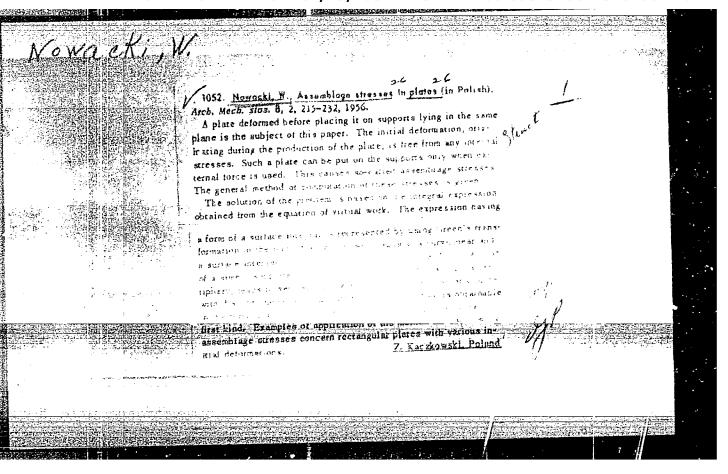
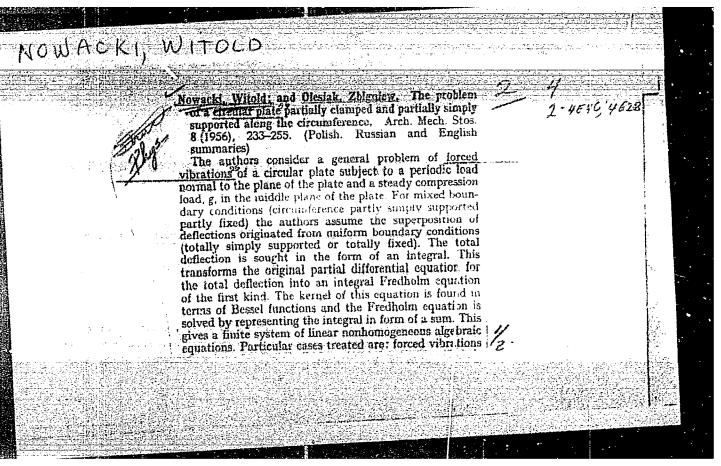
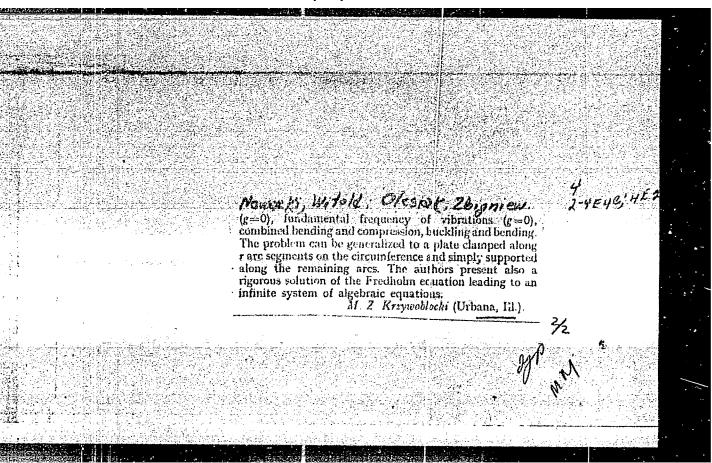
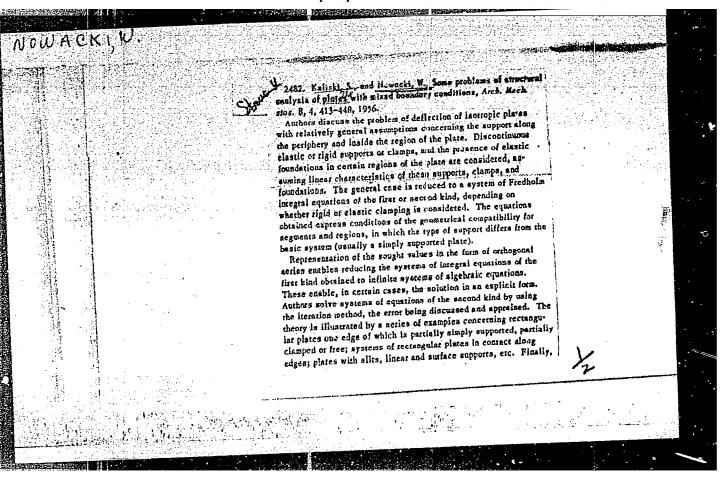


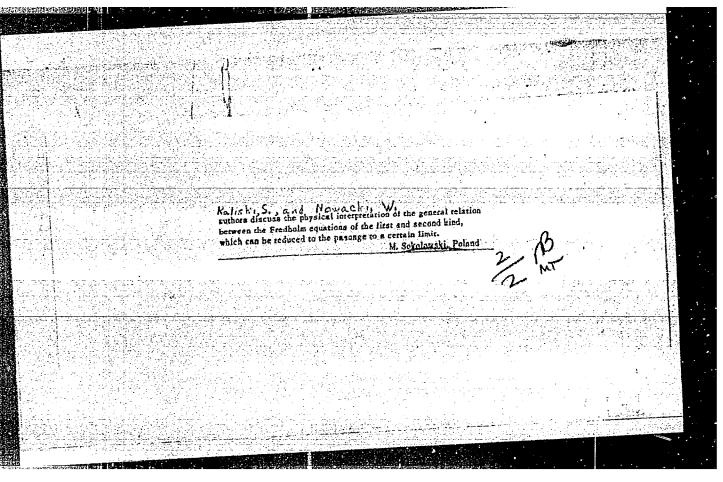
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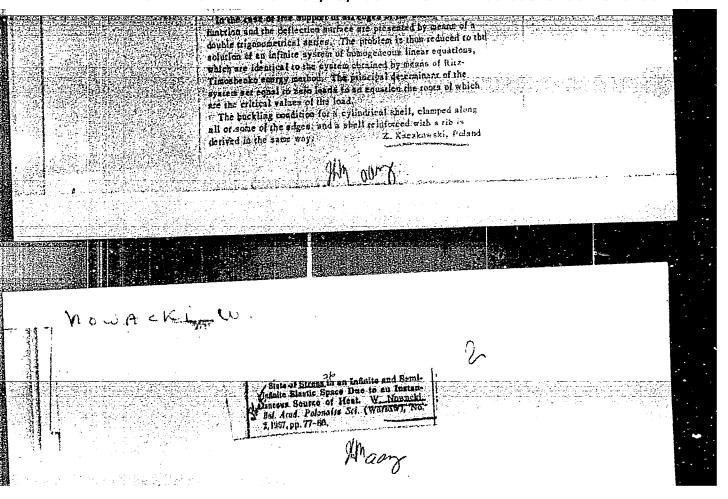


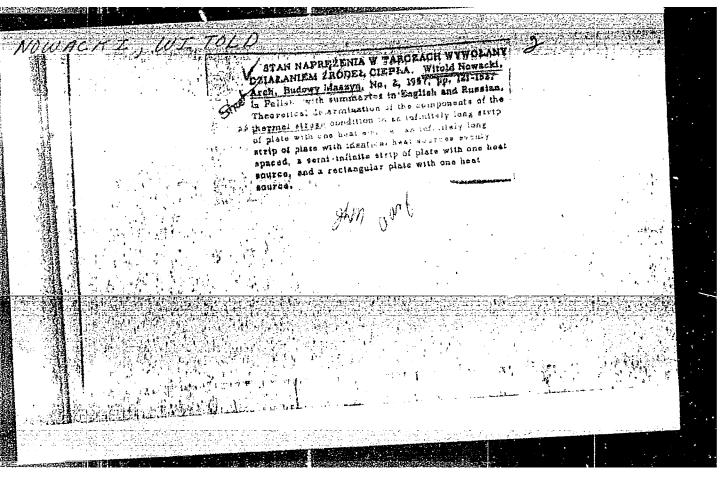








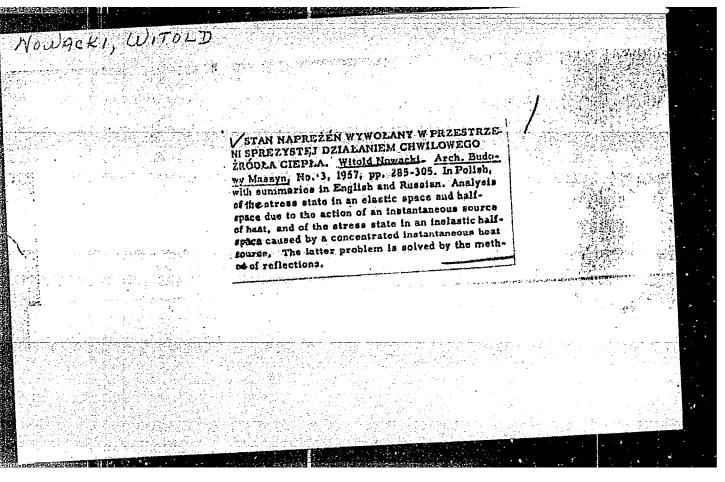


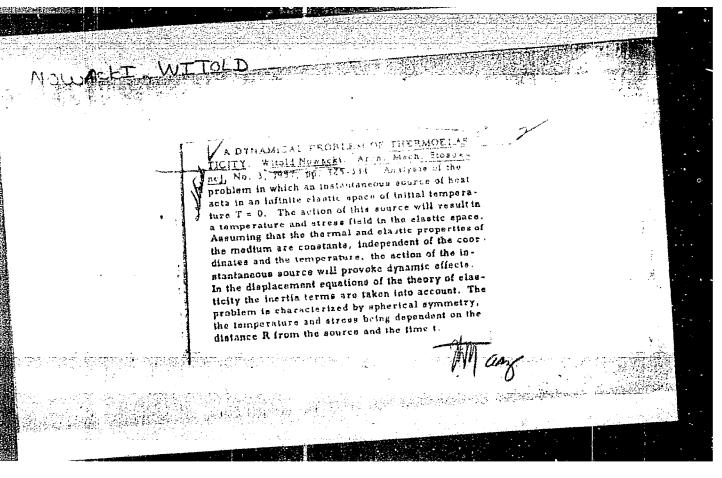


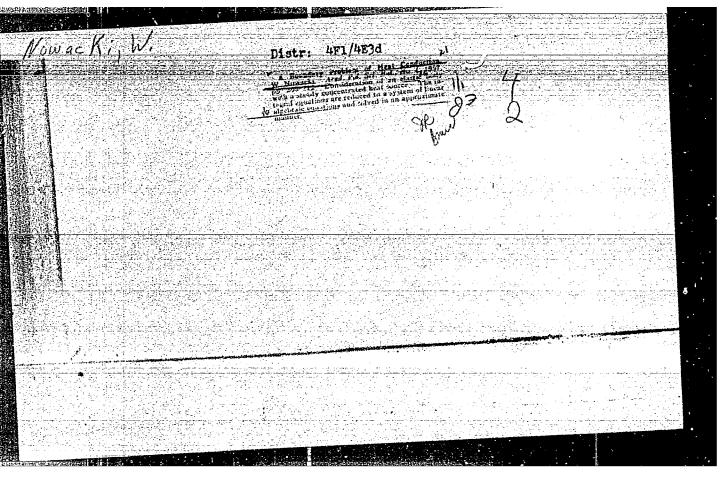
NOWACKI, W. (Varshava).

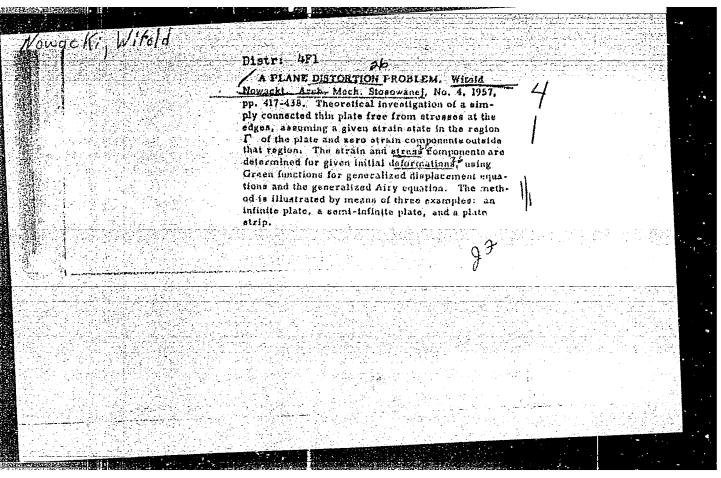
State of stress in infinite and seci-infinite elastic spaces due to the action of an instantaneous reat source [with summary in English]. Prykl.mekh. 3 no.2:121-130 '57. (MIRA 10:9)

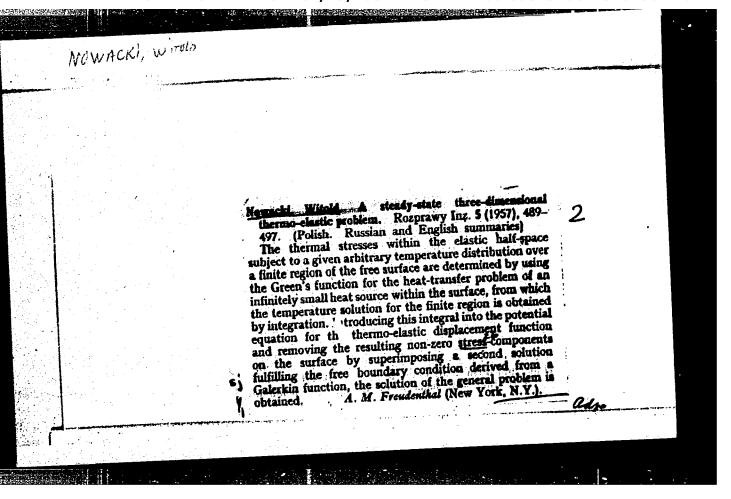
1. Institut mekheniki Pol'skor Akademii nauk. (Streins and stresses) (Heat-Transmission)

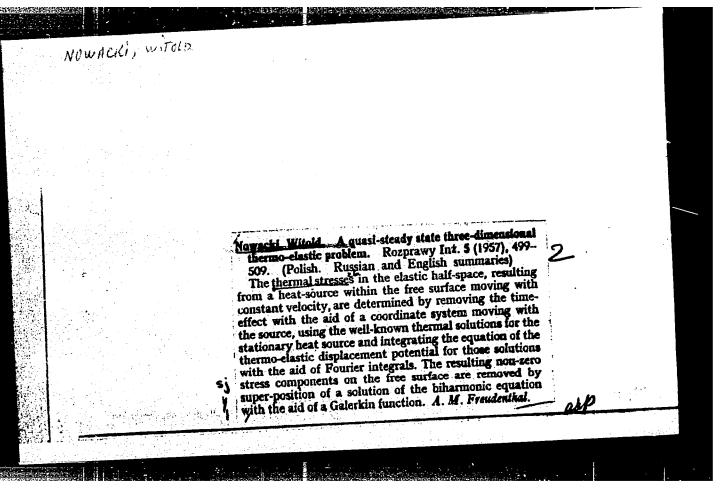




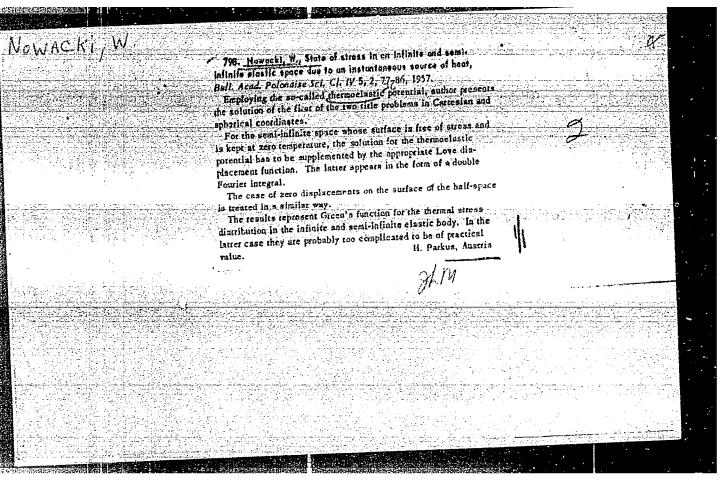








Nowacki, witches		
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Nowsiti. W Ge to a se manner. Russian a The them due to a hea determined displacemen	The state of stress in an elastic space wire of heat varying with time in a harmonic Rozprawy In2. 5 (1957), 511-521. (Polish, and English summaries) and stresses in the infinite elastic continuum t-source of harmonically varying strength are by solving the equation of the thermo-elastic trotential for the known temperature fields intrated, a linear and a plane heat-source, the effects of inertia. A. M. Frendenthal.	



NOW ACK! W.

POLAND/Atomic and Molecular Physics - Heat

D-4

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 10433

Author : Novacki, W.

Inst

: Institute of Basic Technical Problems, Polish Academy of

Sciences, Poland

Title : A Boundary Problem of Heat Conduction

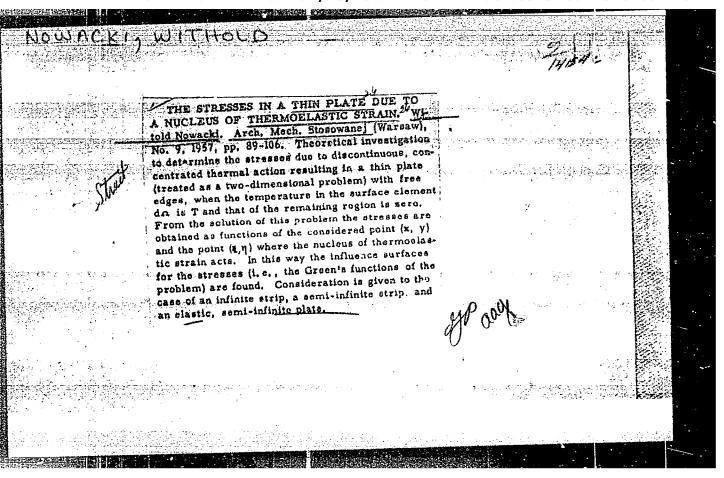
Orig Pub : Bull. Acad. polon. sci., 1957, Ch. 4, 5, No 4, 205-212, XIX

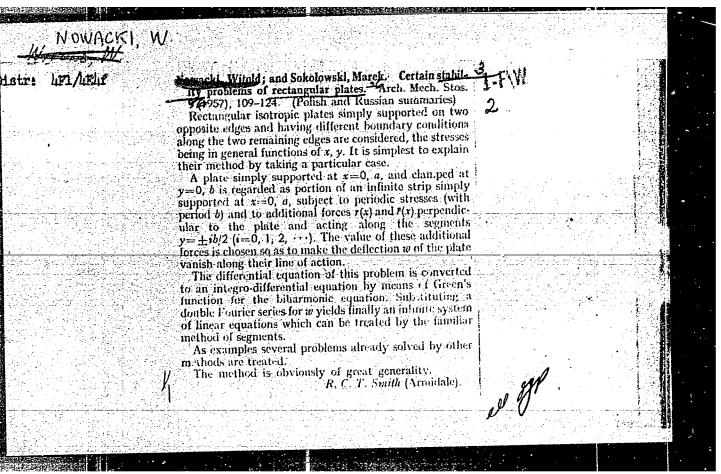
Abstract: The author determines the field of the temperature in an

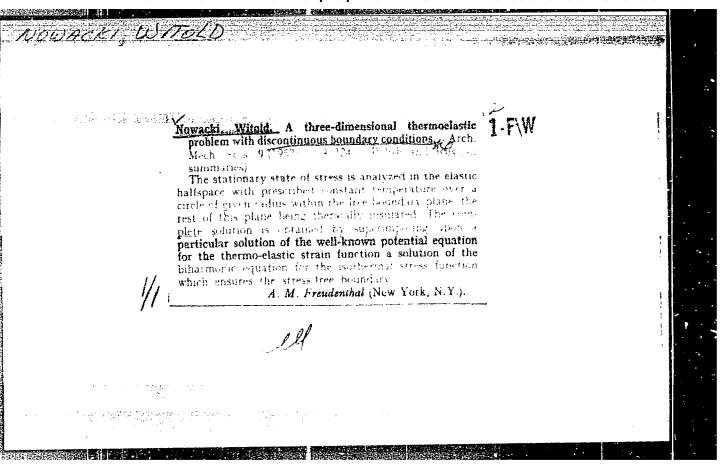
elastic body, inside of which is located a source of heat and on one region of the surface Γ_c there exists a temperature T>0, while remaining regions μ_a, ρ_b are such that T=0. The boundary of condition for μ_c is $\partial T/\partial z=0$, consequently ρ_c is thermally insulated. Simple examples are given to ex-

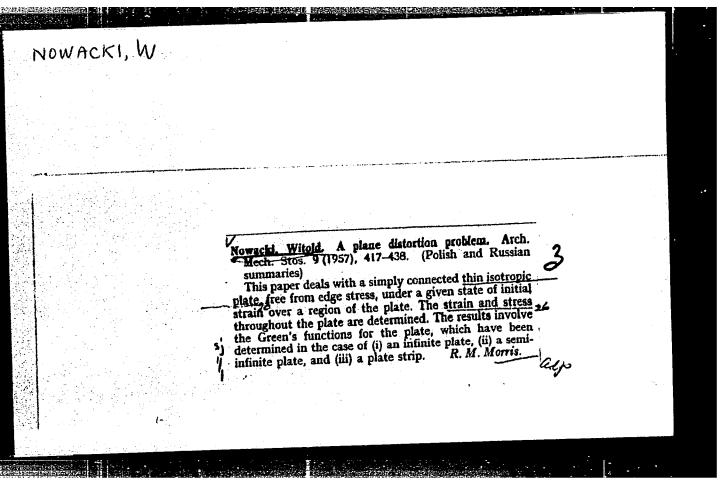
plain the method of detarmination.

Card : 1/1









NOWACKI, W
"Two steady-state thermoelastic problems."

p. 579 (Archivum Mechaniki Stosowanej, Vol, 9, No. 5, 1957, Warsaw, Poland)

Monthly Index of East European Accessions (EEAI) LC, Vol, 8, no. 1, Jan 59

NOWACKI, Witold

The long-run plan for the development of Polish science in the years 1961-75 and the Five-Year Plan for scientific research.

Review Pol Academy 4 no.3:1-15 '59.

(EEAI 9:6)

1. Read at the general Assembly of the Polish Academy of Sciences on Feb. 24, 1959.

(Poland - Science)

S/124/62/000/001/040/046 D237/D304

24.5200

AUTHORS: Nowacki, Witold, and Soko Yowski. Marek

TITLE: Propagation of thermoelastic waves in plates

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 1, 1962, 13, abstract 1V85 (Arch. mech. stosowanej, 1959.

11, no. 6, 715-727) (in English)

TEXT: The problem formulated is solved by Biot equations (M. A. Biot, J. Appl. Phys., 1956, 27, 3). The following boundary conditions are assumed on the surfaces of the plate, which are free from surface stresses: (1) constant temperature, and (2) ideal thermal isolation. Some simplifying assumptions are made, allowing numerical solution to be reached. Mode of distribution of elastic waves is investigated for two limiting cases, namely that of a very thick and very thin plate (as compared with the wavelength). Interdependence of the heat conductivity and motion equations is shown in two ways: on the one hand, phase

Card 1/2

Propagation of ...

S/124/62/000/001/040/046 D237/D304

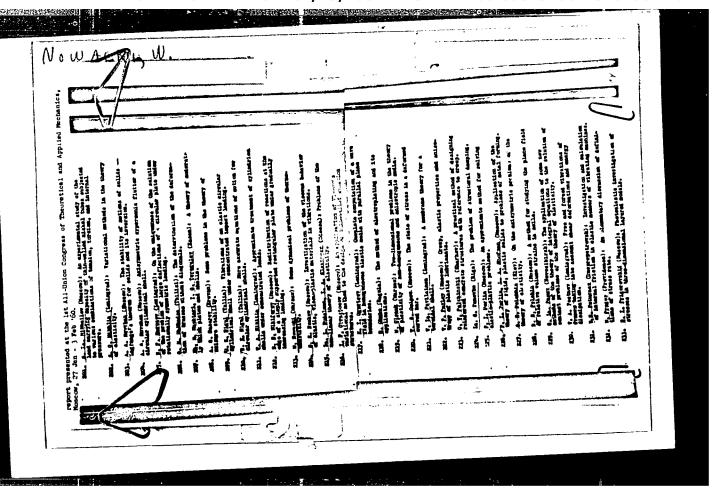
velocity of the wave motion increases; on the other hand, the solutions for displacements contain terms expressing the appearance of dispersion. Abstracter's note: Complete translation.

/B

Card 2/2

Certain spatial problems in thermoelasticity. Prikl. mat. i mekh.
23 no.3:456-467 My-Je '59. (MIRA 12:5)

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001237610012-8



PHASE I BOOK EXPLOITATION

POL/3853

Nowncki, Witold

- Migranienia termospreżystości (Problems in Thermoelasticity) Warszawa, Państwowe wyd-wo raukowe, 1960. 394 p. (Series: Biblioteka mechaniki stosowanej)
 Entrate slip inserted. 1,150 copies printed.
- Sponsoring Agency: Polska Akademia Nauk. Instytut Podstawowych Problemów Greinfild.
- Telitorial, Board: Tadousz Iwiński, Józef Imaczak, Józef Janiczek.
- MARCON: Wis book is intended for engineers, technicians, and students of technician schools of higher education.
- CLASTAIN: The book is a result of the author's scientific work in thermoelasthisty. It presents a methodical account of thermal stresses in homogeneous almostic and viscous elastic bodies. The study is made taken conditions of infinitely small displacements. Equations of displacement and temperature field are treated as a combined set of differential equations.

Comment of the same

GROSZKOWSKI, Janusz; NOWACKI, Witold

THE RESERVE OF THE PARTY OF THE

Some experiences from work on national plans of scientific research. Review Pol Academy 5 no.3/4:1-18 J1-D *60.

(Science) (Research)

28 256

P/006/60/008/003/008/009

D265/D305

24.4200

2607 1327

Novacki, Witold

AUTHOR: TITLE:

Steady-state stresses in an orthotropic cylinder and

plate

FERIODICAL:

Rozprawy inżynierskie, v. 8, no. 3, 1960, 567-579

In the first part of the paper conditions are established in which the state of stress in an orthotropic cylinder in a steady-state sourceless temperature field is confined to one component only, namely, the stress in the direction of the cylinder axis - (x_3) . Quoting the known

statement by N. Ya. Muskhelishvili (Ref. 1: Nekotoryye osnovnyye zadachi matematicheskoy teorii uprugosti, Moskva-Leningrad [Some Basic Problems of the Mathematical Theory of Elasticity, Moscow-Leningrad) 1949, 159), that the steady temperature field in an isotropic cylinder produces only one stress which is different from zero which acts along the axis of the cylinder, provided that the linear sources of heat, i.e. parallel to cylinder axis are absent, the author verifies this statement for an ortho-

Card 1/3

28256 P/006/60/008/003/008/009 D265/D305

Steady-state stresses...

tropic cylinder and finds the conditions for which such a stress prevails. Starting from the general set of equations for elastic strains and making use of Airy's, Green's and Dirac's functions, the mathematical considerations described in this paper lead to the conclusion that such a stress does exist in an orthotropic cylinder only in the direction of $\mathbf{X}_{\mathbf{A}}$ axis, all other stresses being zero. This stress equals $-E_3^{\alpha_3}$ T where suffix 3 refers to X_3 axis, E - Young modulus, α - coefficient of thermal conductivity, and T - temperature. When analyzing the isotropic case, the absence of the source of heat in the cylinder produces only one stress, namely, that acting along the x_3 -axis and equal to $-E \propto T_o$ In the second part of the paper, a thin orthotropic plate is considered under a steadystate linear temperature field (in the direction of the X3-axis). By considering the equations for the clastic strains, the conductivity of the plate's material and the heat transfer between the plate and the surroundings (applying Newton's law), the mathematical analysis is performed making use of Airy's and Green's functions, for which particular cases are consi-Card 2/3

28256 P/006/60/008/003/008/009 D265/D305

Steady-state stresses...

dered and the conditions are established under which all the stress and strain components vanish in a sourceless temperature field. The author refers to the work of B. M. Mayzel' (Ref. 3: Temperaturnaya zadacha teorii uprugosti [Temperature Problems of the Theory of Elasticity], Kiyev, 1951) for proof of the theory of isotropic plates. There are 3 Sovietbloc references.

ASSOCIATION: Zak/ad mechaniki ośrodków ciąg/ych IPPT, PAN (Institute of

Continuous Mechanical Media, IPPT, PAS)

SUBMITTED: April 8, 1960

X

Card 3/3

MOWACKI, Witold, prof.dr.inz.

To celebrate professor Witold Wierzbicki's 70th birthday. Przegl techn 81 no.6:21-22 F '60.

1. Zastepca Sekretarza Naukowego Polskiej Akademii Nauk, Warszawa

P/002/61/000/001/001/007 DO01/D101

Nowacki, Witold, Full member of the Polish Academy of

Research program of Polish Academy of Sciences branches AUTHOR: Sciences

for 1961 and 1961-1965 TITLE:

Nauka Polska, no. 1, 1961, 8-12

TEXT: The report is extracted from an outline of the research program for all branches of the Academy for 1961 and 1961-1965; and PERIODICAL: describes the activity program of the Wydział III (Department III) describes the activity program of the Wydział III (Department III) which deals with mathematics, physics, chemistry, geology and geography and the Wydział IV (Department IV) which deals with various branches of engineering. The article, as a whole, is the reprint of branches of engineering. The article, as a whole, is the reprint of a paper read by the author at the General Meeting of Academy Members a paper read by the author at the General Meeting of Academy on December 10, 1960. Sciences represented in Department III of PAS on December 10, 1960. Sciences represented in Department and economy form the theoretical basis of development in engineering and economy form the theoretical basis of development in engineering and economy. IN THE UNEOFFICAL DASIS OF GEVELOPMENT IN ENGINEERING and economy.

In order to cope with current problems, Department III of PAS established separate institutes or sections for all pertinent fields of lished separate institutes or sections.

card 1/5

P/002/61/000/001/001/007 D001/D101

Research program ...

science except geodesy which has not yet been grouped into a section of its own. Most of these subordinate institutions except Zakład Astronomii (Section of Astronomy) and Zakład Nauk Geologicznych (Section of Geological Sciences) are central posts comprising the full scope of problems in the particular branch of science. However, they are not capable of tackling all forthcoming problems by them-selves and, because of the shortage of scientifically trained personnel, equipment and facilities, must closely cooperate with respective university chairs and industrial institutes. The shortage of scientists is particularly noticeable in physics, geophysics and in certain branches of chemistry. In general, all scientific branches of the III-rd Department are satisfactorily equipped with basic instruments, but some special apparatuses are still in short supply. Lack of proper housing is also acute in some instances. In the next five years, the Instytut Chemii Fizycznej (Institute of Physical Chemistry) will be accommodated in a new building and the first pavilions will be built for the Instytut Fizyki (Institute of Physics). The transfer of Zakład Syntezy Organicznej (Organic Synthesis Section) into

Card 2/5

Research program...

P/002/61/000/001/001/CG7 D001/D101

a new building is under consideration; construction of the geophysical center in Belsk is nearing completion. The Section of Astronomy will receive in 1961 a Schmidt camera 60 cm in diameter. The research program of Department IV, Technical Sciences, can be divided into two groups. The first one includes electronics, metallurgy and metal science, acoustics, nondestructive material testing, rock formation mechanics, automation, flow machines, chemical engineering, hydraulic engineering, electrical engineering and application of isotopes in technology. The second group includes fundamental research in the field of theoretical mechanics of deformable bodies, which includes the theories of elasticity and plasticity, rheology, strength of materials; further, hydraulics, pneumatics, acoustics and the theory of magnetic field, including its application in radio, electronics and electro-acoustics. Contrary to other departments of PAS, this one does not yet have a full-fledged system of posts for tackling all research that is of fundamental importance in engineering, and the development of such a system to concentrate among others on automation, chemical engineering, mining, metallurgy, machine

Card 3/5

P/002/61/000/001/001/007 D001/D101

Research program ...

construction and civil engineering will be the principal task of Department IV for the next few years. As a top priority scheme, Instytut Automatyki (Institute of Automation) will be established in 1961 by expanding the present Zakład Automatyki (Automation Section). Extension of the Zakład Mechaniki Górotworu (Section of Rock Formation Mechanics) and Zakład Metali (Section of Metals) into the Instytut Podstaw Górnictwa i Hutnictwa (Institute of Mining and Metallurgy) tut Podstaw Górnictwa i Hutnictwa (Institute of Mining and Metallurgy) will follow at a later date. A highly important task will be the extension of Zakład Inżynierii i Aparatury Chemicznej (Section of Chemical Engineering and Chemical Aparatuses) which is difficult to accomplish because of an acute shortage of properly trained scienaccomplish because of an acute shortage of properly trained scienaccomplish. The needs of the national economy call for two more institutes. Instytut Podstaw Budowy Maszyn (Institute of Machine Constructes: Instytut Podstaw Budowy Maszyn (Institute of Machine Construction Principles) and the Instytut Podstaw Inżynierii Budowlanej (Institute of Civil Engineering Principles). The new organizational system is now under discussion. It seems that the largest of all institutes of the IVth Department, the Instytut Podstawowych Problemów Techniki (Institute of Fundamental Problems of Engineering) will

Card 4/5

Research program...

P/002/61/000/001/001/007 D001/D101

be the backbone of the future organization, linking a group of present and future institutes like Instytut Fizyki Technicznej (Institute of Technical Physics), Instytut Mechaniki Stosowanej (Institute of Applied Mechanics), Institute of Automation and several other already mentioned sections. The principal task of all institutes and sections will be the training of young scientists. During the past eight years, sections and branches of Departments III and IV of the PAS greatly contributed to the development of several disciplines of science like mathematics, theoretical and experimental physics, electronics, physical chemistry and electrical engineering.

ASSOCIATION: Polska Akademia Nauk (Polish Academy of Sciences).

Card 5/5

NOWACKI, Witold

Research plans, Polish Academy of Sciences agencies 1961 and 1961-1965. Review Pol Academy 6 no.1:1-16 Ja-Mr ¹61.

(Polish Academy of Sciences) (Poland-Research)

NOWACKI, W.

On the treatment of the two-dimensional coupled thermoelastic problems in terms of stresses. Bul Ac Pol tech 9 no.3:155-161 '61.

1. Department of Mechanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences.

(Elasticity) (Strains and stresses)

3/124/65/000/001/051/080 D234/D308

AUTHOR:

Nowacki, il.

TITLE:

Some problems with rectangular plates

PERIODICAL:

Referativnyy zhurnal, Mekhanika, no. 1, 1963, 24, abstract 1V163 (Bull. Acad. polon. sci. ser. sci. techn., 1961, v. 9, no. 4, 247-256 (Eng.: summary in Mus.))

The author considers the problems of free and forced vibrations and stability of rectangular plates. He begins by constructing two systems of orthogonal functions satisfying the equation

$$(\nabla^4 - \gamma^4) f(x,y) = 0$$
(1)

given in a rectangular domain with sides a and b. The first system of functions satisfies the boundary conditions (2)

as satisfies the boundary condition
$$f(x,0) = f(x,b) = \nabla^2(x,0) = \nabla^2f(x,b) = 0$$
 (2)

$$f(x,0) = f(x,b) = \nabla^2(x,0) = \nabla^2(x,0) = 0$$

 $f(0,y) = f(a,y) = \frac{\partial f(a,y)}{\partial x} = \nabla^2 f(0,y) = 0$ (3)

Card 1/2

"APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001237610012-8

Jome problems with rectangular plates J/124/63/000/001/051/080

In constructing the second system the origin of coordinates is transferred to the point (a/2, 0) and the boundary conditions

$$f(a/2,y) = f(-a/2,y) = \frac{\partial f(a/2,y)}{\partial x} = \frac{\partial f(-a/2,y)}{\partial y} = 0$$
 (4)

are satisfied. With the aid of these two systems the author solves the problems of forced vibrations of a plate freely supported along the edges x = 0, y = 0, and y = b, and clamped along the edge x = a, as well as that of a plate clamped along the edges x = 1 a/h and freely supported along the edges y = 0, y = b. We also constructs a solution for the case when the plate is additionally supported along the line x = 1. We considers an infinite strip loaded along the lines y = 1 2bh, k = 1,2.5, which made it possible to construct a solution for an infinite strip reinforced by rigid rips along these lines. The solution of the problem of natural vibrations is obtained if one puts q = 0 for the disturbing force. If the frequency of the disturbing force $\omega = 0$ one obtains the solution of the problem of stability.

[.bstracter's note: Complete translation]

Jard 2/2

NOWACKI, W.

Application of difference equations in structural mechanics. Bul Ac Pol tech 9 no.4:257-262 161. (EEAI 10:9/10)

1. Department of Mechanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences.

(Mechanics, Applied) (Difference equations)

h3153 s,124/62/000/008/QE/030 1054/1254

AUTHOR: Nowacki, W.

TITIE: The three-dimensional dynamic problem of thermoelasticity

PERIODICAL: Referativnyy zhurnal, Mekhanika, Svodnyy tom. no. 8V, 1962, 18, abstract 8V 125 (Bull. Acad. nolon. sci. Ser. sci. techn. 9, 1961, 419-426, [Linglish])

TEXT: Dynamic equations are studied for an elastic body, including the temperature induced stresses. The considered system of equations is of the form:

(\lambda + \mu \right) \text{grad } \tilde{\text{T}} \ti

 $\left(\Delta - \frac{1}{\alpha^2} \frac{\beta^2}{\beta^2}\right) \left(\Delta - \frac{1}{\alpha} \frac{\beta}{\beta^2}\right) \Phi = R, \quad \alpha = \sqrt{\frac{\lambda + 2M}{\beta}}$ where R is a certain function, proportional to the density of the heat source,

Card 1/2

5/124/62/000/008/028/030 1054/1254

The three-dimensional ...

distributed inside the elastic body and λ is proportional to the thermal conductivity. Formulae are derived for \tilde{u}^i , representing a "dynamic" analogue of the known formulae derived by B.G. Galerkin for a radius vector in a static case. A planar problem is also considered. At the end of the paper some examples are given.

Abstracter's note: Complete translation.

Card 2/2

P/033/61/013/004/004/005 D248/D302 1191, 1327, 2607

24.4200

AUTHOR:

Applying difference equations in the theory of plates Nowacki, Witold (Warsaw)

TITLE:

PERIODICAL:

Archiwum mechaniki stosowanej, v. 13, no. 4, 1961,

TEXT: The paper presents a departure from the work of N. J. Niel-TEXT: The paper presents a departure from one work of R. J. Stering of R. J. Stering of R. J. Stering of Research 1949, 1952) who replaced the derivatives in the differential equation of the theory of plates by difference systems. 1949, 1992) who replaced the derivatives in the difference quotients and solved tion of the theory of plates by difference quotients and solved the resulting partial difference equation by Gaussian or iteration the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation by Gaussian or iteration and the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation is a subject to the resulting partial difference equation methods. The solution of E. Egervary (Ref. 6: On Hypermatrices whose Blocks are Commutable in Pairs and their Application in Latwhose Blocks are Commutable in rairs and their Application in tice Dynamics, Hung. Acta Sci. Math., Vol. XV, 3-4 15 (1954), Inst. Bolyaian, Univ. Szeged) by matrix methods is referred to. The present paper solves the partial difference equation by the Card 1/4

29561 P/033/61/013/004/004/005 D248/D302

Applying difference equations ...

method of finite differences, and presents a solution of the differential equation of plate deflection by means of a double finite series for both forced and free vibration, simultaneous bending and compression, and buckling. The author states that his solution methods may be applied to problems of plates loaded in their planes and a number of static and quasi-static space problems. He indicates that Part II of his paper will be devoted to plate problems with mixed boundary conditions, and the application of double Fourier transformation to the difference equation. In particular, solutions are found for free and forced vibration of a rectangular plate under various loadings. The general amplitude equation for a plate is rewritten with difference quotients and a solution is sought in the form of a double finite series containing known eigen functions. The following examples of application of the double series method are given: (1) A load q and an immovable support at a point, (2) a load qxy and a load Ry8xg acting along the line $x = \xi$, (3) a load q_{xy} , a load $Ry \partial_x \xi$ along

Card 2/4

29461 P/033/61/013/004/004/005 D248/D302

Applying difference equations ...

x = ξ , and a load QxO y η along y = η , (4) a plate simply supported on the contour stiffened by means of a rib along x = ξ , (5) a plate simply supported on the entire contour and having a support along a segment of the line x = ξ , (6) a plate clamped along x = 0 and simply supported at the remaining edges, and (7) a plate clamped at various points of the edge x = 0 and simply supported elsewhere. In the case of combined bending and compression, a elsewhere equation is obtained from the general differential equadifference equation is obtained from the general differential equation in ∇ 4. Solutions are found by (a) a double finite sum method with eigen functions, (b) a double series method which assumes a with eigen functions, (b) a double series method which assumes a line to ease of buckling similar solutions are proposed. Consideration is given to applying simple finite series to the deflection tion is given to applying simple finite series to the deflection of a plate strip, making use of a Fourier Integral transformation devised by I. Babuska (Ref. 9: The Fourier Transform in the Theory

of Difference Equations and its Applications, Arch. Mech. Stos., 4, 11 (1959)), for difference equations. In particular, a rectangular plate supported on two opposite edges is studied for the

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card 3/4

29461 P/033/61/013/004/C04/005 D248/D302

Applying difference equations ...

static case. The author states that there is no obstacle to generalization to forced vibration and simultaneous bending and compression. Finally, difference-differential equations are used with mixed boundary conditions to describe the deflection of a plate. There are 5 figures and 11 references: 7 Soviet-bloc and 4 nor-Soviet-bloc.

ASSOCIATION: Department of Mechanics of Continuous Media, IBTP

Polish Academy of Sciences, Warsaw

SUBMITTED: March 6, 1961

Card 4/4

31129 P/033/61/013/005/006/006 D265/D302

AUTHOR: Ignaczak, Józef, and Nowacki, Witold (Warsaw)

TITLE: Transversal vibrations of a plate, produced by heating

PERIODICAL: Archiwum mechaniki stosowanej, v. 13, no. 5, 1961,

651-667

TEXT: In this paper equations are derived for the harmonic forced vibrations of a plate thermally excited by the density of the three-dimensional temperature field moment acting along the plate thickness. The longitudinal vibrations are assumed to be independent of the flexural vibrations. Starting from the heat equation

$$\nabla^2 \mathbf{T} - \frac{1}{n} \dot{\mathbf{T}} = 0, \quad \nabla^2 = \partial_1^2 + \partial_2^2 + \partial_3^2$$
 (1.11)

in 3 dimensions coupled and not coupled with the deformation field, the basic equation is given for an infinite plate on elastic formation 1/3

31129 P/033/61/013/005/006/006 D265/D302

Transversal vibrations of ...

mations with a prescribed heat flow across the bounding surfaces harmonically varying in time

$$[(\partial_1^2 + \partial_2^2)^2 - \beta^2 + k]W + (1+v)\alpha_t(\partial_1^2 + \partial_2^2)\theta = 0$$
 (1.22)

and

$$(\partial_1^2 + \partial_2^2 + \partial_3^2)U - i\eta U = 0, \quad \beta^2 = \frac{\omega^2 \rho h}{N}, \quad \eta = \frac{\omega}{R}$$
 (1.23)

The problem is also considered for the vibration of a rectangular plate simply supported, or simply supported on the contour and having an additional support inside the plate region along the line parallel to the edge and for the plate of which one end is clamped and the other is simply supported. The thermal vibrations are also considered for a circular plate. An approximate solution is provided for the above problems, consisting in the assumption that

Card 2/3

P/033/61/013/005/006/006

Transversal vibrations of ...

the moment density of a three-dimensional temperature field may be replaced by the temperature difference between the upper and the lower surface of the plate per unit thickness. The coupled thermoelastic problem is solved making use of this assumption. There are 8 references: 4 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: B.A. Boley, A. D. Barber, Dynamic response of Beams and Plates to Rapid Heating, J. Appl. Mech. 3, 24)1957); M. A. Biot, Thermoela-sticity and Irreversible Thermodynamics, J. Appl. Phys. 3, 27 (1956), 240-253; I. N. Sneddon, S. D. Berry, The Classical Theory of Elasticity in Encyclopedia of Physics, vol. 6, Springer, Berlin, 1958.

Department of Mechanics of Continual Media IBTP, Po-ASSOCIATION:

lish Academy of Sciences

May 3, 1961 SUBMITTED:

Card 3/3

NOWACKI, W.

PHASE I BOOK EXPLOITATION

SOV/6096

Novatskiy, Vitol'd

Voprosy termouprugosti (Problems in Thermoela sticity). Moscow, Izd-vo AN SSSR, 1962. 363 p. Errata slip inserted. 3,500 copies printed.

Translated from the Polish.

Sponsoring Agency: Akademiya nauk SSSR.

Resp. Ed.: V. I. Danilovskaya; Ed. of Publishing House: G. B. Gorshkov; Tech. Ed.: G. S. Simkina.

PURPOSE: This book is intended for scientific personnel, engineers, aspirants, and senior students.

Card 1/8 2

Problems in Thermoelasticity

SOV/6096

COVERAGE: This monograph contains scientific results obtained by the author in the course of several recent years. Considered are temperature stresses generated in homogeneous perfectly elastic and visco-elastic solids, with the displacements assumed to be infinitely small and the constants of the material to be independent of the temperature. The solution of most problems of thermoelasticity is presented as the superposition of two solutions, one of which has the character of a thermoelastic potential and the other contains components of Galerkin's vector of displacements. In some cases other methods, e.g. Maysel's method have also been used. Green's functions have been applied in the analysis of thermal stresses caused by internal heat sources. Three-dimensional and two-dimensional problems, both stationary and nonstationary, are examined. The dynamic problems of thermoelasticity, concerning states of stress caused by nonuniform temperature fields produced in solids by rapid heating and cooling processes are also investigated. For this Russian translation the author substantially revised the first chapter and made considerable changes in the fifth chapter (in the section concerning shells) and in the seventh (in the section on the propagation of visco-elastic waves). The author thanks V. I. Danilovskaya,

Card 2/ 6 3

Problems in Thermoelasticity SOV/	7/6096		
Doctor of Physical and Mathematical Sciences. There are 147 re 44 Soviet, 75 English, 23 German, 3 French, 1 Czech, and 1 Spar	eferences:		
TABLE OF CONTENTS:			
Preface to the Russian Edition	3		
Preface by the Editor of the Translation	4		
On the Tensor Symbols Used in This Book	5		
Ch. I. Introduction to the Theory of Thermoelasticity l. Differential equation of heat conductivity. Initial	9		
and boundary conditions 2. States of stress and strain. Equations of equilibrium	9		
and motion	16		
Card 3/1 3			

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Ы4363 S/044/62/000/012/024/049 --A060/A000

24 2000

Kaliski, S., Nowacki, W.

TITLE:

AUTHOR:

Excitation of mechanical-electromagnetic waves induced by thermal shock

PERIODICAL:

Referativnyy zhurnal, Matematika, no. 12, 1962, 68, abstract 12B306 (Bull. Acad. polon. sci. Sér. sci. techn., 1962, v. 10, no. 1, 25 - 33, English; summary in Russian)

TEXT: An elastic half-space is located in an initially homogeneous magnetic field, parallel to the boundary of the half-space with vacuum. At the instant t=0 the boundary face is abruptly heated to the temperature T_0 which is then held constant. As a result there arise temperature, mechanical and electromagnetic oscillations. The mathematical problem reduces to the simultaneous integration of the equation of electrodynamics of a slowly moving medium, of the theory of elasticity, and of heat conduction. A number of simplifying assumptions is made, and it is the homogeneous linearized problem which is considered. The solution is obtained in explicit form with the aid of the Laplace transform.

Card 1/2

Excitation of mechanical-electromagnetic waves...

S/044/62/000/012/024/049 A060/A000

In the elastic medium there arise a mechanical and an electromagnetic wave, in the vacuum an electromagnetic shock wave is radiated.

O. I. Panich

[Abstracter's note: Complete translation]

Card 2/2

NCW ACKI, Witold

Connections between science and life. Nauka polska 10 no.2:19-30 462.

1. Czlonek rzeczywisty Polskiej Akademii Nauk, Warszawa

16 4500

8/044/63/000/001/020/053 A060/A000

AUTHOR:

Nowacki, W.

TITLE:

Formulation of a boundary problem of the theory of elasticity with

mixed boundary conditions

PERIODICAL: Referativnyy zhurnal, Matematika, no. 1, 1963, 60, abstract 1B281 (Bull. Acad. polon. sci. Sér. sci. techn., 1962, v. 10, no. 2,

71 - 78, English; summary in Russian)

On the basis of the mutuality theorem for displacements, a method TEXT: is proposed for reducing boundary problems of the theory of elasticity with mixed boundary conditions to a system of Fredholm integral equations of the first order.

O. I. Panich

[Abstracter's note: Complete translation]

Card 1/1

NOWACKI, W.

Formulation of a boundary problem of the theory of elasticity with mixed boundary conditions. Bul Ac Pol tech 10 no.2:[91]-[98] *62.

1. Department of Machanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences, Warsaw.

NOWACKI, Witold

Development trends in thermoelasticity. Rozpr ins PAN 10 no.3:411-430 '62.

1. Zaklad Mechaniki Osrodkow Ciaglych, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

KALISKI, S.; NOVACKI, W.

Combined elastic and electromagnetic waves produced by *hermal shock in the case of a medium of finite electric conductivity. Bul Ac Pol tech 10 no.4:[213]-[233] *62.

1. Department of Machanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences, Warsaw. Presented by W.Novacki.

NOWACKI, W.

Two-dimensional problem of magnetothermoelasticity. Pt.1. Bul Ac Pol tech 10 no.12:689-697 '62

1. Department of Mechanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences, Warsaw.

NOWACKI, W.K.

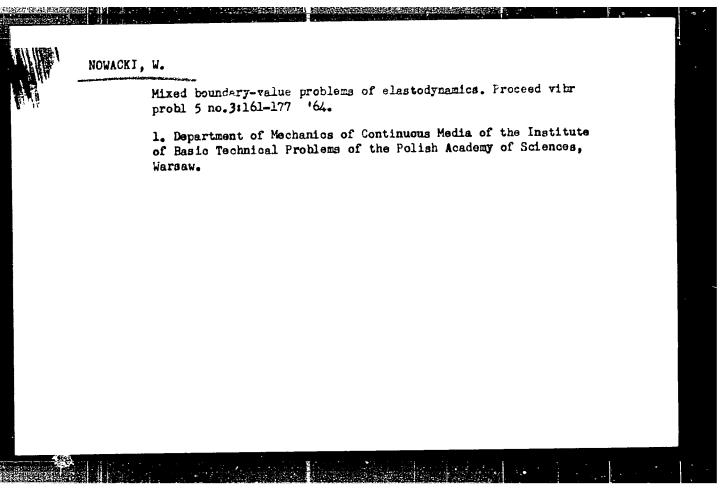
Propagation and reflection of a plane stress wave from a deformable support in an elastic-visco-plastic strain-hardening body. Proceed vibr 5 no.4:297-318 '64.

1. Department of Vibrations of the Institute of Basic Technical Problems of the Polish Academy of Sciences, Warsaw.

NOWAGRI, W.

Some dynamic problems of thermoe asticity. Pt. 2. Proceed vibr probl 5 no.4:249-262 164.

1. Department of Mechanics of Continuous Media of the Institute of Basic Technical Problems of the Polish Academy of Sciences, Warsaw.



NOWACKI,W.

The plane problem of magnetotnermoelasticity. Pt.2. Bul Ac Pol tech 11 no.1:1-8 63.

 Department of Mechanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences, Warsaw.

HOWACKI W.

Mixed boundary problems in heat conduction. Bul Ac Pol tech 12 no. 2:125-132 '64

1. Department of Mechanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences, Warsaw.

NOWACKI, W.

Mixed boundary problems of elastodynamics. Bul Ac Pol tech 12 no. 3:195-201 '64.

1. Department of Mechanics of Continuous Media. Institute of Basic Technical Problems, Polish Academy of Sciences, Warsaw.

NOWACKI, W.

Green functions for the thermoelastic medium. Pt.2. Bul Ac Pol Techn 12 no.9:651-658 '64.

1. Department of Mechanics of Continuous Media of the Institute of Basic Technical Problems of the Polish Academy of Sciences, Warsaw. Submitted June 17, 1964.

NOWACKI, W.

Mixed boundary value profilms of thermoelasticity. Bul &c Poltech 12 no.11:799-805 (44.

1. Department of Mechanics of Continuous Media of the Institute of Basic Technical Protlems of the Polish Academy of Sciences, Warsaw. Submitted July 28, 1964.

 NOVATSKIY, V. [Novack1, W.] (Varshava)

Two-dimensional problem of magnetothermoelasticity. Prikl. mekh. 1 no.6:1-7 '65. (MIRA 18:7)

1. Institut osnovnykh problem tekhniki Pol'skoy Akademii nauk.

L 638 $\frac{1}{6}$ EWT(1)/EPA(s)-2/EEC(k)-2/T/EEC(b)-2 IJP(c) GG

ACCESSION NR: AP5016898

PO/0097/65/006/001/0003/0012

AUTHOR: Nowacki, W. (Warsaw)

233

TITLE: A reciprocity theorem for coupled mechanical and thermoelectric fields in

SOURCE: Proceedings of vibration problems, v. 6, no. 1, 1%;, 3-12

TOPIC TAGS: piezoelectric theory, reciprocity theorem, thermoelectric field, piezoelectric crystal

ABSTRACT: The equations governing small vibrations of plezoelectric crystals derived by R. D. Mindlin (On the equations of motion of plezoelectric crystals, Problems of Continuum Mechanics, Philadelphia 1961) are used to derive a reciprocity theorem, and several conclusions derived from this theorem are discussed. The coupled problem consists of determining the stresses $\sigma_{ij}(x,t)$ and strains $\epsilon_{ij}(x,t)$ of the $c^{(1)}$ class, the displacements $u_i(x,t)$, the temperature $\theta(x,t)$, and the electric potential $\Phi(x,t)$ of the $c^{(2)}$ class (where $x=(x_1,x_2,x_3)=$ geometric coordinate, t= time). The derivation is based on the equation of motion, the generalized heat equation, and the equation of a quasistationary $c^{(2)}$

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electric field, supplemented by 6 boundary conditions, 4 initial conditions (homogeneous), 5 constitutive equations, and the stress-succestations. The motion is assumed to be produced by mass forces X_1 , a heat source Q, electric charges X_1 , and the quantities appearing in the boundary conditions (surface load R_1 , temperature Q, potential Q). To obtain the reciprocity mesorem, two sets of causes and effects are considered after the above equations are transformed by the one-sided Laplace transformation. After inverse Laplace transformation the reciprocity theorem is presented in the form of the sum of a double integrals (over time and space or surface) equal to zero. For an infinite body, equations are derived for determining the displacements, temperatures (inside the body), and electric potential for a known distribution of mass forces, heat sources, and electric charges and for prescribed surface conditions. Equations are also derived for finding u_4 , θ , \overline{q} , for given values \overline{u}_1 , \overline{u}_2 , and \overline{q} on the boundary.

These represent a generalization of the known Green's the rem of electrostatics. An alternate set of equations gives u_1 , θ , $\overline{\theta}$ for prescribed load R_1 , heat flow k, and electric surface load d. Orig. art. has: 38 formulas. ASSOCIATION: Department of Mechanics of Continuous Media, IBTP, Polish Academy of Sciences

Card 2/3

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ACCESSION NR: AP5025666 PO/0095/65/013/005/0305/0312

AUTHOR: Novacki, W.

TITLE: Two-dimensional problem of magnetothermoelasticity. III

SOURCE: Polska akademia nauk. Bulletin. Serie des sciences techniques, v. 13;

no. 5, 1965, 305-312

TOPIC TAGS: elasticity, thermoelasticity, magnetothermoelasticity, elastic wave, thermoelastic wave, magnetothermoelastic wave, magnetocaloric effect

ABSTRACT: In this installment, the author analyzes the dynamic problem of the propagation of plane magnetothermoelastic waves in a medium with finite conductivity. The wave motion generated by body forces and heat sources which are assumed to be uniform in the direction of a constant magnetic field within the medium, are treated as composed of thermal and electromagnetic fields conjugated with longitudinal and transverse components, respectively, of the strain wave. The analysis, under certain simplifying assumptions, leads to the conclusion that the transverse wave suffers no attenuation and no disperison, while the longitudinal part is subject to both. An approximate equation for the longitudinal wave, deduced under certain simplifying assumptions and applying the perturbation method, was obtained. Orig. art. has:

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Card 1/4.

ACCESSION NR: AP5025666 ASSOCIATION: Zaklad mechanik	i osrodkov ciaglych, Instytut Mechanics of Continuous Medi	podstawowych problemow Institute of Fundemental
techniki, PAN (Department of Technical Problems, PAN) SUBMITTED: 00	ENCL: 00	SUB CODE: AS, NG
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ACC NR. AP6017946

SOURCE CODE: PO/0097/65/006/003/0279/0293

AUTHOR: Novacki, W. K. (Warsaw)

ORG: Department of Vibrations, IBTP, Polist Academy of Sciences

TITLE: Thermal shock on the boundary of a spherical cavity in an elastic viscous,

plastic space

SOURCE: Proceedings of vibration problems, v. 6, no. 3, 1965, 279-293

TOPIC TACS: thermal shock, wave propagation, motion equation, linear equation, plastic deformation, SHOCK WAVE MOTION, FLASTIC DEFORMATION, SPHERIC SHELL STRUCTURE

ABSTRACT: A solution is presented for the problem of the propagation of spherical waves produced by a thermal shock on the boundary of a spherical cavity in infinite, elastic, viscous, plastic bodies, taking the strain rate and strain hardening into consideration. The solution is carried out in a phase plane, and is based on the method of propagation of plastic waves produced by mechanical loads. A linear equation of heat conductivity is assumed which can be solved independently of other equations. The physical constants are assumed to be independent of temperatures T \le 300C. The existence of a strong discontinuity wave in the two regions of plastic deformation compression and expansions has been proven. Due to very simple combinations of the equation of thermal conductivity with that of motion, the solution

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SOURCE CODE: PO/0095/66/014/006/0513/0516 EM EMP(w) 50 L 45193-66 B AP6027424

AUTHOR: Zorski, H.; Nowacki, W.

ORG: Department of Mechanics of Continuous Media, Institute of Fundamental Technical Problems, Polish Academy of Sciences (Zaklad mechaniki osrodkov cialych, institut podstawowych problemow techniki, PAN)

TITLE: Conservation principles for defects in an elastic continuum

SOURCE: Polska akademia nauk. Bulletin. Serie des sciences techniques, v. 14, no. 6, 1966, 513-516

TOPIC TAGS: elasticity, aerodynamic moment, crystal effect, elastic stress, mater ial deformation, integral equation

ABSTRACT: Equations have been derived for the conservation of momentum and angular momentum for a system of defects (dislocation and crack) in an elastic field based on the integral identity of the linear theory of elasticity. The conservation equations obtained are linear with respect to displacement, deformation, and

1/2 Card

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stress. The paper was presented by W. Nowacki. Orig. art. has: 1 figure and 13 formulas. [Based on authors' abstract] [NT]	· ·
SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001/	*.
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Card 2/2	

NOWACKI, Wojciech Knzysztof; WOROSZYL, Stanislaw

Vibrations of compound beams with nonlinear effects in the joints. Rozpr inz PAN 11 no.2:361-375 163.

1. Zaklad Mechaniki Osrodkow Ciaglych, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

KALISKI, S.; NOWACKI, W. K.; WIODARCZYK, E.

Propagation and reflection of a spherical wave in an elastic-viscoplastic strain hardening body. Preced vibr probl 5 no. 1: 31-56 '64.

1. Department of Vibrations, Institute of Basic Technical Problems, Polish Academy of Sciences, Warsaw.

NOWACKI, W. (Warsaw)

"Mixed boundary conditions in the theory of elasticity".

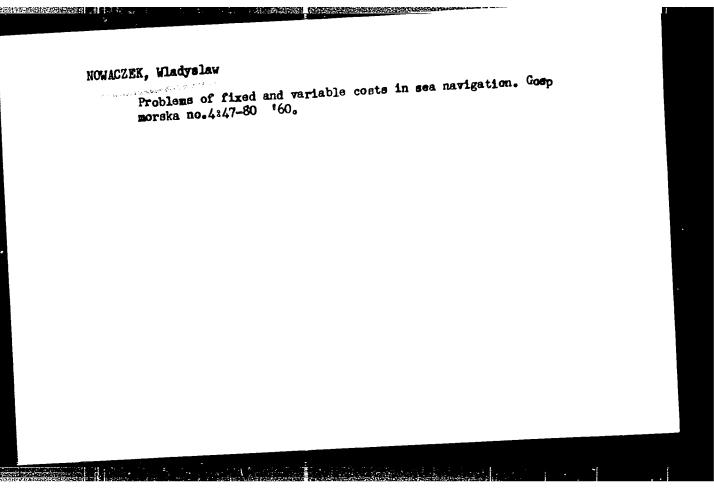
report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

NOWACZEK, W.

A contribution on the planning of constructions on elastic semi-space; an extension of Zhemotchkin's method. Tr. from the Czech. p. 57.

INZYNIERIA I BUDOWNICTWO. (Naczelna Organizacja Techniczna i Polski Zwiazek Inzymierow i Technikow Budowlanych) Warszawa, Poland. Vol. 16, no. 2, Feb. 1959.

Monthly list of East Turopean Accessions Index, (EEAI), LC, Vol. 8, no. 6, June 1959 uncla.



NOWACZEK, Wladyslaw, doc. hab.

Principles of dividing costs into fixed and variable costs in the field of maritime shipping. Tech gosp morska 12 no.10:292-293 0 162.

1. Wyzsza Szkola Ekonomiczna, Sopot.

CIA-RDP86-00513R001237610012-8 "APPROVED FOR RELEASE: 07/13/2001

NOVACZKIEWICZ, L.

Breeding the oxygeniess bacteria of pectin fermentation.

Biuletyn Wlok. Lyk. p. h. NOWACZKIEWICZ, L.

Vol. 10, no. 6, June, 1956 PRZEMYSŁ SPUZYWCZY TECHNOLOGY Warsaw, Poland

So. East Accession Vol. 6, no. 2, Feb. 1957

是你成功的人,我们就是我们的人,我们就是我们的人,我们就是我们的人,我们就是我们的人,我们就是我们的人,我们就是我们的人,我们就是我们的人,我们就是我们的人,

NCWACZKIEWICZ, L.; GONCZARYK-MOZOLEWSKA, H.; LUBIENSKA, B.

Methodological researches on the quantitative determination of microorganisms in the retting liquid. Biuletyn Wlok. Lyk. p. 3.

PRZEGLAD WLOKIENNICZY. (Stowarzyszenie Inzynierow i Technikow Przemyslu Slokienniczego) Lodz, Poland. Vol. 12, no. 1, Jan. 1958.

Monthly List of East European Accessions (EEAI) LC. Vol. 8, no. 7, July 1959.

Uncl.

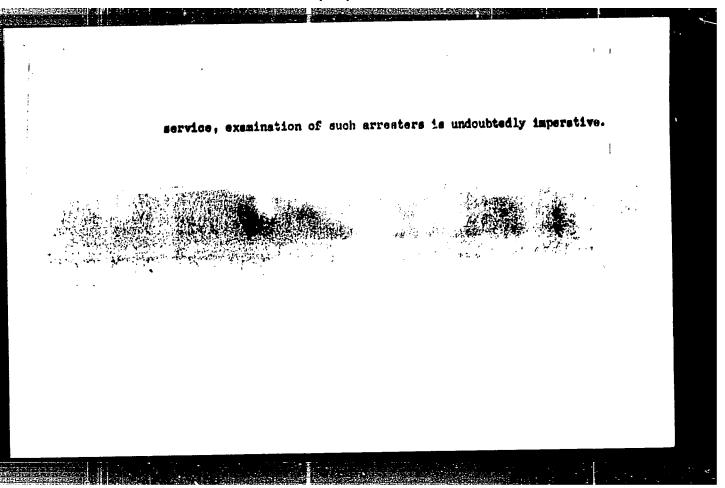
MIETKIEWSKI, Eugeniusz; NOWACZKIEWICZ, Urszula On the effect of hypothermia on the level of blood sugar during histamine and anaphylactic shocks in cats. Acta physiol.polon. 11 no.3:385-394 My-Je '60. 1. Z Zakladu Fizjologii Pomorskiej A.M. w Szczecinie Kierownik: prof. dr E.Mietkiewski. (ALLEROY exper) (BLOOD SUGAR) (HISTAMINE pharmacol) (HPCTHERNIA INDUCED exper) (SHOCK exper)

NOWACZYK, Czeslaw

Forest communities of the Zielonka near Poznan. Experiment Forest District. Prace nauk roln i lesn 17 no.2:213-271 164.

1. Department of Forest Botany, Higher School of Agriculture, Poznan.

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MOWALLY	1K, H.		
ish Technical Abst.	2414 Lechowski E., Howaczyk H. Routine Testing of Value Arrestars. Eksploatacyjne badanie odgromnikow Zaworowych. Enorgetyka. No. 6, 1952, pp. 285-290, 4 tabs.	3 0 0 p	5
	of the ZEOZ (Western District Power Administration) Overcurrent Insulation Service to determine, for Siemens, AEG, Szpotanski and ASEA type arresters in use, the static and surge voltage, together with leakage current at a constant voltage. Ten per cent of the arresters examined revealed that		
	rated value and had to be disqualified. The article contains a report on the test results and on the nature of the drage discovered in the arrester. The authors deal with the repairs affected.	:	
	being restored to full service capacity. Attention is drawn to the necessity for periodical examination of arresters, as a means towards ensuring the safety of the appropriate equipment. In spite of the view		J
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NOWACZYK, Henryk, inz.; GRZYBOWSKI, Stanislaw, mgr., inz.

Preparation of a cable line for a breakdown location; Ist article of the series: location of breakdowns in electric power cable lines. Energetyka przem 10 no.4:139-142 Ap 162.

- Zaklady Energetyczne Okregu Zachodniego (for Nowaczyk).
 Politechnika Poznanska (for Grzybowski).

NCWACZYK, Henryk, inz.; GRZYBOWSKI, Stanislaw, mgr.inz.

Burning out weakened cable insulation. Pt. 2. Energetyka przem 10 no.6:204-207 Jo .162.