red. izd-va; LOMILINA, L.N., tekhn. red.

[Karaganda soil basin; reference book] Karagandinskii ugol'nyi bassein; spravochnik. Pod obshchei red. A.A.Boiko i B.I. Lernera. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1962. 367 p. (MIRA 15:3)

1. Karagandinskiy khimiko-metallurgicheskiy institut Akademii nauk Kazakhskoy SSR (for Altayev). 2. Karagandinskiy sovnarkhoz (for Polozhiy, Master, Zhislin, Shaposhnikova). 3. Kombinat Karagandaugol' (for Nabokin). 3. Karagandinskiy nauchno-issledovatel'skiy ugol'nyy institut (for Maksimova).
(Karaganda Basin--Coal mines and mining)

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C111/C222

AUTHORS: Polozhiy, G.M., and Pakhareva, N.O.

TITLE: Qualitative methods for the solution of the problems of mathematical physics

PERIODICAL: Referativnyy zhurnal. Matematika, no.3, 1960, 41, abstract 2854 (Nauk. zap. Kiyvs'k. un-t, 1957, 16, no.16, 69-77)

TEXT: The authors give a survey on the variation principles for the solution of some problems of the plane and axialsymmetric theory of filtration, of the torsion theory of prismatic bars etc., developed by the authors and other scientists. Some of the cited results were obtained only recently and are not yet published in a complete form.

[Abstracter's note: Complete translation.]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G.N. (Kiyev); ULITKO, A.F. (Kiyev)

Inversion formulas of the basic integral representation of p-analytic functions having the characteristic $p=x^k$. Prikl. mekh. 1 no.1:39-51 '65. (MIRA 18:5)

1. Kiyevskiy gosudarstvennyy universitet i Institut mekhaniki AN UkrSSR.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G.N. (Kiyev)

Limiting values and reversion formula along the sections of the main integral representation of p-analytic functions with the characteristic $p = x^k$. Part 2. Ukr. mat. zhur. 17 no.2: 61-87 '65. (MIRA 18:5)

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B

AUTHOR: Poloshiy, G. N.

TITLE: On limiting values and conversion formulas along sections of basic integral representations of p-analytic functions with characteristic $p=x^k$. Part I.

16

SOURCE: Ukrainskiy matematicheskiy zhurnal, v. 16, no. 5, 1964, 631-656

TOPIC TAGS: analytic function

Abstract: In previous works by the author (references given in the article) he defined operators in the complex plane. The operator P(f) had the following properties: if

$$f(z) = u(x,y) + iv(x,y) \subset M -$$

where M is a class of analytic functions in G, a subset of the right half-plane C then

$$\tilde{f}(z) = \tilde{u}(x,y) + i\tilde{v}(x,y) = P(f) \qquad (1)$$

where P(f) is an x^k-analytic function of z in G and $v/L=0$, L is the imaginary axis (other properties were given for more restricted cases).

Here the problem of limiting values of the most general type is considered: the integral representations of (1) and other equations.

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Boundary conditions for p-analytic functions with characteristic $p=x^k$ are given by means of derived conversion formulas, from which explicit solutions are found. The continuation of this article may be found in UMZh, Vol 17. Orig. art. has 4 figures and 71 formulas.

ASSOCIATION: none

SUBMITTED: 23Dec63 ENCL: 00 SUB CODE: MA

NO REF SOV: 005 OTHER: 000 JPRS

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C111/C222

AUTHORS: Polozhiy, G.M., and Skorobogat'ko, A.A.

TITLE: On the determination of the tensions in cylindric waves with an annular groove

PERIODICAL: Referativnyy zhurnal. Matematika, no.3, 1960,41, abstract 2853 (Nauk.zap. Kyivs'k. un-t, 1957, 16, no.16, 165-170)

TEXT: The method of majorizing regions is applied for the solution of the problem of the determination of the maximal tensions on the surface of a cylindrical wave with an annular groove of hyperbolic form. For sufficiently deep grooves of an arbitrary width the authors give estimations with the exactness of 1-3%. The exactness of the estimations becomes essentially smaller for very narrow and not very deep grooves.

[Abstracter's note: Complete translation.]

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24.4200

AUTHORS: Polozhiy, H.M., and Kyyashko, A.M. (Kyyiv)

TITLE: On applying p-analytical functions to solving the boundary problems of momentless shell theory

PERIODICAL: Prykladna mekhanika, v. 7, no. 4, 1961, 362 - 369

TEXT: The article shows that the stressed state of a momentless shell, whose mean surface is one of revolution may be described with the aid of p-analytical functions of a complex variable. The mean surface of the shell is referred to a geodesic system of coordinates β = const (α-lines) and α = const (β-lines); R_1 and R_2 are the radii of curvature corresponding to the α-lines and β-lines respectively, A and B are the coefficients of the first quadratic form of the mean surface of the shell. The full system of equations for determining the shell are included in the equilibrium equations

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and

$$\varepsilon_1 = \frac{1}{A}\frac{\partial u}{\partial \alpha} + \frac{1}{AB}\frac{\partial A}{\partial \beta} v - \frac{w}{R_1},$$

$$\varepsilon_2 = \frac{1}{B}\frac{\partial v}{\partial \beta} + \frac{1}{AB}\frac{\partial B}{\partial \alpha} u - \frac{w}{R_2}, \qquad (6)$$

$$\omega = \frac{A}{B}\frac{\partial}{\partial \beta}\left(\frac{u}{A}\right) + \frac{B}{A}\frac{\partial}{\partial \alpha}\left(\frac{v}{B}\right).$$

where T_1 and S_1 are the normal and shearing stresses which arise in the shell in the plane of the normal section referred to the β-lines, T_2 and S_2 the similar quantities referred to the α-lines, u is the displacement in the positive direction of the tangent to the α-lines, v the similar displacement referred to the β-lines, w is the displacement along the inward normal, X, Y, and Z are projections of the exterior surface load on the tangent to the α-lines, the tangent to the β-lines and the inward normal respectively.

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The first part of the problem is the determination of T_1, S_1, T_2, S_2. In the case of a shell of revolution, formed by the revolution of lines $r = r(z)$ about the axis Oz, then the problem is reduced to finding functions $\Phi(z, \beta)$ and $\Psi(z, \beta)$ such that

$$T_1 = \frac{\sqrt{1+r'^2}}{r}\Psi; \quad T_2 = \frac{r''}{\sqrt{1+r'^2}}\Psi; \quad S = \frac{\Phi}{r^2}, \tag{8}$$

and functions $\sigma(z, \beta)$ and $k(z, \beta)$ such that

$$u = \frac{\sigma}{\sqrt{1 + r'^2}}; \quad v = \varkappa r. \tag{9}$$

By substitution and simplification, this system is reduced to the sum of the partial solution of a non-homogeneous system, and the general solution of a homogeneous system; by a change of coordinates the following system is obtained

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nya uzahal'nenykh analitychnykh funktsiy (On an Integral Transformation of Generalized Analytic Functions) KDU, Mekh-mat. fakultet, Naukovyy shchorichnyk, 1958) applied to the case k = 2 there follow two theorems. Theorem 1: Let $F(\xi) = \Phi(\xi, \eta) + i\Psi(\xi, \eta)$ be an analytic function in the singly-connected space G. Then

$$\overline{F}(\zeta) = \overline{\varphi}(\xi, \eta) + i\overline{\psi}(\zeta, \eta) = \frac{\varphi}{\xi} + i\int -\xi\frac{\partial\varphi}{\partial\xi}d\xi + \left(-\varphi + \xi\frac{\partial\varphi}{\partial\xi}\right)d\eta \qquad (15)$$

will be a ξ^2-analytic function in G. Theorem 2: Let $\overline{F}(\xi) = \overline{\varphi}(\xi, \eta) + i\overline{\Psi}(\xi, \eta)$ be a ξ^2-analytic function in the singly-connected region G. Then

$$F(\zeta) = \varphi(\xi, \eta) + i\psi(\xi, \eta) = \xi\overline{\varphi} + i\int \frac{1}{\xi}\frac{\partial\overline{\psi}}{\partial\xi}d\xi + \frac{\partial}{\partial\xi}(\xi\overline{\varphi})d\eta \qquad (16)$$

will be an analytic function in G. As an example the authors consider a "tumbler-shaped" shell defined by

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$$r(z) = \sqrt{4cz^2 + 2z}\ \ln \sqrt{\frac{2cz + 1}{2cz}},$$

where c is some parameter, $c > 0$. The boundary conditions are

$$T_1 = T_1(\beta);\ v = 0.$$

The transformation to be applied is

$$\xi = \ln \sqrt{\frac{2cz}{1 + 2cz}};\quad \eta = \beta, \tag{13'}$$

and the solution is found to be

$$T_1 = \frac{c}{\pi}(e^{\xi} - e^{-\xi})^2 \sqrt{\left(\frac{e^{2\xi}+1}{1-e^{2\xi}} + \frac{1}{\xi}\right)^2 + \frac{1}{c\xi^2(e^{\xi} - e^{-\xi})^2}} \times$$

$$\times \sum_{m=2}^{\infty} \frac{b}{\xi} e^{m(\xi+b)} \int_0^{2\pi} \mu(t) \cos m(t - \eta)\, dt,$$

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C111/C333

AUTHOR: Polozhiy, G. N.

TITLE: The method of p-analytic functions in the axialsymmetric elasticity problem

PERIODICAL: Referativnyy zhurnal, Matematika, no. 2, 1962, 41, abstract 2B175. ("Nauk shchorichnyk. Mekhan.-matem. fak. Kyivs'k. un-tu", 1956. Kyiv. 1957, 529-530)

TEXT: In the paper it is shown that the general solution of the static equations of the axialsymmetric elasticity problem can be written with the aid of the p-analytic functions introduced by the author (Dokl. AN SSSR, 1947, 57, no. 5).

[Abstracter's note: Complete translation.]

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D299/D302

AUTHORS: Polozhiy, G.M., and Chalenko, P.Y.

TITLE: Method of bands for solving integral equations

PERIODICAL: Akademiya nauk UkrRSR. Dopovidi, no. 4, 1962, 427-430

TEXT: The proposed method incorporates the basic principles of three well-known methods: The method of finite differences, the method of iteration, and the method of approximation of kernels. Fredholm's equation of the second kind is considered

$$\varphi(x) = f(x) + \lambda \int_0^1 K(x, s)\, \varphi(s)ds \qquad (1)$$

where $f(x)$ and $K(x, s)$ are real functions, λ is a number which is not an eigenvalue of the kernel $K(x, s)$, and $\varphi(x)$ is the sought-for function. The square $0 \leq x, s \leq 1$ is divided into m bands by means of straight lines, parallel to the X-axis: $s = s_k$ ($k = 1, 2, \ldots, m$; $s_0 = 0$; $s_m = 1$). In each of these bands, the kernel $K(x, s)$ is

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approximated by functions of type

$$C_k(x, s) = C_k(x) + P_k(x)Q_k(s), \quad (k = 1, 2, \ldots, m) \qquad (2)$$

where $C_k(x)$, $P_k(x)$ and $Q_k(s)$ are certain functions. Eq. (1) is rewritten in a different form, and a simple iteration process performed. Thereupon one obtains

$$\varphi(x) = \lambda \sum_{k=1}^{m} E_k X_k(x) + \lambda \sum_{k=1}^{m} E_k^* X_k^*(x) + \Psi(x) \qquad (12)$$

where E_k are integral expressions, (as well as X_k). By integrating Eq. (12) one obtains a system of 2m linear algebraic equations. Eq. (12) yields

$$\varphi(x) = F(x)\lambda \int_0^1 H(x, s; \lambda)\, F(s)ds, \qquad (14)$$

where $H(x, s; \lambda)$ is the resolvent of the kernel $D(x, s)$, expressed by a convergent Neumann series, and

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$$F(x) = f(x) + \lambda\sum_{k=1}^{m} E_k C_k(x) + \lambda\sum_{k=1}^{m} E_k^* P_k(x). \qquad (15)$$

A computation scheme is constructed which corresponds to formula (14), and permits one to obtain the approximate value of $\varphi(x)$, as a result of a finite number of operations with known quantities. The function

$$\tilde{\varphi}_n(x) = \lambda\sum_{k=1}^{m} [E_k^{(n)} X_k^{(n)}(x) + E_k^{*(n)} X_k^{*(n)}(x)] + \Psi_n(x) \quad (n = 1,2,\ldots) \qquad (16)$$

is introduced, where $E_k^{(n)}$, $E_k^{*(n)}$ are constants (determined from a system of equations); $\tilde{\varphi}_n(x)$ is considered as the approximate solution of Eq. (1), and the error, yielded by the method, is estimated. One obtains for the error:

$$/\varphi(x) - \tilde{\varphi}_n(x)/ \leqslant Mq^n, \qquad (23)$$

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where $q = /\lambda/ \; //D// < 1$, and M is a constant which does not depend on n. An example is considered, which shows the adequate convergence of the proposed method. There are 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc. (including 1 translation). The reference to the English-language publication reads as follows: P.A. Samuelson, Jour. of Math. and Physics, 31, 276, 1953.

ASSOCIATION: Kyyivskyy derzhavnyy universytet (Kyyiv State University)

PRESENTED: by Academician Y.Z. Shtokalo, AS UkrRSR

SUBMITTED: October 5, 1961

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POLOZHIY, G.M. [Polozhii, H.M.]; PAKHAREVA, N.O. [Pakharieva, N.O.]

Qualitative methods for solving problems in mathematical physics. Nauk. zap. Kyiv. un. 16 no.16:69-77 '57. (MIRA 13:3)
(Mathematical physics)

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POLOZHIY, G.M. [Polozhii, H.M.]; SKOROBOGAT'KO, A.A. [Skorobahat'ko, A.A.]

Determining stresses in cylindrical shafts with circular grooves. Nauk. zap. Kyiv. un. 16 no.16:165-170 '57. (MIRA 13:3)
(Shafting) (Strains and stresses)

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16.3100

AUTHOR: Polozhiy, G. M.

TITLE: On finite relations for partial difference equations. Part I.

PERIODICAL: Referativnyy zhurnal, Matematika, no. 7, 1962, 30-31, abstract 7V139. ("Visnyk Kyivs'k un-tu", 1960(1961), no. 3, ser. matem. ta mekhan. no. I, 15-43)

TEXT: Considered is the rectangular domain D which is formed by the knot points (x_i, y_k), $i=0,1,\ldots,m+1$; $k = 0,1,\ldots, n+1$; the points (x_i, y_k), $i=1,2,\ldots, m$; $k = 1,2,\ldots,n$ are inner points, while (x_i, y_o), (x_i, y_{n+1}), $i = 0,1,\ldots, m+1$ and (x_o, y_k), (x_{m+1}, y_k), $k=1,2,\ldots, n$ are horizontally respectively vertically situated boundary points. The author constructs in D the general solutions of the following difference equations:

a) $$\Delta_h u = f(x,y)$$

(this one corresponds to the differential equation $\Delta U=f(x,y)$ with the

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two-dimensional Laplace-operator Δ);

b) $\Delta_h^* u = \Delta_h u - 2\lambda u = f(x,y)$

(this one corresponds to the differential equation $\Delta U - 2\lambda U = f(x,y)$ with the real constant λ);

c) $\Delta\Delta_h u = f(x,y)$

(this one corresponds to the biharmonic equation $\Delta\Delta U = f(x,y)$)

d) $L_h u = f(x,y)$

(this one corresponds to the differential equation $LU = \Delta\Delta U - 2a\Delta U - 2\lambda U = f(x,y)$ with real constants a and λ);

e) $\Delta_h^* u = f(x,y)$

(this one corresponds to the differential equation

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On finite relations for partial . . .

$$\Delta U - 2a(x) \frac{\partial U}{\partial x} - 2\lambda(x)U = f(x,y)$$

with variable coefficients)

f) $$\tilde{L}_h u = f(x,y)$$

(this one corresponds to the differential equation of fourth order with variable coefficients

$$\tilde{L}U = LU + L^1U + L^0U$$

where

$$LU = \Delta\Delta U - 2a(x)\Delta U - 2\lambda(x)U$$

$$L^1U = -2b(x)\frac{\partial}{\partial x}\Delta U - 2c(x)\frac{\partial^2}{\partial x^2}\Delta U$$

$$L^0U = -2\mu(x)\frac{\partial U}{\partial x} - 2\nu(x)\frac{\partial^2 U}{\partial x^2} - 2\chi(x)\frac{\partial^3 U}{\partial x^3}.$$

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In the cases a), b), e) the difference operators are constructed with respect to five knot points; the general solution of the difference equations in D is determined by 2m boundary values of u along the horizontal line and by 2n arbitrary constants. In the cases c), d), f) the difference operators are constructed with respect to 13 knot points; the general solution of the difference equations in D is determined by 2m boundary values of u on the horizontal line $u_0(x_i)$, $u_{n+1}(x_i)$, $i=1,2,\ldots,m$, by 2m-4 nonboundary values of u on the horizontal line $u_{-1}(x_i)$, $u_{n+2}(x_i)$ $(i = 2,3,\ldots,m-1)$, and by 4n arbitrary constants. Because the solutions of the mentioned equations being very complicated, it is not advisable to write these solutions down. In order to represent the structure of these solutions, we only write down the general solution in the case a). With vector notations is has the form

$$u(x) = u(x_0 + ih) = SA(x_0 + ih) + SB(x_0 + ih) + h^2 \sum_{p=0}^{p=i-1} ST(i-p)Sf(x_0 + ph) - \alpha^2 \sum_{p=1}^{p=i-1} ST(i-p)S\omega(x_0 + ph),$$

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the two last sums for i=0 and 1 both being equal zero. Here is

$$f(x) = \{f_1(x), f_2(x), \ldots, f_n(x)\}, \; f_k(x) = f(x, y_k),$$
$$\omega(x) = \{u_0(x), 0, \ldots, 0, u_{n+1}(x)\}, \; u_k(x) = u(x, y_k),$$
$$A(x_0 + ih) = \{A_1\mu_1^i, A_2\mu_2^i, \ldots, A_n\mu_n^i\},$$
$$B(x_0 + ih) = \{B_1\nu_1^i, B_2\nu_2^i, \ldots, B_n\nu_n^i\},$$

where μ_k^i and ν_k^i $(k = 1, \ldots, n)$ are the roots of the characteristic equations, being determined by

$$\mu_k = a_k + \sqrt{a_k^2 - 1}, \quad \nu_k = a_k - \sqrt{a_k^2 - 1}$$
$$a_k = 1 + \alpha^2 + \alpha^2 \lambda_k$$

where $\alpha = \frac{h}{h_1}$, h being a grid step with respect to x, h_1 being a grid step with respect to y; $\lambda_k = \cos k\beta$, $\beta = \frac{\pi}{n+1}$. The matrix T(i-p)

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is of n-th order and has the diagonal form

$$T(l)=\left\{\frac{\mu_1^l-\nu_1^l}{\mu_1-\nu_1},\ \frac{\mu_2^l-\nu_2^l}{\mu_2-\nu_2},\ \ldots,\ \frac{\mu_n^l-\nu_n^l}{\mu_n-\nu_n}\right\}.$$

The matrix S is

$$S=\sqrt{\frac{2}{n+1}}\begin{vmatrix} \sin\beta & -\sin 2\beta & \ldots & (-1)^{n+1}\sin n\beta \\ -\sin 2\beta & \sin 2\cdot 2\beta & \ldots & (-1)^{n+2}\sin n2\beta \\ \cdots & \cdots & \cdots & \cdots \\ \cdots & \cdots & \cdots & \cdots \\ (-1)^{n+1}\sin n\beta & (-1)^{n+2}\sin n\cdot 2\beta & \ldots & \sin n\cdot n\beta \end{vmatrix},$$

where $S^2 = E$.

[Abstracter's note: Complete translation.]

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D251/D302

16.3500

AUTHOR: Polozhiy, H.M.

TITLE: On a new method for the numerical solution of boundary-problems for elliptical partial differential equations

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 12, 1960, 1579-1583

TEXT: The article establishes a formula for the finite differences of harmonic and bi-harmonic operators which gives a sufficiently simple form for solving the corresponding system of algebraic equations. A rectangular network

$$x_i = x_o + ih, y_k = y_o + kh_1 (i,k = 0, \pm 1, \pm 2, \ldots) \quad (1)$$

is constructed where h is the mesh-width of the network in the x-direction and h_1 the mesh-width in the y-direction. The harmonic and bi-harmonic operators $\Delta_h u$, $\Delta\Delta_h u$ are defined correspond-

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ing to the squares (Eq. (2)), where $a = h/h_1$. D is taken to be a rectangle defined by the aggregate of points

$$(x_i, y_k) \quad (i=0,1,\ldots,m+1, k=0,1,\ldots,n+1) \tag{3}$$

After giving the n-dimensional vectors and the nth order matrix, theorems 1 and 2 are presented: 1) General solution of the finite difference equation

$$\Delta_h u - 2\lambda u = f(x,y) \quad (\lambda^2 = \text{const} > 0) \tag{8}$$

in D

$$\vec{u}(x) = \vec{u}(x_i) = S\vec{A}(x_i) + S\vec{B}(x_i) + \sum_{p=1}^{p=i-1} ST(i-p)S[h^2\vec{f}(x_p) - a^2\vec{\omega}(x_p)] \tag{9}$$

$$(i = 0, 1, \ldots, m+1),$$

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must hold where $\vec{\omega}(x)$, $\vec{A}(x)$, $\vec{B}(x)$ are the n-dimensional vectors,

$$\vec{\omega}(x) = \{u_0(x), 0, \ldots, 0, u_{n+1}(x)\} \tag{10}$$

$$\vec{A}(x) = \{A_k\varphi_k(x)\}, \ \vec{B}(x) = \{B_k\psi_k(x)\} \ (k = 1, 2, \ldots, n), \tag{11}$$

where A_k, B_k are arbitrary real constants and $\varphi_k(x)$, $\psi_k(x)$ and the diagonal nth-order matrix

$$T(i) = \{T_1(i), T_2(i), \ldots, T_n(i)\} \tag{12}$$

dependent on the quantity

$$a_k = a_k + h^2$$

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are given by the table (Eq.(13)). 2) For the general solution of the biharmonic finite-difference equation

$$\Delta\Delta_h u = f(x, y) \tag{14}$$

in D,

$$u(\vec{x}) = u(\vec{x}_i) = S\vec{A}(x_i) + S\vec{B}(x_i) + S\vec{C}(x_i) + S\vec{D}(x_i) + \sum_{p=2}^{p=i-2} ST(i-p)S[h^2\vec{f}(x_p) - \vec{\omega}_0(x_p) - u^4\vec{\omega}_{-1}(x_p)] \quad (i=0, 1, \ldots, m+1), \tag{15}$$

must hold where the final sum is to be considered zero for i = 0, 1, 2, 3. (9) must also satisfy the boundary condition

$$\Delta_h u - 2\lambda u = f(x,y), \quad u/L = \beta(s) \tag{23}$$

for D, where $\beta(s)$ is a given function of the arc-length of its boundary L. In the case $\lambda = 2$, when (23) has no intrinsic

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numbers, it is sufficient to substitute in (9) the known quantities

$$A_k = \frac{1}{\Delta_k}\left\{\psi_k(x_{m+1})\hat{u}_k(x_0) - \psi_k(x_0)\left[\hat{u}_k(x_{m+1}) - \right.\right.$$

$$\left.\left. - \sum_{p=1}^{p=m} T_k(m+1-p)\left(h^2\hat{f}_k(x_p) - \alpha^2\hat{\omega}_k(x_p)\right)\right]\right\} \qquad (24)$$

$$B_k = \frac{1}{\Delta_k}\left\{-\varphi_k(x_{m+1})\hat{u}_k(x_0) + \varphi_k(x_0)\left[\hat{u}_k(x_{m+1}) - \right.\right.$$

$$\left.\left. - \sum_{p=1}^{p=m} T_k(m+1-p)\left(h^2\hat{f}_k(x_p) - \alpha^2\hat{\omega}_k(x_p)\right)\right]\right\},$$

where

$$\overline{\Delta_k} = \varphi_k(x_0)\psi_k(x_{m+1}) - \varphi_k(x_{m+1})\psi_k(x_0), \quad \{\hat{u}_k(x)\} = Su(x),$$

$$\{\hat{f}_k(x)\} = Sf(x), \quad \{\hat{\omega}_k(x)\} = S\omega(x) \quad (k = 1, 2, \ldots, n).$$

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The exact values of the intrinsic numbers are found from

$$\lambda' = -4\frac{1}{h^2}\sin^2 i\,\frac{}{2(m+1)} + \frac{1}{h_1^2}\cos^2 k\,\frac{}{2(n+1)} \qquad \begin{matrix} i=1,2,\ldots,m \\ k=1,2,\ldots,n \end{matrix} \qquad (25)$$

The author observes that to solve (23) for the region contained in D and some other square D_1 it is sufficient to write (9) and (24) for each of these rectangles and solve the resulting system of linear algebraic equations in u for the interior points of contact of D and D_1. The number of equations is not greater than the number of interior points of contact. Similarly, a decrease in the number of equations may be obtained for any region composed of a finite number of rectangles. The basic biharmonic problem with boundary conditions (15) may be treated similarly. There are 2 tables and 1 Soviet-bloc reference.

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ACCESSION NR: AR4039304

SOURCE: Ref. zh. Matematika, Abs. 3B558

AUTHOR: Polozhiy, G. M.

TITLE: An exact method of solving systems of linear algebraic equations

CITED SOURCE: Vistny*k Ky*yivs'k. un-tu, no. 5, 1962, Ser. matem. ta mekhan., vy*p. 2, 17-24

TOPIC TAGS: linear algebraic equation, vector equation, solving vector, non-singular matrix, basic parameter, vector-solution, multiplication operation, division operation, Gauss method, escalator method, orthogonal vector method

TRANSLATION: The author presents the method of solving vectors for solving exactly the n-dimensional vector equation

$$AX = f. \qquad (1)$$

Here $f = (b_1, b_2, \ldots, b_n)$ is the given vector, $X = (X_1, X_2, \ldots, X_n)$ is the de-

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$$A_n = A = [R_1, R_2, \ldots, R_n], \quad B_n = [0, \ldots, 0, R_n - 1_n].$$

It is assumed that the non-singular matrix A in equation (1) is such that the matrices $A_1, A_2, \ldots, A_{n-1}$ corresponding to it are non-singular. Instead of the usual inverse matrix A^{-1}, the author considers the column of n solving vectors

$$y_1 = 1_1, \qquad A_0 y_1 = 1_1,$$

$$y_2 = (y_{21}, 1, 0, \ldots, 0), \qquad A_1 y_2 = 1_2,$$

$$\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$$

$$y_n = (y_{n1}, y_{n2}, \ldots, y_{nn-1}, 1), \quad A_{n-1} y_n = 1_n$$

and the column of n basic parameters

$$a_1 = a_{11},$$

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$$a_2 = a_{22} + (r_2, y_2),$$

$$\cdots\cdots\cdots\cdots$$

$$a_n = a_{nn} + (r_n, y_n).$$

Let the (k-1) solving vectors $y_1, y_2, \ldots, y_{k-1}$ and the (k-1) basic parameters $a_1, a_2, \ldots, a_{k-1}$ be known. It is shown that the kth solving vector y_k and the kth basic parameter a_k is defined by the following formulas

$$y_{k1} = 1_k,\ y_{k2} = y_{k1} - E_{k1}y_1,\ \ldots,\ y_{kk-1} = y_{kk-2} - E_{kk-2}y_{k-2},$$

$$y_k = y_{kk-1} - E_{kk-1}y_{k-1},\ a_k = a_{kk} + (r_k, y_k),$$

where

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where

$$f_1 = (b_1, 0, \ldots, 0),\ f_2 = (b_1, b_2, 0, \ldots, 0),\ \ldots,$$
$$f_{n-1} = (b_1, b_2, \ldots, b_{n-1}, 0),\ f_n = f = (b_1, b_2, \ldots, b_n).$$

These vectors are solutions to the system of equations

$$\begin{bmatrix} a_{11} & a_{12} & \ldots & a_{1k} \\ a_{21} & a_{22} & \ldots & a_{2k} \\ \cdot & \cdot & \cdot & \cdot \\ a_{k1} & a_{k2} & \ldots & a_{kk} \end{bmatrix} x_k = f_k \quad (k = 1, 2, \ldots, n)$$

respectively, and, in particular, the vector x_n coincides with the solution of equation (1). It is shown that if the column of solving vectors and the column of basic parameters are known, then the column of vector-solutions and, in particular,

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the solution of equation (1) can be computed by the formulas

$$x_1 = -E_1 y_1,\ x_2 = x_1 - E_2 y_2,\ \ldots,\ x_n = x_{n-1} - E_n y_n,$$

where

$$E_1 = -\frac{b_1}{a_1},\ E_2 = \frac{(r_2, x_1) - b_2}{a_2},\ \ldots,$$
$$E_n = \frac{(r_n, x_{n-1}) - b_n}{a_n}.$$

The author calculates the numbers of all multiplication and division operations which are necessary for a) constructing the column of solving vectors and the column of basic parameters; b) obtaining the solution of equation (1) (and also equation (2)). The total number of the separate multiplication and division operations

$$Q_n = \frac{n}{3}(n^2 + 3n - 1)$$

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POLOZHIY, G. N.

Položij, G. N. On p-analytic functions of a complex variable. Doklady Akad. Nauk SSSR (N.S.) 58, 1275–1278 (1947). (Russian)

The author says that the complex-valued function $u+iv=f(z)$ is p-analytic in a domain D if $pu_x=v_y$, $pu_y=-v_x$ in D, where p is a positive function of class C^1. He shows that a p-analytic function is an interior transformation and that, along a closed rectifiable arc C in D, $\int_C u d\bar{Z}+iv dZ=0$, where $Z=X+iY$, $\bar{Z}=-\bar{X}+i\bar{Y}$ and X, Y, $\bar{X}$, $\bar{Y}$ are any solutions of the two systems $p\bar{X}_x=\bar{Y}_y$, $pX_y=-\bar{Y}_x$; $p\bar{X}_x=Y_y$, $p\bar{X}_y=-Y_x$. The proofs are only sketched. If p is of the form $p=\sigma(x)\tau(y)$, then p-analytic functions coincide with the sigma-monogenic functions investigated by Bers and Gelbart [Trans. Amer. Math. Soc. 56, 67–93 (1944); Ann. of Math. (2) 48, 342–357 (1947); these Rev. 6, 86; 8, 510]. The theorem on the topological equivalence of p-analytic and analytic functions was announced by Bers and Gelbart under the assumption that p is analytic in x and y [Bull. Amer. Math. Soc. 52, 64 (1946)]. *A. Gelbart.*

Source: Mathematical Reviews, Vol 9 No. 9

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G. N.

00035

Položij, G. N. Singular points and calculation of p-analytic functions of a complex variable. Doklady Akad. Nauk SSSR (N.S.) 60, 769–772 (1948). (Russian)

The author announces a classification of isolated singularities of single-valued p-analytic functions [Položij, Doklady Akad. Nauk SSSR (N.S.) 58, 1275–1278 (1947); these Rev. 9, 507], i.e., of functions $f=u+iv$ with $u_x=p(x,y)v_y$, $u_y=-p(x,y)v_x$. The "characteristic" $p(x,y)$ is to possess partial derivatives which are assumed either (α) to be continuous, or (β) to satisfy Hölder conditions. If (α) is assumed and $f(z)$ is single-valued and bounded in the neighborhood of z_0, then $\lim_{z\to z_0} f(z)$ exists and is finite (removable singularity). Under hypothesis (β) it follows that $f(z)$ is p-analytic at z_0. Say that $f(z)$ has a pole at z_0 if $f(z)\to\infty$ for $z\to z_0$. In this case, if (β) holds and $f(z)=O(|z-z_0|^{\rho})$ for some positive ρ, then there exist a positive integer n (order of the pole), and positive constants A, B such that $A<|f(z)(z-z_0)^n|<B$ and

$$(p^{\frac{1}{2}}u+ip^{-\frac{1}{2}}v)(z-z_0)^n$$

approaches a finite limit λ as $z\to z_0$. If $n=1$ the number $\{p(z_0)\}^{\frac{1}{2}}\lambda=c_{-1}$ is called the residue of f. If (β) holds and f and g have first order poles at z_0 with equal residues, then $f-g$ is p-analytic at z_0. Under hypothesis (β) Liouville's theorem holds for p-analytic functions. Under assumption (α) Weierstrass' theorem holds; i.e., if $f(z)$ is p-analytic in the neighborhood of z_0 and $f(z)$ has no finite or infinite limit as $z\to z_0$ (essential singularity), then $f(z)$ comes arbitrarily close to any complex number in every neighborhood of z_0. For functions having only simple poles in a domain the author announces (under hypothesis (β)) a theorem analogous to the residue theorem. *L. Bers.*

Source: Mathematical Reviews, Vol 10, No.10

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POLOZHIY, G.N.

Položiĭ, G. N. The solution of some problems of the plane theory of elasticity for regions with angular points. Ukrain. Mat. Žurnal 1, no. 4, 16–41 (1949). (Russian)

Using the author's terminology, in the third boundary value problem of the plane theory of elasticity the normal displacement and the tangential stress are prescribed on the boundary, while in the fourth boundary value problem the tangential displacement and the normal stress are prescribed on the boundary. The third boundary value problem, when the tangential stress is zero, was considered by Mushelišvili [Certain fundamental problems in the theory of elasticity, Leningrad, 1933, p. 216; Moscow, 1935, pp. 303–318; Doklady Akad. Nauk SSSR (N.S.) 3, 7–11 (1934)] and solved by him for domains which are mapped on a circle by means of rational functions. For domains with smooth boundaries this problem was solved by D. I. Šerman [Akad. Nauk SSSR. Prikl. Mat. Meh. 7, 413–420 (1943); these Rev. 6, 195] but it has not yet been discussed in general for domains with boundaries having angular points. In the present paper the author solves the third and fourth boundary value problems for a rectangle, acute-angled triangle and right triangle, under certain hypotheses concerning the growth of the stresses near the angular points.

J. B. Diaz (College Park, Md.).

SOV: MATHEMATICAL REVIEW (unclassified)
Vol XIV, No 3, pp233-240 March 1953

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POLOZHIY, G. N.

19779 Polozhiy, G.N. Resheniye treley osn vnoy zadachi ploskoy teorii upaugosti dlya besk nechnoy ploskosti S kvadratnym otverstiyem. Prikl. Matematika i Mekhanika, 1949, Vyp. 3, s. 297-306, -- Bibliogr: 5 NAZV.

SO: LETOPIS' ZHURNAL STATEY, Vol. 27, Moskua 1949

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

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POLOZHIY, G.N.

Položil, G. N. Solution of the third basic problem of the plane theory of elasticity for an infinite plane with a square opening. Akad. Nauk SSSR. Prikl. Mat. Meh. 13, 297–306 (1949). (Russian)

The third fundamental boundary value problem of plane theory of elasticity is concerned with the determination of stresses in the interior of a two-dimensional region R when the tangential stress is specified on the boundary C of R and when displacements in the direction of the normal line to C are known. This problem was solved by N. I. Muschelishvili [C. R. (Doklady) Acad. Sci. URSS (N.S.) 4 (1934 III), 141–144] for regions R that can be mapped conformally on a unit circle by means of rational functions.

In this paper the third boundary value problem is solved for an infinite plane region bounded by a square. The solution is obtained by reduction to the solution of known boundary value problems in the theory of functions of a complex variable. To ensure the existence of a solution it is necessary to impose certain hypotheses concerning the rate of growth of stresses in the neighborhood of the angular points of the region. *I. S. Sokolnikoff.*

Source: Mathematical Reviews, Vol 11 No. 4

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POLOZHIY, G. N.

Source: Mathematical Reviews, Vol 11 No. 1

Polozii, G. N. A new method for the solution of some mixed problems of the plane theory of elasticity. Doklady Akad. Nauk SSSR (N.S.) 66, 177–180 (1949). (Russian)

The author deduces a pair of functional equations for the determination of two analytic functions $\varphi(z)$ and $\psi(z)$ of a complex variable $z=x+iy$, giving the solution of the mixed boundary value problem of two-dimensional isotropic elasticity for a closed simply connected region R bounded by a contour C having a finite number of angular points. On the boundary C the component $v(s)$ (s being the arc parameter of C) of the displacement vector in the direction of the normal to C and the tangential component $T(s)$ of the applied force are specified. This mixed boundary value problem was first solved by N. I. Mushelišvili [C. R. (Doklady) Acad. Sci. URSS (N.S.) 4 (1934 III), 141–144] for regions that can be mapped conformally on a unit circle $|z|\leqq 1$ by rational functions. If the region R is bounded by a rectilinear polygon, the equations for the determination of φ and ψ simplify to read:

$$\begin{cases} \Im[(k+1)\varphi'(z)] = -2\mu(dv/ds)+T(s), \\ \Im[\psi'(z)e^{i\alpha}] = T(s)-\Im[\bar{z}\varphi''(z)e^{i\alpha}], \end{cases}$$

on C, where k and μ are the elastic constants of the medium, α is the angle formed by the exterior normal to C with the X-axis, and the symbol $\Im$ denotes the imaginary part of the expression following it. The functions $\varphi(z)$ and $\psi(z)$ can be determined with the aid of the formula of Schwarz and by utilizing the continuity properties of stresses and displacements. As an illustration the author solves this mixed boundary value problem for the rectangular region. This solution is new. *I. S. Sokolnikoff* (Los Angeles, Calif.).

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POLOZHIY, G.N.

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Polozii, G. N. On a method for the solution of certain mixed problems of the theory of thin plates. Doklady Akad. Nauk SSSR (N.S.) 66, 353-356 (1949). (Russian)

It is shown in this note that the problem of deflection of a thin isotropic elastic plate bounded by a rectilinear polygon, by normal loads when the displacement and the bending moment are specified along the boundary, can be reduced to a successive determination of two analytic functions of a complex variable from their values on the boundary. To determine one of these functions it is necessary to solve the Dirichlet problem, and the other appears as the solution of the problem of Hilbert. As an example of the method, the author solves the problem of deflection of a simply supported rectangular plate. The well-known elliptic function mapping the rectangle conformally on a unit circle is used in the solution. The ideas involved in this paper are closely related to those appearing in the author's earlier paper [see the preceding review].

I. S. Sokolnikoff.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHNIY, G.N.

Položij, G. N. A generalization of Cauchy's integral formula. Mat. Sbornik N.S. 24(66), 375–384 (1949). (Russian)

The author obtains a Cauchy formula for the system (1) $pu_x = v_y$, $pu_y = -v_x$, where $p = p(x, y)$ is positive and of class C^2 in the domain considered. Let $\gamma(z, \zeta)$ $(z = x+iy, \zeta = \xi+i\eta)$ be a fundamental solution of the equation $(pu_x)_x + (pu_y)_y = 0$, with the singularity at ζ, $\Gamma(z, \zeta) = \gamma(z, \zeta)/p(\zeta)$, and let $H^*(z, \zeta)$ be related to $\Gamma(z, \zeta)$ in the same way as v is related to u by means of (1). In a similar way the functions $\Gamma^*(z, \zeta)$ and $H(z, \zeta)$ are defined starting from the equation $(u_x/p)_x + (u_y/p)_y = 0$. Now set $f(z) = u(x, y) + iv(x, y)$, where u and v are functions of class C^1 satisfying (2). In the domain of definition of these functions let there be situated a smooth simple closed curve C bounding a domain D. Then, for every z in D,

$$(2) \qquad f(z) = (2\pi i)^{-1} \int_C u\,d\Omega(z, \zeta) + iv\,d\Omega^*(z, \zeta),$$

where $\Omega = -\Gamma + iH$, $\Omega^* = -\Gamma^* + iH^*$. Relation (2) implies for solutions of (1) the differentiability and analyticity theorems of E. Hopf [Math. Z. 34, 194–233 (1931)] and B. Chabate [Rec. Math. [Mat. Sbornik] N.S. 17(59), 193–210 (1945); these Rev. 8, 77].

L. Bers.

Source: Mathematical Reviews, Vol 11 No. 3

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G.N.

Položii, G. N. Application of boundary problems of the theory of functions to the solution of the third problem of the plane theory of elasticity for an infinite plane with triangular and regular polygonal openings. Ukrain. Mat. Žurnal 2, no. 3, 115–124 (1950). (Russian)

The third boundary value problem of the plane theory of elasticity consists in the determination of the stresses and displacements in the interior of a plane domain when the normal component of the displacement and the tangential stress are prescribed on the boundary of the domain. The solution of this problem, for certain domains bounded by piecewise-rectilinear curves was given earlier by the author [Doklady Akad. Nauk SSSR (N.S.) 66, 353–356 (1949); Akad. Nauk SSSR. Prikl. Mat. Meh. 13, 297–306 (1949); these Rev. 11, 68, 285]. The present paper contains the solution of the third boundary value problem for the domains mentioned in the title. *J. B. Diaz.*

SOV MATHEMATICAL REVIEW (unclassified) Vol. XIV, No 3, pp233-240 March 1953

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POLOZHIY, G. N.

166T97

USSR/Physics - Elasticity Theory 1 Jul 50

"Solution of the Third Fundamental Problem of the Two-Dimensional Theory of Elasticity for an Arbitrary Finite Convex Polygon," G. N. Polozhiy, Kiev State U imeni T. G. Shevchenko

"Dok Ak Nauk SSSR" Vol LXXIII, No 1, pp 49-52

Uses formulas of plane stressed state and integration along rectilinear segments of contours to solve for first time subject problem. Submitted 8 Apr 50 by Acad M. V. Keldysh

[redacted]

166T97

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G.N.

USSR/Mathematics - Sessions Jan-Mar 52

"Two Sessions (13-20 Nov 1951) of the Scientific Seminar in the Mechanico-Mathematical Faculty of Kiev State University imeni T. G. Shevchenko"

Ukrain Mat Zhur, Vol ~~IV~~ 4, No 1, pp 105-107

Since 13 Nov 1951 a seminar of a general type has begun to function in subject faculty. The plan of operations of this seminar include communications on special investigations of participants and survey reports on various fields of mathematics. Reports heard so far have been: G. N. Polozhiy's "Movement of Boundary Points of Reflected Regions," and K. Ya. Latysheva's "Subnormal and Normal Series as Solutions of Linear Differential Equations."

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G. N.

PA 243T88

USSR/Mathematics - Conformal Reflexions Nov/Dec 52

"Movement of the Limit Points of Reflected Regions," G. N. Polozhiy

"Usp Matemat Nauk" Vol 7, No 6 (52), pp 203-205

Considers a single-connected region G in the z-plane and the single-connected region G* containing and having with G partially total boundary in the form of a certain Jordan curve C. States that in connection with certain applications of the theory of conformal reflections the problem of the nature of the movement of

243T88

the points of curve C during reflection of regions G and G* merge into each other. Establishes simple laws governing subject movement without any special assumptions concerning normalization of this reflection.

243T88

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G. N.
Will defend his
[redacted] dissertation for the degree of Dr. Physico-Mathematical Sciences "Some Methods for the Theory of Complex Variables in Compact Media", [redacted] at the Mathematics Institute imeni Steklov, 25 June 1953 at 1500 hrs.

SO: Izvestiya, 5 June 1953, No 131 (11202)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G.N.

Položil, G. N. The method of movement of boundary points and majorant regions in the theory of filtration. Ukrain. Mat. Ž. 5, 380–400 (1953). (Russian)

1-F/W

M. Lavrent'ev et M. Keldyš ont fait un usage heureux des méthodes variationnelles dans divers problèmes de représentation conforme. L'A. applique ces raisonnements à l'étude des écoulements plans des liquides pesants en milieux poreux. Considérons un domaine D, occupé par le liquide en mouvement dont l'image conforme dans le plan du potentiel complexe soit un rectangle, de côtés paralleles aux axes; il s'agit d'étudier l'effet sur le régime des variations, connues a priori, des frontiéres de D ou de ses images dans les différents plans auxiliaires. Les résultats semblent très intéressants, en particulier, lorsque la frontière de D contient une ligne de suintement. *J. Kravtchenko* (Grenoble).

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POLOZHIY, G.N.

Mathematical Reviews
Vol. 14 No. 8
Sept. 1953
Analysis

Krein, S. G. On invariant points in conformal mapping. Uspehi Matem. Nauk (N.S.) 8, no. 1(53), 155–159 (1953). (Russian)

G. N. Položiĭ has shown [Uspehi Matem. Nauk (N.S.) 7, no. 6(52), 203–205 (1952); these Rev. 14, 549] that if a simply-connected region G is mapped conformally onto a simply-connected subregion G_1 which has a simple arc γ of its boundary in common with that of G, then there can be at most three fixed points on γ in the correspondence of the boundaries. In the case that there are exactly three such fixed points, the outer two are attractive while the inner one is repellent. In the case of two fixed points, one is repellent, the other attractive, while a single fixed point is repellent. The author extends Položiĭ's result to the case that the boundaries of G and G_1 have n such arcs in common. It is shown that in each of these arcs, with the possible exception of one of them, there can be at most one fixed point, which is always repellent, while in the exceptional arc there can be at most three fixed points, which follow Položiĭ's rule of attraction. If, however, there is an interior point of G_1 which goes into itself under the mapping, there can be no exceptional arc. *A. J. Lohwater.*

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Mathematical Reviews
Vol. 15 No. 4
Apr. 1954
Analysis

8-24-54
LL

Polozhiĭ, G. N. The theorem on preservation of domain for certain elliptic systems of differential equations and its applications. Mat. Sbornik N.S. 32(74), 485–492 (1953).

Let $u(x, y)$, $v(x, y)$ be continuously differentiable functions satisfying the linear elliptic system

$$au_x+bu_y-v_y=0, \quad du_x+cu_y+v_x=0,$$

where the coefficients a, b, c, d have continuous derivatives satisfyihg a Hölder condition. Set $w(z)=u+iv$. The author's result may be stated as follows. Theorem: If $w(z)\neq$ const., then the mapping $w=w(z)$ is interior in the sense of Stoïlow, and the Jacobian $u_xv_y-u_yv_x$ does not vanish at points at which the mapping is one-to-one. The proof is based on the Lemma: Let $\omega=\omega(z)$ be a continuously differentiable homeomorphism of $|z|<1$ onto $|\omega|<1$, $\omega(0)=0$. Assume that the Jacobian of the mapping is positive, the dilation coefficient is Hölder continuous at the origin, and equals 1 at the origin. Then the ratio $|\omega/z|$ is bounded and bounded away from zero.

In 1947 the author proved his theorem for the special case $a=c$, $b=d=0$ [Doklady Akad. Nauk SSSR (N.S.) 58, 1275–1278 (1947); these Rev. 9, 507]. He cites a 1946 abstract by the reviewer and Gelbart [Bull. Amer. Math. Soc. 52, 64 (1946)], but seems to be unaware of the fact that his present theorem is contained in the reviewer's theory of pseudo-analytic functions [Proc. Nat. Acad. Sci. U. S. A. 36, 130–136 (1950); 37, 42–47 (1951); these Rev. 12, 173; 13, 352]. [As a matter of fact, the theorem remains true if the coefficients are non-differentiable but satisfy a Hölder condition, as will be shown in a forthcoming paper.]

L. Bers (New York, N. Y.).

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G. N.

"Theorem on the Conservation of a Region for Certain Elliptic Systems of Differential Equations and Its Application," Mat. Sbor., 34, No.3, pp. 485-92, 1953.

States that the theory of quasiconformal representations, which was developed by M. A. Lavrent'yev, permits one to establish certain new qualitative properties of elliptical systems of partial differential eqs. Demonstrates a theorem on the conservation of a region for an elliptic system of eqs of the type $au_x+bu_y-v_y=0$, $du_x+cu_y+v_x=0$ where a,b,c,d are functions of the variables x,y; namely, the theorem: functions $u=u(x,y)$, $v=v(x,y)$, which are continuous differentiable solutions of the above system in a certain region G in the z-plane, $z=x+iy$, in which the coefficients a,b,c,d of this system are functions of x,y having derivatives satisfying condition H, transform region G into a region of the w-plane, $w=u+iv$. Submitted 1 Feb 52.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341830007-4

POLOZHIY, G.N.

Variational theorems of plane and axially symmetrial filtration in uniform and non-uniform media. Permanent region method. Ukr. mat.zhur. 6 no.3:333-348 '54. (MLRA 8:5)
(Soil percolation)

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