

ALEKSANDROV, V.I.; MANEVICH, A.B.

The SOKSSh-2,8 combined vegetable planter. Biul.tekh.-ekon.inform.  
no.2:67-68 '59. (MIRA 12:3)  
(Planters (Agricultural machinery))

ALEKSAANDROV, V.I.; RASSOLOVA, T.P.

The GH-2 mounted ridging plow. Biul.tekh.-ekon.inform. no.5:  
62-63 '59. (MIRA 12:8)

(Plows)

PERSHIN, N.I.; ALEKSANDROV, V.I.; ILLERITSKIY, N.Ye.; TABACHKOV, I.F.;  
BOL'SHAKOV, V.I.; KANAR', I.A.; YAS'KO, A.M.; KLYUKIN, A.P.;  
POLYAKOV, V.S.; FILIPPOVA, N.A.; SMAGORINSKIY, B.S., red.;  
IZHBOLDINA, S.I., tekhn. red.

[The millionth tractor; on the occasion of the 30th anniversary of the Stalingrad Tractor Plant (1930-1960)] Millionnyi traktor; k 30-letiyu Stalingradskogo traktornogo zavoda (1930-1960). Stalingrad, Stalingradskoe knizhnoe izd-vo 1960. 94 p. (MIRA 16:9)

1. Stalingradskiy traktornyy zavod im. Dzerzhinskogo.  
(Volgograd--Tractor industry)

ALEKSANDROV, V.I.

Modern potato planters. Trakt. i sel'khoz mash. 30 no.7:23-24 J1'60.  
(MIRA 13:10)  
(Planters (Agricultural machinery))

ALEKSANDROV, V.I., inzh.; KUZNETSOV, B.F., inzh.

Types of tractor-mounted vegetable and sugar beet planters. Trakt. i  
sel'khoz mash. 32 no; 12:28-30 D '62. (MIRA 16:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo  
mashinostroyeniya.  
(Planters (Agricultural machinery)) (Vegetable gardening)  
(Sugar beets)

USYSHKIN, S.I.; ALEKSANDROV, V.I.; KOROTKOVA, A.V., red. izd-va;  
VORONINA, R.K., tekhn. red.

[Technical mechanics; a methodological textbook] Tekhnicheskaya mekhanika; metodicheskoe posobie. Programma, zadaniya dlya kontrol'nykh rabot s kratkimi metodicheskimi ukazaniyami po ikh vypolneniiu; dlya uchashchikhsia nemashinostroitel'nykh spetsial'nostei zaokhranykh tekhnikumov (na baze 7 i 10 klassov). Moskva, Vysshaya shkola, 1962. 150 p. (MIRA 16:5)

1. Russia (1923- U.S.S.R.) Ministerstvo vysshego i srednego obrazovaniya.  
(Mechanical engineering--Handbooks, manuals, etc.)

ALEXSANDROV, V. I.

"Specific and Nonspecific Elements in the Reaction of the Cell to Injurious  
Action Influences," Transactions of the Inst. of Cytology, Histology, and Embryology,  
AS USSR. 3, 1, 3, 82, 1948

ALEKSANDROV, V.I.; KRYUKOVA, Z.I.

Cytophysiologic analysis of natural destruction of cell elements  
in the organism. Izv. Akad. nauk SSSR. Ser. biol., Moskva no.2:68-90  
Mr-Apr '50. (GLML 19:2)

1. Of the Laboratory of Cytology, Department of General Morphology,  
Institute of Experimental Medicine AS USSR.



ALEKSANDROV, V.K.

123 - 1 - 302 D

Translation from: Referativnyy Zhurnal, Mashinostroyeniye, 1957,  
Nr 1, p. 50 (USSR)

AUTHOR: Aleksandrov, V.K.

TITLE: Methods of Improving the Economical and Mechanical  
Efficiency of the "Moskvich" [Automobile] Engine  
(Puti uluchsheniya ekonomicheskikh i moshchnostnykh  
pokazateley dvigatelya "Moskvich")

ABSTRACT: Bibliographic entry on the author's dissertation for  
the degree of Candidate of Technical Sciences,  
presented to the All-Union State Scientific Institute  
of Automobile and Automotive Engine Research (Gos.  
soyuz. n.-1. avtomob. i avtomotor. in-t) Moscow, 1956

ASSOCIATION: All-Union State Scientific Institute of Automobile  
and Automotive Engine Research (Gos. soyuz n.-1.  
Card 1/1 avtomob. i avtomotor. in-t)

POCERS ANDROV, O. K.

AUTHOR: Aleksandrov, V.K.

113-58-5-6/22

TITLE: Analysis of the Results of Regulating Tests of Motors  
(Analiz rezul'tatov regulirovochnykh ispytaniy dvigateley)

PERIODICAL: Avtomobil'naya Promyshlennost', 1958, Nr 5, pp 17-22 (USSR)

ABSTRACT: The correct use of the results of regulating tests of motors necessitates the use of a system of their analysis which reflects the degree of their perfection as well as that of their component parts. The author presents a series of graphic and analytic determinations for 10 motors of Soviet and foreign make. There are 5 graphs and 4 tables.

ASSOCIATION: Moskovskiy zavod malolitrashnykh avtomobiley (The Moscow Small Car Plant)

AVAILABLE: Library of Congress

Card 1/1 1. Automobile industry 2. Motors-Test methods 3. Motors-Test results

AVDEYEV, V.N.; ALEKSANDROV, V.K.; GOLOSOV, V.A.; YEZHOVA, Ye.V.

Devices for the continuous locking of manufactured articles  
through a vacuum. Dokl. AN BSSR 8 no.11:699-701 N '64.

(MIRA 18:3)

AVDEYEV, V.N.; ALEKSANDROV, V.K.

Estimation of the precision of the lattice spacing in electric vacuum apparatus by means of moiré gratings. Dokl. AN BSSR 9 no.10:643-646 0 '65. (MIRA 18:12)

1. Submitted June 7, 1965.

L 18530-66 EWT(1)/EWA(h)  
ACC NR: AP6002389

SOURCE CODE: UR/0250/65/009/012/0791/0793

AUTHOR: Avdeyev, V. N.; Aleksandrov, V. K.; Lukovnikov, Yu. N.

ORG: none

TITLE: Microminiaturization of helical filaments for lamps and tubes

SOURCE: AN BSSR. Doklady, v. 9, no. 12, 1965, 791-793

TOPIC TAGS: microminiaturization, microminiature filament

ABSTRACT: The development of a new helix-winding head, which corresponds to a special formula for maximum filament tension, is reported; the head permits winding the filament on a "dash" type base. The filament tension in the older B.282.05 type head used to be 26 g; the new microhelix head uses a tension of 2 g. Formulas and curves characterizing operation of the new head are presented. An experimental microhelix of 30  $\mu$  diameter made from 8- $\mu$  wire is shown. Orig. art. has: 2 figures, 3 formulas, and 1 table.

SUB CODE: 09 / SUBM DATE: 16Jun65 / ORIG REF: 009 / OTH REF: 001

Card 1/1

ACC NR: AP6034185

(N)

SOURCE CODE: UR/0250/66/010/010/0748/0751

AUTHOR: Avdeyev, V. N. (Corresponding member AN SSSR); Agafonova, M. A.; Aleksandrov, V. K.

ORG: none

TITLE: Method of designing combined electronic devices with a plane-parallel electrode system

SOURCE: AN BSSR. Doklady, v. 10, no. 10, 1966, 748-751

TOPIC TAGS: vacuum tube, electron tube, triode tube, pentode electron tube, electron tube anode, electron tube cathode, electron tube grid, electron tube filament

ABSTRACT: The authors point out the numerous advantages of plane-parallel element configuration in multiple purpose vacuum tubes, as compared with conventional coaxial design. The coaxial construction of complex multi-purpose vacuum tubes is not suitable for automation. The stability of the construction, especially of the grids (which are formed in spirals), is poor, as is the utilization of the envelope space. The authors designed a triode-dual pentode tube intended to serve as an audio output stage in radio and TV sets. The triode can be used as a phase inverter, and the two pentodes are connected in push-pull form. The elements are formed in plane-parallel, rather than cylindrical-coaxial configuration. The parameters of this tube are superior to those

Cord 1/2

ACC NR: AP6034185

of the conventional tube, particularly because of the rigid "frame-grid" element used in all three systems. Orig. art. has: 2 figures.

SUB CODE: 09,14/

SUBM DATE: 05Nov65/

ORIG REF: 001/

OTH REF: 013

Card 2/2

*Aleksandrov, Vladimir Leont'yevich*

ALEKSANDROV, VLADIMIR LEONT'YEVICH.

Prilozhenie teorii reshetok k vintu. Moskva, 1924. 18 p., illus. (TSAGI. Trudy, no. 6)

Summary in English.

Title tr.: Theory of lattices applied to a propelling screw.

QA911.M65 no.6

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955



ALEKSANDROV, VLADIMIR LEONT'YEVICH

ALEKSANDROV, VLADIMIR LEONT'<sup>Y</sup>EVICH.

Passazhirskii samolet TSAGI, tip. A.K. I. Ego proektirovanie, postroika i ispytanie. Moskva, 1925. 129 p., illus., tables, diagrs. (TSAGI. Trudy, no. 17)

Title tr.: The A.K.I. type CAHI passenger plane; its design, construction and testing.

QA911.M65 no. 17

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

*Александров, Владимир Леонтьевич*  
ALEKSANDROV, VLADIMIR LEONTYEVICH.

Razgon samoleta. (Tekhnika vozdushnogo flota, 1944, no. 7, p. 5-7, diagrs.)

Title tr.: Acceleration of an aircraft.

TL504.T4 1944

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress,  
1955

ALEKSANDROV, Vladimir Leont'Evich

Opredilenie skorosti za vintom. (Teknika vozkushnogo flots, 1944,  
no. 11/12, p. 13017, diagrs.)

Title tr.: Determination of speed behind the propeller.  
TL504.T4 1944

S0: Aeronautical Sciences and Aviation in the Soviet Union, Library  
of Congress, 1955

ALEKSANDROV, VLADIMIR LEONT'EVICH

K voprosu o razvitti vozdushnykh vintov. (TEKHNIKA VOZDUSHNOGO FLOTA, 1945, no.7/8,  
p. 21-26, diagrs.)

Title tr.: On the future development of propellers.

TL504.T4 1945

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress,  
1955

ALEKSANDROV, V.L., redaktor.

[Take-off and landing; collection of translations] Vzlet i posadka; sbornik  
perevodov. Pod obshchei red. V.L.Aleksandrova. [ ] Izd-vo HNT, 1946.  
95 p. (MLRA 6:8)

1. Russia (1923- U.S.S.R.) Ministerstvo aviatsionnoy promyshlennosti.  
Byuro novoy tekhniki. (Airplanes--Design and construction)

ALEKSANDROV, Vladimir Leont'Evich

Tekhnicheskaya gidromekhanika. Izd. e., perer. Dopushcheno v kachestve  
unceb. posobiia dlia vysshikh ucheb. zavedenii. Moskva, Gostekhizdat,  
1946. 431 p., illus.

Title tr.: Applied hydromechanics. Approved as a textbook for schools  
of higher learning.

QA901.A38 1946

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of  
Congress, 1955

ALEKSANDROV, V. L.

PHASE X

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 648 - X

BOOK

Call No.: AF542792

Author: ALEKSANDROV, V. L., Doc. of Tech. Sci., Prof.

Full Title: AIRCRAFT PROPELLERS

Transliterated Title: Vozdushnyye vinty

PUBLISHING DATA

Originating Agency: None

Publishing House: State Publishing House of the Defense Industry  
(Oborongiz)

Date: 1951

No. pp.: 475

No. of copies: Not given

Editorial Staff: None

PURPOSE AND EVALUATION: This is a textbook approved by the Ministry of Higher Education for aviation institutions of higher learning. It may also be useful as a practical handbook for engineers who design and build propellers. This is an interesting compilation of various theoretical and practical problems concerning propellers. The book contains a greater variety of materials, especially in its theoretical part, than a comparable American textbook of a similar level. Nothing of special interest was found in the text.

TEXT DATA

Coverage: Following problems concerning propellers are considered: selection, design, computation, production, testing and operation.

1/4

Vozdushnyye vinty

AID 648 - X

Propellers are classified according to their basic construction and individual characteristics. In the chapter on aerodynamics concise but comprehensive information on aerodynamics is given. In the chapter on dynamics the physical picture of forces and moments acting during the operation of propellers is given more attention than usual in other similar textbooks. The book contains also a detailed analysis of contemporary (1951) conditions and rules of propeller operation. The production of propellers and specific features of its technology are exposed briefly. The problem of propeller balancing during production and operation is treated separately. A consecutive analysis of causes of static, dynamic and aerodynamic unbalance is made. Analytic and experimental methods of the determination of the unbalanced conditions are shown and the methods of remedy indicated.

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Vozdushnyye vinty

AID 648 - X

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Vozdushnyye vinty

AID 648 - X

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Appendices Table of r.p.m. squares and cubes; table of powers of propeller diameters; standard atmospheric data; ordinates of the R.A.F.-6 and Clark Y and F airfoils; aerodynamic characteristics of the propeller VISH-61P type; balancing the shaft with propeller on knife-edges; balancing of elliptic shaft on knife-edges; basic symbols	448-470

No. of References: None

Facilities: None

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ALEKSANDROV, V. I.

~~ALEXANDROV, V. I.~~

Book — 1180. Alexandrov, V. I. Airplane propellers (Luftschrauben), Berlin, VEB Verlag Technik, 1954, 445 pp.

The chapter on the history of the propeller contains some remarkable statements: "The great Russian inventor A. F. Mozhaiski was the first engineer of the world to build an airplane which lifted itself into the air"; "Joukowski's school by far outranked the research of foreign scientists in the propeller field"; "The Russian school has kept its leading role until today." Nobody will deny the outstanding contributions of Joukowski (spelled Shukowski in this German translation of the Russian edition of 1951) and his school, and other Russian scientists. However, it is surprising that names like Lanchester, Prandtl, Karman are not mentioned at all. The reader must gain the impression that the Clark Y and RAF-6 airfoils are Russian inventions. The list of authors contains 30 names, all Russian. Further surprises: A curve sheet of lift coefficient  $c_a$  versus angle of attack for various thickness ratios  $\bar{c}$  shows  $c_a$  maximum = 0.6 only at  $\bar{c} = 6.9\%$  and a constant increase of  $c_a$  maximum up to  $\bar{c} = 21\%$ , with no reversal of trend beyond  $\bar{c} = 13\%$ . Corrections of airfoil coefficients at high Mach numbers refer only to lift and drag, not to moment coefficients.

A few minor points of similar character, however, do not diminish the over-all value of the book, which is a high-level, first-rate text for engineers, scientists, and students, unusually comprehensive, and easily understandable. The theoretical part treats momentum theory without and with rotation; blade element theory,

*Alexander, W. L.*

their combination, vortex theory, hub design, stress analysis, imbalance, vibration, yawing, dynamics of the governor, unsteady motion, and the combination of the propeller with the airplane and the reciprocating engine or turbine. Much space is devoted to production techniques, choice of type, determination of facility operation, stability and control, noise, testing methods. The chapters are well balanced in length and appropriately illustrated with drawings and pictures. The book clearly shows that the author is not just a writer but a scientist and an experienced practical engineer. The presentation uses simple mechanical analogies and throughout stresses the physical basis, the simplifying assumptions necessary for the mathematical development, the applicability of the results as influenced by these simplifications, and the interaction of theory and practice; thus the reader never loses sight of the overall problem.

Although all the individual topics have been treated somewhere in the large propeller literature, this book does not duplicate what is already known, but rather combines them as a comprehensive treatise on the subject. The treatment is up to date, especially in the case of the supersonic propeller which was not known in the U. S. A. at the time of publication of the book. A translation into English would be desirable.

2/2  
red

ACC NR: AP6036438

SOURCE CODE: UR/0370/66/000/006/0068/0072

AUTHOR: Aleksandrov, V. L. (Sverdlovsk); Bogachev, I. N. (Sverdlovsk);  
Mints, R. I. (Sverdlovsk)

ORG: none

TITLE: Peculiarities in the behavior of austenitic steels under cyclic loading

SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1966, 68-72

TOPIC TAGS: ~~steel~~, austenitic steel, cyclic load, cyclic stress, chromium *steel*,  
manganese steel, ~~chromium~~ nickel steel/30Kh10G10 steel, 1Kh18N9T steel

ABSTRACT: A study was made of the behavior of chrome manganese and chrome  
nickel austenitic steels under cyclic loading. The study showed that 30Kh10G10  
chromium manganese austenitic steel has a much greater resistance to cyclic  
loading than 1Kh18N9T chromium nickel austenitic steel, and that this difference is  
due to the different nature of the structural transformations which take place in  
them during cyclic loading. 30Kh10G10 chromium manganese austenitic steel is  
unstable under cyclic loading and decomposes, forming a specific structure which

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UDC: 621.788

ACC NR: AP6036438

is apparently responsible for the steel's high cyclic strength and resistance. The chemical composition and martensite points of the steels used are given in a table in the original article. [Based on authors' abstract] [SP]

SUB CODE: 11/SUBM DATE: 14Jun65/ORIG REF: 004/

Card 2/2

ACC NR: AP7000657

SOURCE CODE: UR/0126/66/022/005/0737/0743

AUTHOR: Aleksandrov, V. L.; Bogachev, I. N.; Mints, R. I.

ORG: Ural Polytechnic Institute im. S. M. Kirov (Uralskiy politekhnicheskiy institut)

TITLE: Cyclic strength of austenitic steels

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 5, 1966, 737-743

TOPIC TAGS: austenitic steel, chromium manganese steel, chromium nickel steel, manganese steel, nickel steel, fatigue strength, cyclic strength

ABSTRACT: The behavior of several austenitic steels under the effect of cyclic loading has been investigated. 30Kh10G10, 47Kh10G8 and 1Kh17AG10 chromium-manganese steels, 68Kh7N7 and 1Kh7N7 chromium-nickel steels, G38 manganese steel, and N36 nickel steel specimens, 2 x 5 mm in cross section, austenized at 1100C for 1 hr and water quenched, were subjected to alternating bend tests at a frequency of 50Hz. It was found that the damping ability of the metal structure is the most important factor affecting the service life of metal under conditions of high cyclic loads and resonance fatigue. Steels with unstable austenite have a higher cyclic strength than steels with stable austenite. The fatigue strength of the former is also higher than the static yield strength. Different types of austenite with the same stability have different strength and life service under cyclic loading. Chromium-manganese

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UDC: 669.15-194:539.43

ACC NR: AP7000657

austenites have higher cyclic strength than chromium-nickel austenites. Orig. art. has: 4 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 02Feb66/ ORIG REF: 011/ OTH REF: 001

Card - 2/2



ALEKSANDROV, V.K.; SHUVAYEV, N.A.

Automatic record of the lines of flow of a fluid. Sudostroenie 29  
no.4:54-55 Ap '63. (MIRA 16:4)  
(Recording instruments)(Aerodynamics--Electromechanical analogies)

SOV-25-58-8-10/61

AUTHOR: ~~---~~Aleksandrov, V.M., Head of the Scientific Section

TITLE: The Memory of Animals (Pamyat' zhivotnykh)

PERIODICAL: Nauka i zhizn', 1958, Nr 8, pp 21-24 (USSR)

ABSTRACT: The author tells of experiences and experiments made with monkeys, dogs, crawfish, bees and wasps for the purpose of studying the rudimentary forms of elementary thinking of animals and proving that animals have a memory. The author points out that every living organism is capable of perceiving outer irritations (thermal, luminous, sound, chemical, tactile) which have an influence on the organs of sense. According to Academician I.P. Pavlov, a trace is left on the animal's nervous system from every irritation. This trace may disappear, but it may also cause a prolonged change in the nervous system and reflect on actions of the animals for a shorter or longer period. This is called memory. There are 12 drawings.

ASSOCIATION: Leningradskiy zoopark (Leningrad Zoological Gardens)

1. Animals--Physiology    2. Memory--Theory

Card 1/1

ALEKSANDROV, Vladimir Mikhaylovich. Prinimali uchastiye: KRYLOV, N.A.,  
kand. tekhn. nauk; CHERKASOV, V.N., inzh.; RUSAKOV, M.Ye., arkhitekt.;  
YAKKER, N.I., arkhitekt.; SATIN, M.S., kand. tekhn. nauk, nauchnyy red.;  
MAKSIMOV, K.G., red. izd-va; PUL'KINA, Ye.A., tekhn. red.

[Large silicate blocks made of quicklime] Krupnye silikatnye bloki  
na negashennoi izvesti; opyt Leningrada. Leningrad, Gos.izd-vo lit-  
ry po stroit., arkhitekt., i stroit.materialam, 1961. 103 p.  
(MIRA 14:11)

(Building blocks) (Sand-lime products)

ALEKSANDROV, V.M., inzh.

Technology of manufacturing large silica blocks. Sbor.nauch.trudov  
LISI no.24:136-152 :56. (MIRA 15:3)  
(Sand-lime blocks)

L 4043-66 EWT(d)/EWT(m)/ENP(w)/ENP(t)/ENP(k)/ENP(b)/T EM/JD/RM

ACCESSION NR: AP5021312

UR/0040/65/029/004/0782/0785

AUTHORS: Aleksandrov, V. M. (Rostov-na-Donu); Smetanin, B. I. (Rostov-na-Donu)

TITLE: Equilibrium fracture in a layer of small thickness

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 4, 1965, 782-785

TOPIC TAGS: laminated material, sandwich structure, material separation, material failure, crack propagation

ABSTRACT: The planar and axially symmetric problems on equilibrium fracture in a thin layer are studied. The layer is compressed between two smooth, stiff bases, and the fracture (symmetrical relative to the edge of the layer) is held open by forces applied to the layer's surface. The problem involves determining the fracture function  $\gamma(x)$  from the integral equation

$$\int_{-1}^1 \gamma(\xi) M\left(\frac{\xi-x}{h}\right) d\xi = -\frac{\pi h^2}{\Delta} q(x), \quad |x| \leq h, \quad \left(\Delta = \frac{E}{2(1-\sigma^2)}\right),$$

where  $2h$  is the thickness of the layer,  $q(x)$  is the normal force function,  $E$  and  $\sigma$  are elastic constants, and  $M$  is a function given by

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ACCESSION NR: AF5021312

$$u(t) = - \int_0^t u_1(s) \cos(\omega s) ds \left(1 - \frac{t-s}{T}\right), \quad L(u) = \frac{b^2 \omega + 2u}{b^2 \omega - 1}.$$

Combining the equations and integrating by parts yields the expression

$$\int_0^t r(s) \cos\left(\frac{t-s}{T}\right) ds = -\frac{b^2 \omega}{T} u(t),$$

from which one obtains the asymptotic solution

$$r(t) \sim -\left(\frac{b^2 \omega}{T}\right) u(t).$$

This solution is applicable for small values of the parameter  $\lambda = b/s$ . The parameter  $u(t)$  is found from the Wiener-Hopf equation (see 1, Noble, Method Vinera-Khopla, Izd. Inostr. Lit., 1962). Approximate forms of the functions  $u(t)$  and  $r(t)$  are developed, and the general form of the desired function  $\delta(x)$  is derived. The half-length of the fracture is found by a method proposed by G. I. Barenblatt (Matematicheskaya teoriya raznoyazhki trushchin, zhurnyushchikova pri krayem raznoyazhki, PIZ, 1961, No. 4.). The solution for a longitudinal fracture is followed by an analogous solution and discussion of the case of a fracture which is symmetric about a central axis. The parameter found in the latter case is the radius of the equilibrium fracture. Orig. art. has 27 equations.

L 4043-66

ACCESSION NR: AP5021312

ASSOCIATION: none

SUBMITTED: 18Mar65

ENCL: 00

SUB CODE: AS, MT

NO REF SOV: 006

OTHER: 001

Card 3/3 PP

ALEKSANDROV, V.M. (Rostov-na-Donu); BABESHKO, V.A. (Rostov-na-Donu)

Contact problems for an elastic strip of limited thickness. Izv.  
AN SSSR. Mekh. no.2:95-107 Mr-Ap '65. (MIRA 18:6)





ALEKSANDROV, V.M. (Rostov-na-Donu); VOROVICH, I.I. (Rostov-na-Donu)

Action of a stamp on an elastic layer of finite thickness. Prikl.  
mat. i mekh. 24 no. 2: 223-333 Mr-Apr '60. (MIRA 14:5)  
(Elasticity)

ALEKSANDROV, V.M. (Rostov-na-Donu)

Approximate solution to a certain type of integral equations.  
Prikl. mat. i mekh. 26 no.5:934-943 S-O '62. (MIRA 15:9)  
(Integral equations) (Elasticity)

ALEKSANDROV, V.M. (Rostov-na-Donu)

Axisymmetric contact problem for an elastic infinite cylinder.

Izv. AN SSSR. Otd. tekhn. nauk. Mekh. i mashinostr. no. 5:91-94 S-O '62.

(MIRA 15:10)

(Cylinders)

ALEKSANDROV, V.M. (Rostov-na-Donu)

Solution of certain contact problems in the theory of elasticity.  
Prikl. mat. i mekh. 27 no.5:970-972 S-0 '63. (MIRA 16:10)

ALEXANDROV, V.M. (Rostov-na-Donu)

Some contact problems for an elastic layer. Prikl. mat. i mekh. 27  
no.4:758-764, J1-A3 '63. (MIRA 16:9)  
(Elasticity)

ALEKSANDROV, V.M.; BABESHKO, V.A.; VOROVICH, I.I.; (Rostov-on-Don)

"Asymptotic method of solving contact problems for the layer of small thickness"

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

ACCESSION NR: AP4038577

S/0022/64/017/002/0003/0008

AUTHOR: Aleksandrov, V. M.

TITLE: Approximate solution of a class of integral equations

SOURCE: AN ArmSSR. Izv. Soriya fiziko-matematicheskikh nauk, v. 17, no. 2, 1964, 3-8

TOPIC TAGS: integral equation, approximate solution, stamp, elastic strip, elasticity, Chebyshev polynomial, algebraic equation

ABSTRACT: The author studies

$$-\int_{-1}^1 \varphi(\xi) \ln \frac{|x-\xi|}{\lambda} d\xi = \pi f(x) - \int_{-1}^1 \varphi(\xi) F\left(\frac{x-\xi}{\lambda}\right) d\xi, \quad |x| \leq 1, \quad (1)$$

where  $\lambda \in (0, \infty)$  is a parameter,  $F(k)$  is an even function

and  $F(k) \in H_p^{\alpha}\left(-\frac{2}{\lambda}, \frac{2}{\lambda}\right)$ ,  $\alpha > 0$ ,  $p \geq 2$

Card 1/3 2



ACCESSION NR: AP4038577

He seeks a solution of (1) in the form

$$\varphi(\xi) = \varphi_0(\xi) + \varphi_1(\xi), \quad (2)$$

where the function  $\varphi_0(\xi)$  is defined by

$$(3) \quad \int_{-1}^1 \varphi_0(\xi) \ln \frac{|x - \xi|}{\lambda} d\xi = \pi f(x) - F(0) \int_{-1}^1 \varphi_0(\xi) d\xi, \quad |x| \leq 1.$$

After a series of transformations, he represents the desired unknown as a series in Chebyshev polynomials whose coefficients satisfy an infinite system of algebraic equations. This system is solved by the method of reduction. The author applies his results to study the problem of the effect of a rigid stamp on an elastic strip lying without friction on a rigid base. Orig. art. has: 1 table and 23 formulas.

ASSOCIATION: Rostovskiy gosudarstvennyy universitet (Rostov State University)

Card 2/22

ALEKSANDROV, V.M.

Approximate solution of one class of integral equations.

Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 17 no.2:3-8 '64.

(MIRA 17:9)

1. Rostovskiy gosudarstvennyy universitet.

ALEKSANDROV, V.M. (Rostov-na-Donu)

Solution of a certain type of two-dimensional integral equations.  
Prikl. mat. i mekh. 28 no.3:579-581 My-Je'64 (MIRA 17:7)

ALEKSANDROV, V.M., VOROVICH, I.I. (Rostov-na-Donu)

Contact problems for a thin elastic layer. Prikl. mat.  
i mekh. 28 no.2:350-351 Mr-Apr '64. (MIRA 17:5)

L 37694-65 EWT(1)/EWA(h) Feb GG  
ACCESSION NR: AP5007831

S/0288/64/000/003/0018/0026

AUTHOR: Aleksandrov, V. M.; Nestorov, A. A.

TITLE: Synthesis of optimum rapid responses based on switching lines

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1964, 18-26

TOPIC TAGS: linear minimum response, signal shape, linear dynamic system, optimum process, switching line, measuring circuit, functional converter

ABSTRACT: Information measuring systems (K. B. Karandeyev, Vestn. AN SSSR, 1961; no. 10) represent complex devices, the dynamics of which are being studied actively. The process of measuring is a temporal one, and the reduction of the time necessary for the establishment of a reading is of considerable interest. One of the ways to cut down the duration of the transient process is to change the shape of the signal. The authors discuss the problem in detail for a system describable by a second order linear differential equation. Pontryagin and his pupils proved earlier (L. S. Pontryagin, et al., Matematicheskaya teoriya optimal'nykh protsessov, M. Fizmatgiz, 1961) that the best shaped signal  $u(t)$  entering the linear dynamic system and guaranteeing a minimum duration of the transients is the one

Cord 1/3

L 37684-65

ACCESSION NR: AP5007811

which consecutively takes one of the two values  $\pm y(t)$ . The switching instants  $t$  of the signal  $u(t)$  should be determined on the basis of the "principle of the maximum" and the determination of such instants lies at the heart of the problem of synthesis of  $u(t)$ . The greatest practical interest is in the synthesis of  $u(t)$  for linear systems with complex roots. Consequently, the authors solve the problem under the assumption found in the theory of optimum processes, that one may assume that  $|u(t)| \leq 1$ . They propose a method for the derivation of switching line equations (somewhat different from those published earlier; see e.g., E. B. Lee, IRE Transactions on Automatic Control, vol. AC-5, 4, 1960) and devices which would represent the control section of a second order, minimum response system with complex roots of the characteristic equation. The above-mentioned method, which presents the switching line in parametric form, is applicable not only during the transition to the coordinate origin, but during transitions to any accessible point within the phase space. In the case of real eigenvalues of the object matrix the calculations become significantly simplified. The simplest design of the controlling portion of the minimum response system during the passage to the fixed point may be achieved by means of a functional converter. Orig. art. has: 27 formulas and 4 figures.

Card 2/3

L 37684-65

ACCESSION NR: AP5007831

ASSOCIATION: Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR,  
Novosibirsk (Automation and electrometry institute, Siberian Department, AN SSSR)

SUBMITTED: 02Jan64

ENCL: 00

SUB CODE: EC, DP

NO REF SOV: 002

OTHER: 002

Card 3/3

L 31944-65 EWT(d)/EWP(1) Po-h/Pq-h/Pg-h/Pk-h/Pl-h IJP(c) BU

ACCESSION NR: AP5008322

S/0103/65/026/003/0492/0499

AUTHOR: Aleksandrov, V. M. (Moscow); Batkov, A. M. (Moscow); Staroverov, A. N. (Moscow); Shchukin, B. A. (Moscow) 42

TITLE: Investigation of the accuracy of nonlinear, nonstationary systems by means of the statistical linearization method

SOURCE: Avtomatika i telemekhanika, v. 26, no. 3, 1965, 492-499

TOPIC TAGS: automatic control, nonlinear, nonstationary control system, statistical linearization method

ABSTRACT: A study is made of a control system whose performance is described by the system of nonlinear differential equations written in normal vector form

$$\frac{dY(t)}{dt} = F(t, Y) + B(t)f(t), \quad (1)$$

$$Y(0) = C$$

where the components of the vector  $Y(t)$  represent processes at the output of the system, components of the vector  $f(t)$  represent independent random processes of white noise type at the input of the system,  $F(t, Y)$  is an inertia-free, nonlinear

Card 1/2



L 34944-65

ACCESSION NR: AP5008322

transformation vector,  $C$  is a vector of normally distributed initial conditions, and  $B(t)$  is an  $n \times n$  matrix of variable coefficients. To determine the accuracy of system (1), the variation in time of the mathematical expectation vector  $\bar{Y}(t)$  and the variance vector  $\Theta(t)$  of the vector random process  $Y(t)$  are sought. It is indicated that this problem has a simple solution when the transformation  $F(t, Y)$  is linear. System (1) is written for this case and a system of differential equations is derived from which  $\bar{Y}(t)$  and  $\Theta(t)$  can be solved. It is shown how, using the method of statistical linearization (approximation of the nonlinear transformation  $F(t, Y)$  by a certain form of linear transformation  $Z(t)$ ), system (1) can be reduced to the form derived for the linear case and how a system of nonlinear differential equations for direct determination of  $\bar{Y}(t)$  and  $\Theta(t)$  can be constructed which is amenable to solution on a digital computer. It is stressed that the method presented is more economical and has other advantages as compared with the methods presented by other authors. [LK]

ASSOCIATION: none

SUBMITTED: 20Mar64

ENCL: 00

SUE CODE: 1E, MA

NO REF SOV: 003

OTHER: 001

ATL PRESS: 3211

Card 2/2

L 32070-65 EWT(d)/EWP(1) Po-4/Pq-4/Pg-4/Pk-4/Pl-4 IJP(c) BC  
ACCESSION NR: AT4049340 S/3005/64/000/006/0025/0034

AUTHOR: Aleksandrov, V.M.

TITLE: The question of control by systems with variable parameters

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut avtomatiki i elektrometrii. Trudy, no. 6, 1964. Avtomaticheskoye upravleniye nepreryvnymi protsessami (Automatic control of continuous processes), 25-34

TOPIC TAGS: automatic control system, nonlinear control system, self adjusting control system, optimum control, variable parameter control system, control system stabilization

ABSTRACT: The author considers a control system with parameters variable with time under the influence of external disturbances and the demonstrates possibility of near-optimum control using nonlinear devices which cause discontinuous changes in system parameters in the transient operating regime, or control according to a signal or its derivative. In both cases, control without disturbing the quality of system stabilization is considered. The following systems are treated and pictured schematically: 1. a system with nonlinear (discontinuous) feedback; 2. the self-adjusting automatic control system of Flugge-Lotz and Taylor; 3. a combined control system with constant parameters; 4. a control system with variable parameters. It is concluded that analysis of control

Cord 1, 2

L 32070-65

ACCESSION NR: AT4049340

systems with objects having variable parameters indicates that the Flugge-Lotz control method is suitable for low-order systems and the method of G.M. Ostrovskiy for systems of any order. Concrete requirements applied to the object and the form of the differential equation describing the object determine the required control system. Orig. art. has: 5 figures and 18 formulas.

ASSOCIATION: Institut avtomatiki i elektrometrii, Sibirskoye otdeleniye AN SSSR  
(Automation and electrometry institute, Siberian division, AN SSSR)

SUBMITTED: 12Aug61

ENCL: 00

SUB CODE: IE, DP

NO REF SOV: 010

OTHER: 000

Card 2/2

L 28738-65 EWT(d)/EPF(n)-2/EWP(1) Po-4/Pq-4/Pg-4/Pu-4/Pk-4/Pl-4 IJP(c)  
WW/BC

ACCESSION NR: AT5003189

S/3005/64/000/008/0015/0027

AUTHOR: Aleksandrov, V.M.; Moryakin, B.A.

TITLE: System of optimum control for the case of complex eigen-values of the object matrix

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut avtomatiki i elektrometrii. Trudy, no. 8, 1984. Avtomaticheskoye upravleniye nepreyvnyimi protsessami (Automatic control of continuous processes), 15-27

TOPIC TAGS: automatic control, optimum control, time optimum control, optimum process, second order system, eigen value

ABSTRACT: A method is considered for constructing a time-optimum control system for an object whose motion is described by the linear differential second-order equation  $\ddot{x} = Ax + Bu$  for the case of real and complex eigen-values of matrix A. The case for complex eigen-values is illustrated in block form and the results of testing an optimum control system for a second-order object with one controlling influence is discussed. The transient processes in an object with and without optimum control and with the same starting conditions are compared. In conclusion, it is noted that the use of combined systems accomplishing optimum control with large deviations and ordinary control with

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L 28738-65

ACCESSION NR: AT5003189

large deviations and ordinary control with extreme feedback with small deviations makes it possible to increase control speed and noise stability substantially. Orig. art. has: 5 figures and 6 numbered formulas.

ASSOCIATION: Institut avtomatizatsii i elektrometrii, Sibirskoye otkloleniye AN SSSR  
(Automation and electrometrics Institute, Siberian division, AN SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: IE

NO REF SOV: 003

OTHER: 001

Card 2/2

L 16151-65 ENT(d)/ENT(v)/ENT(k)/ENT(h)/ENT(l) Pf-L/Pg-L/Pk-L/Pl-L/Po-L/Pq-L  
IJP(c) BG/GS

ACCESSION NR: A75009049

B/0000/64/001/000/0119/0123

AUTHOR: Aleksandrov, V. M. (Novosibirsk)

TITLE: Construction of self-adaptive systems on the basis of a nonstatistical analysis

SOURCE: Konferentsiya po avtomaticheskomu kontrolyu i metodam elektricheskikh izmereniy. 3d, Novosibirsk, 1961. Avtomaticheskii kontrol' i metody elektricheskikh izmereniy; trudy konferentsii, t. 1: Metody elektricheskikh izmereniy. Analiz i sintez sistem upravleniya i kontrolya. Elementy ustroystv avtomaticheskogo kontrolya (Automatic control and electrical measuring techniques; transactions of the conference, v. 1: Electrical measuring techniques. Analysis and synthesis of regulation and control systems. Elements of automatic control devices). Novosibirsk, Redizdat Sib. otd. AN SSSR, 1964, 119-123

TOPIC TAGS: automatic control, self adaptive system

ABSTRACT: The article considers a new method of controlling objects described by linear differential equations with variable coefficients. The method is applicable to the control of objects with both slowly varying and rapidly varying parameters, the time of variation of which is comparable with the time constant of the impulse

Card 1/2

L 46154-65

ACCESSION NR: AT5009049

0

transfer function. The gist of the control consists of applying to the object a control signal and a spectrum of its derivatives with variable coefficients, which are functions of the varying parameters of the object. The purpose of the control is to minimize the sum of the static and dynamic errors with simple physical realization. The method is based on determining the coefficients with an analyzer which solves a system of algebraic equations, which in turn are obtained by a successive and term by term integration of the main differential equation. A second-order equation is treated as an example. It is pointed out in conclusion that control by this method does not disturb the stability of the object and is advantageous for objects of low order with essentially variable parameters. Orig. art. has: 3 figures and 3 formulas.

ASSOCIATION: None

SUBMITTED: 13Apr64

ENCL: 00

SUB CODE: IE, DP

NR REF SOV: 003

(OTHER: 000

Card 2/2

ALEKSANDROV, V.M.; MATIYENKO, B.G.; NESTEROV, A.A.

Shortening the response time for linear measuring systems  
of  $n$ -th order. Izv. SO AN SSSR no.2. Ser. tekhn. nauk no.1:  
42-53 '64. (MIRA 17:8)

1. Institut avtomatiki i elektrometrii Sibirskogo otdeleniya  
AN SSSR, Novosibirsk.



ALEKSANDROV, V.M. (Novosibirsk); NESTEROV, A.A. (Novosibirsk)

Optimum processes in linear measuring systems. Avtometriia no.2:  
77-83 '65. (MIRA 18:9)

ALEKSANDROV, V.M. (Novosibirsk)

Choice of the parameters of measuring systems with optimal  
control. Avtometriya no.4:17-21 '65. (MIRA 18:9)

L 63255-65 EWT(d)/EPF(n)-2/EWP(v)/EWP(k)/EWP(h)/EWP(l) Fc-4/Fq-4/Pf-4/Pg-4/Par-2/  
Pu-4/Pk-4/Pl-4 IJP(c) WN/BC

ACCESSION NR: AP5012882

UR/0280/65/000/002/0123/0128

AUTHOR: Aleksandrov, V. M. (Moscow); Batkov, A. M. (Moscow);  
Staroverov, A. N. (Moscow); Shchukin, B. A. (Moscow)

TITLE: Determining the mathematical expectation and dispersion of the response of a multivariable nonlinear time-dependent system by computers

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1965, 123-128

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: The accuracy is considered of an automatic-control system describable by these normal differential equations:

$$\frac{dY}{dt} = F(t, Y) + B(t)f, \quad Y(0) = C, \quad (1.1)$$

where  $Y = (y_i)$  is the column vector (system output);  $F(t, Y) = (F_i(t, Y))$  is a vector nonlinear function;  $B(t) = (\beta_{ij})$  is a variable rectangular matrix  $(n \times m)$ ;  $f(t) = (f_j)$  is the column vector representing the disturbance (white noise with independent components);  $Y(0) = C$  is a random vector of initial conditions

Card 1/2

L 63255-65

ACCESSION NR: AP5012882

noncorrelated to the disturbance vector. A method is suggested for setting up nonlinear differential equations (2.17) whose solution gives a vector of mathematical expectation and a dispersion matrix of the output signal in time; the output process is assumed to be close to normal. The method is claimed to be simpler in computations than the methods of statistical linearization with successive approximations or canonical random functions. If the nonlinear system (1.1) contains only single-variable nonlinearities, the expectation-and-dispersion equations (2.17) can be integrated on an analog computer. Generally, the method requires the use of a digital computer. For stationary conditions, the right-hand member of (2.17) is equal to zero, and the problem is reduced to solving a set of nonlinear algebraic equations. Orig. art. has: 1 figure and 42 formulas.

ASSOCIATION: none

SUBMITTED: 13 Feb 64

ENCL: 00

SUB CODE: DP, IE

NO REF SOV: 003

OTHER: 002

  
Card 2/2

L 2177-66	EWI(d)/EPF(n)-2/EWP(v)/EWP(k)/EWP(h)/EWP(l)	IJP(c)	WW/SC
ACCESSION NR: AP5021071	UR/0288/65/000/002/0013/0021	62-50	48 46 B
AUTHOR: Aleksandrov, V. M.; Nesterov, A. A. 44			
TITLE: Optimum system with controlled structure			
SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 2, 1965, 13-21			
TOPIC TAGS: algorithm, optimal automatic control, optimal control, automatic control theory, control system stability 9,44 14			
ABSTRACT: The present paper establishes an algorithm of the simultaneous changes in the structure of a system and the parameters $u_i$ securing a minimum transient process time. It also investigates such newly discovered properties of these controlled systems as the possibility of control of unstable and previously uncontrollable systems, and the possible reduction in effects due to the spontaneous changes in system parameters equivalent to the adaptation effect. Test calculations leading to the above conclusions have been carried out on electronic computers. The new method outlined for the synthesis of optimum (in time) structure			
Card 1/2			

L 2177-66

ACCESSION NR: AP5021071

and  $u(u_1, \dots, u_r)$  control can also be extended to higher order systems without any new essential difficulties. Orig. art. has: 14 formulas and 4 figures. 2

ASSOCIATION: Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR, Novosibirsk (Institute of Automation and Electrometry, Siberian Branch, AN SSSR)

SUBMITTED: <sup>44</sup>13Jul64

ENCL: 00

SUB CODE: IE

NO REF SOV: 003

OTHER: 001

Card 2/2 dy

L 41163-66 ENT(d)/ENP(k)/ENP(h)/ENP(v)/ENP(1) BC

ACC NR: AP6015380

(N)

SOURCE CODE: UR/0410/65/000/004/0017/0021

AUTHOR: Aleksandrov, V. M. (Novosibirsk)

ORG: none

TITLE: Selecting the parameters of test systems with optimal control 14

SOURCE: Avtometriya, no. 4, 1965, 17-21

TOPIC TAGS: optimal automatic control, linear automatic control system

ABSTRACT: The author considers the problem of selecting a factor  $a$  as function of factor  $c$  for the second-order linear system  $\ddot{x} + a\dot{x} + cx = bu(t)$  with optimal control for  $u(t)$  (input signal increment), so as to ensure minimal time for the optimal transient process. A case is considered in which the point of representation of the phase state of a dynamic system moves from the origin of the coordinates to a point of static equilibrium. It is further assumed that the optimum transient response time is less than the periodicity of the piecewise-constant of the input signal  $y(t)$ . The problem is solved through the derivation of an equation to link the optimum transient time  $T$  with the factors of the differential equation, with subsequent differentiation for  $a$ . The method of conjoined phase coordinates is employed to find the expression which determines the optimum transient time  $T$ . Recommendations are given re-

Card 1/2

UDC: 62-505

L 38139-66 ENT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) BC

ACC NR: AP6015237

(N)

SOURCE CODE: UR/0410/65/000/002/0077/0083

AUTHOR: Aleksandrov, V. M. (Novosibirsk); Nesterov, A. A. (Novosibirsk)

31

ORG: none

TITLE: Optimal processes in linear measuring systems *qwl*

SOURCE: Avtometriya, no. 2, 1965, 77-83

TOPIC TAGS: time optimal control, measuring apparatus

ABSTRACT: Optimal high speed processes in linear measuring systems are examined on the basis of the control of the measuring device and the shape of the input variable. An algorithm for the transformation of the measured signal is developed and the variation of the logic of the measuring system in transient response is described mathematically. It appears that the switching moments of the controlling variables and the transient period do not depend on the value of the measured variable, thus facilitating a reasonably simple design solution. The static accuracy of the system and its dynamic indexes can be differentiated with the framework of the transient response. Orig. art. has: 4 figures, 10 formulas.

SUB CODE: <sup>14</sup>13,09/

SUBM DATE: 12Oct64/

ORIG REF: 004

UDC: 62-505

Card 1/1 *1111*



ACC NR: AP6024375

SOURCE CODE: UR/0280/66/000/002/0166/0172

AUTHOR: Aleksandrov, V. M. (Novosibirsk); Nesterov, A. A. (Novosibirsk)

ORG: none

TITLE: An optimal system with controlled feedback

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1966, 166-172

TOPIC TAGS: optimal control, differential equation, dynamic system, nonlinear automatic control

ABSTRACT: In optimal control theory the parameter  $U(u_1, \dots, u_r)$  on which is imposed the natural constraint

$$|u_i| \leq M,$$

is usually regarded as the controlling parameter in the synthesis of optimal control according to a given quality criterion  $Q$  for systems described in vector form by the differential equation

$$\frac{dX}{dt} = A(t)X + BU(t) \quad (1)$$

Card 1/2

ACC NR: AP6024375

where A and B are the matrices of the dimensions  $n \times n$  and  $n \times r$ , respectively. In this connection, the authors examine the problems of the synthesis of an optimally-rapid acting control with respect to both the parameters  $u_i$  and the coefficients  $a_{ij}(t)$  of the matrix  $A(t)$  for a second-order nonlinear dynamic system with two controlling parameters,  $u$  and  $\Delta a$  and one controlled coefficient  $a$  in the presence of the first derivative of the equation of motion, on the basis of the realization of switching lines on the phase plane  $x_1 x_2$ . The pattern of variation of the controlling parameter is determined with the aid of Pontryagin's maximum principle (Pontryagin, L. S., et al. Matematicheskaya teoriya optimal'nykh protsessov. Fizmatgiz, 1961). The time of the transient process is minimized. It is shown that the introduction of dual control reduces the time of the transient process, expands the zone of controllability and reduces the effect of spontaneous variations of the system's parameters on the pattern of the transient process. For a sufficiently high  $\Delta a$  and for  $c < 0$  the roots of the characteristic equation of the system always become real and negative, which simplifies the switching lines. Orig. art. has: 4 figures, 19 formulas.

SUB CODE: 12, 09/ SUBM DATE: 21May64/ ORIG REF: 006/OTH REF: 001

Card 2/2

ACC NR: AP6035648

SOURCE CODE: UR/0280/66/000/005/0124/0136

AUTHOR: Aleksandrov, V. M. (Moscow)

ORG: none

TITLE: The minimax approach to the solution of information handling problems

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 5, 1966, 124-136

TOPIC TAGS: signal noise separation, minimax, information processing, electronic countermeasure

ABSTRACT: The minimax approach to the solution of the problem of separating a useful signal from a white noise background is considered. The necessary and sufficient conditions for the minimax are derived on the basis of the Pontryagin maximum principle. It is shown that for this problem the minimax approach is equivalent to the maximum approach. An example is presented for the calculation of the minimax in the case when enemy countermeasures are being taken. The author's intent to publish this article originated as a result of his conversation with D. S. Irger who was responsible for formulating the problem and deriving the conditions of optimality for the case when the linear dynamic system is described by a single differential equation of order  $n$ . The author extends his gratitude to A. M. Batkov who made a series of valuable comments. Orig. art. has: 2 figures, 56 formulas.

SUB CODE: 17,09/ SUBM DATE: 15Jun65/ ORIG REF: 006

Card 1/1

ALEKSANDROV, Vladimir Nikolayevich; KULIKOV, Ivan Grigor'yevich;  
HARYSHKIN, A.A., nauchnyy red.; LITVAK, D.S., red.; TOKER, A.M.,  
tekh.red.

[Tinsmith] Slesar'-zhestianshohik. Moskva, Vses.uchebno-pedagog.  
izd-vo Proftekhizdat, 1960. 223 p.

(MIRA 14:3)

(Tinsmithing)

ALEKSANDROV, V.N.; GITIS, S.S.; GOLUBEV, G.S.; PANKOVA, N.A.

Studying the catalytic activity of the cobalt salts of aliphatic  
monobasic acids in the oxidation of p-xylene. Khim. prom. 41  
no.5:336-337 My '65. (MIRA 18:6)

ALEKSANDROV, V.N.; SLEPOV, Ye.M.

Occurrence of moose in the Northern Caucasus. Zool. zhur. 44  
no.6:952 '65. (MIRA 18:10)

1. Kavkazskiy gosudarstvennyy zapovednik i Krasnodarskaya gosudarstven-  
naya okhotnich'ya inspektsiya.

KOSTYKOV, Yu.V.; ALEKSANDROV, V.N., mayor, redaktor; KUZMIN, I.F.,  
~~tekhnicheskii redaktor~~

[Technology of communication] Tekhnika svyazi. Moskva, Voennoe  
izd-vo Voenного ministerstva SSSR, 1953. 335 p. [Microfilm]  
(Telecommunication) (MLRA 7:9)

ALEKSANDROV, V.N.; TIKHONOV, S.N., inzhener, podpolkovnik, redaktor;  
KALACHEV, S.G., tekhnicheskii redaktor.

[Telegraph] Telegraf. Moskva, Voen. izd-vo ministerstva oborony  
soiuza SSR, 1954. 131 p. (MLRA 7:8)  
(Telegraph)



ALEKSANDROV, V.N.; KUTYEV, F.S.

A mass flight of *Pyraus cardus* L. Priroda 46 no.7:126 J1 '57.  
(MIRA 10:8)

1. Kavkazskiy gosudarstvennyy zapovednik, Maykop. (for Aleksandrov)
2. Severo-Kavkazskaya lesnaya opytnaya stantsiya, Maykop (for Kutayev)  
(Krasnodar Territory--Butterflies)

ALEKSANDROV, V.N.

Squirrel in an artificial nest. Priroda 52 no.4:54 '63.  
(MIRA 16:4)

1. Kavkazskiy gosudarstvennyy zapovednik, Maykop.  
(Voronezh Preserve--Squirrels)

17(6)

SOV/177-58-9-27/51

AUTHOR: Aleksandrov, V.N., Senior Lieutenant of the Medical Corps

TITLE: From the Experience of Organizing Prophylactic Measures  
for the Reduction of Traumatism

PERIODICAL: Voenno-meditsinskiy zhurnal, 1958, Nr 9, p 78 (USSR)

ABSTRACT: The author reports on general prophylactic measures  
for reducing the accident rate, which were realized  
successfully in one of the building regions of the  
Northern fleet. Traumatism was reduced from 12  
to 5%.

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ALEKSANDROV, V.N.

Test tube for the determination of 17-oxycorticosteroids in blood  
plasma by Iudaev-Pankov's method. Lab. delo 6 no.4:57-58 J1-Ag '60.  
(MIRA 13:12)

(STERIODS)

(BIOLOGICAL APPARATUS AND SUPPLIES)

ALEKSANDROV, V.N.

Hydrostatic gauge with pneumatic long-distance stage transmission.  
Sbor. rab. po gidrol. no.2:25-28 '61. (MIRA 15:2)

1. Upravleniye gidrometeorologicheskoy sluzhby Latvyskoy SSR.  
(Stream measurements)

BOGATYREV, N.F., mashinist-instruktor; ALEKSANDROV, V.N., mashinist, deputat  
Ufimskogo gorsoveta

Need for an improvement of the design of N8 electric locomotives.  
Elek.i tepl.tiaga 6 no.1:43-44 Ja '62. (MIRA 15:1)

1. Depo Dema Kuybyshevskoy dorogi.  
(Electric locomotives--Design and construction)

ALEKSANDROV, V.N.

Review of N.N. Pushkina's book "Vitamins in the North".  
Vop. pit. 22 no.2:90-92 Mr-Ap '63. (MIRA 17:2)

ALEXANDROV, V.N. (Marmash)

Evaluation of the vitamin A content of the body by luminescent  
microscopy of liver sections. Vop. pit. 22 no.3:79-81 My-Je '63.  
(MIRA 07:6)



ALEKSANDROV, V.M.; MORYAKIN, B.A.

System of optimum control for a case of complex eigenvalues of  
the matrix of the plant. Trudy Inst. avtom. i elektrometr. SO  
AN SSSR no.8:15-27 '64. (MIRA 17:11)

L 00883-67 EWT(d)/EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/EM/GD

ACC NR: AT6020802

(N)

SOURCE CODE: UR/0000/65/000/000/0039/0045

AUTHOR: Aleksandrov, V. M. (Rostov na Donu)

39  
B+1

ORG: none

TITLE: On the theory of equilibrium fractures in an elastic layer

SOURCE: AN UkrSSR. Institut mekhaniki. Kontsentratsiya napryazheniy (Concentration of stresses) no. 1. Kiev, Naukova dumka, 1965, 39-45

TOPIC TAGS: elastic plate, integral equation, material fracture

ABSTRACT: The two- and three-dimensional problem of equilibrium fracture is considered in the half-space of a layer with thickness  $2h$ . The first analysis is concerned with an elastic strip such that the ratio  $\lambda = h/a$  is large. On the axis of symmetry  $y = 0$ , the boundary conditions are given by

$$\tau_{xy} = 0; v = 0 \text{ at } |x| > a; \sigma_y = q(x) \text{ at } |x| < a.$$

Three different boundary conditions are considered at the strip edges,  $y = \pm h$ :

1)  $\tau_{xy} = 0; v = 0$ ; 2)  $u = 0; v = 0$ ; 3)  $\tau_{xy} = 0; \sigma_y = 0$ . The method of operational calculus is used for all three cases to calculate the function  $\chi(x)$  in the integral equation

$$\int_{-a}^a \chi(\xi) M\left(\frac{\xi-x}{h}\right) d\xi = \frac{\pi h^3}{\Delta} q(x) \quad (|x| < a),$$

$$\Delta = \frac{E}{2(1-\nu^2)}.$$

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where  $E$  and  $\sigma$  are elastic constants and

$$M(t) = - \int_0^t u L(u) \cos(ut) du \quad \left(t = \frac{\xi - x}{h}\right).$$

A numerical example is given for the case where  $q(x) = q - Ax^2$ . A similar analysis is done with equilibrium fractures in elastic layers with the corresponding integral equation

$$\iint_{\Omega} \gamma(\xi, h) M\left(\frac{R}{h}\right) d\xi d\eta = \frac{2\pi h^3}{\Delta} q(x, y) \quad (x, y) \in \Omega,$$

where

$$M(t) = \int_0^t u^2 L(u) J_0(ut) du \quad \left(t = \frac{R}{h}\right),$$

and the following condition is satisfied on the counter  $L$  of the domain  $\Omega$

$$\gamma(x, y) = \frac{\partial}{\partial n} \gamma(x, y).$$

Orig. art. has: 40 equations.

SUB CODE: 20/ SUBM DATE: 110oct65/ ORIG REF: 005

BWM

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ALEKSANDROV, V.N.

Function of external respiration and the gas composition in the blood of patients with mitral stenosis in relation to the degree of pulmonary hypertension. Trudy 1-go MMI 33:236-241 '64.

Metabolic acidosis as a sequela of hyperventilation in controlled respiration in patients with mitral stenosis. Ibid.:242-248  
(MIRA 18:3)

L 14202-66 EWT(m)/BWP(j) RM

ACC NR: AP6002861

SOURCE CODE: UR/0286/65/000/024/0018/0019

INVENTOR: Gitis, S. S.; Aleksandrov, V. N.; Pugacheva, S. A.; Glaz, A. I.; Golubev, G. S.; Rad'ko, L. V.

ORG: none

TITLE: Preparative method for iso- and tere-phthaloyl chlorides. Class 12, No. 176884  
[announced by Novomoskovskiy Branch of the State Scientific Research and Design Institute of the Nitrogen Industry and Products of Organic Synthesis (Novomoskovskiy filial gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo institut azotnoy promyshlennosti i produktov organicheskogo sinteza)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 18-19

TOPIC TAGS: isophthaloyl chloride, terephthaloyl chloride

ABSTRACT: An Author Certificate has been issued for a preparative method for iso- and tere-phthaloyl chlorides. The method involves treatment of methyl m- or p-toluate, respectively, with dry chlorine at 190-200C under UV light, followed by treatment of the chloride product with water. [SM]

SUB CODE: 07/ SUBM DATE: 06Feb65/ ATD PRESS: 4/93

Card 1/1

UDC: 547.584'582.2.07

BAZHANOV, N.N.; ALEXANDROV, V.N.; AL'TOV, A.D.

Control of the adequacy of pulmonary ventilation in patients  
during maxillofacial surgery under intubation anesthesia.  
Trudy 1-go MMJ 44:23-28 '65. (MIRA 18:12)

ZOL'NIKOV, S.M.; ALEKSANDROV, V.N.; STEPAN'KOV, Yu.I.; TREKOVA, N.A.;  
PERSHIN, L.F.

Prophylaxis and therapy in hypoxic states developing during  
operations on the heart under anesthesia. Trudy 1-go MMI 33:  
403-408 '64. (MIRA 18:3)

SOV/24-58-6-16/35

AUTHORS: Aleksandrov, V.P. and Zolotykh, B.N. (Moscow)

TITLE: On the Selection of Optimum Regimes of Machining Heat Resistant Nickel Base Alloys by the Electro-Spark Method (O vybore optimal'nykh rezhimov pri obrabotke elektroiskrovym metodom zharoprochnykh splavov na nikel'evoy osnove)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 6, pp 99-100 (USSR)

ABSTRACT: Various authors have found (refs 1-3) that the main technological characteristics of the process of electric-spark treatment are determined by the characteristics of the pulse, namely, its duration and its energy. In this paper results are described of investigations of electric spark treatment of a widely used high temperature alloy, EI-437B, which were carried out at TsNIL-ELEKTROM AN, SSSR. The results obtained for other nickel base high temperature alloys were similar. It was found that if the energy reserve in the impulse is constant, the dependence of the magnitude of the erosion of the electrodes on the duration of the pulse has a maximum. Thus, for instance, for a pulse energy  $W_u = 0.5$  joules, the maximum erosion effect

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Nickel Base Alloys by the Electric-Spark Method

is obtained for a pulse duration of  $t_u=250 \mu s$ ; for a pulse energy of 4.5 joules the optimum duration is 600  $\mu s$ . Thus, for the range of pulse energies 0.5 to 4.5 joules the pulse durations for which the erosion effect is highest for the alloy EI-437B are 250 to 600  $\mu s$ . The problem of selecting optimum pulse durations in electric spark treatment cannot be solved without taking into consideration changes which take place in the surface layer, particularly in components of machines which operate under difficult load conditions and are exposed to the effects of aggressive media (especially combustion products). The metallographic investigation of the surface layer of the investigated alloy indicates that this layer has a dendritic structure which is characteristic for a metal produced from the liquid state (see photographs, Figs 1 and 2). Directly behind the layer of the metal with a dendritic structure, produced by fusion, there is a thermally influenced zone which manifests itself in the investigated alloy by

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 Nickel Base Alloys by the Electric Spark Method

intensive diffusion of the carbon from the medium and from the electrode material along the grain boundaries (Figs 1a, 1b and 2a) which brings about a drop in strength and in the anti-corrosion properties of the alloy; thereby the depth of diffusion in the individual cases is 1.5 to 2 times as large as the layer thickness. A further undesirable phenomenon occurs in the case of certain pulse durations namely, the appearance of micro-cracks in the surface layer emanating partly from the grain boundaries (Fig 2a). It was established that for a pulse energy reserve of  $W = 0.5$  joules, the depth of the fused layer is 4-10  $\mu$  for pulse durations of  $t_{\text{p}} = 130$   $\mu\text{sec}$  increasing to 70-90  $\mu$  for pulse durations of 1050  $\mu\text{sec}$ ; for a pulse energy reserve  $W_{\text{u}} = 4.5$  joules the depth of the fused layer is 5 to 20  $\mu$  for a pulse duration of  $t_{\text{p}} = 130$   $\mu\text{s}$ , increasing to 90-120  $\mu$  for  $t_{\text{p}} = 1050$   $\mu\text{sec}$ . Micro cracks and intensive diffusion along the grain boundaries occur for  $t_{\text{p}} = 300$   $\mu\text{s}$  and more. For pulse durations of 130 to 200  $\mu\text{sec}$ , micro cracks as well as

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diffusion phenomena cease (Figs 1b and 2b); thereby a fused layer with a dendritic structure will occur, the depth of which is 4 to 30  $\mu$  for pulse energy reserves of 0.5 to 4.5 joules. Thus, the duration of the pulse and the reserve of energy in the pulse determines the depth in the character of the changes which take place in the surface layer, whereby the duration of the pulse is of predominant importance. It is evident from the results that in selecting the optimum regimes for electric spark machining and treatment of nickel-base high temperature alloys, the pulse duration must be taken into consideration and this should not exceed 200  $\mu$ sec. Thereby, micro cracks in the surface layer, and diffusion along the grain boundaries can be avoided and if even a very

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small fused layer in the final component is undesirable,  
it is possible to reduce considerably the final  
allowance for machining of the component.

There are 2 figures and 3 Soviet references. (This is  
virtually a complete translation except for figure  
captions).

SUBMITTED: September 10, 1957

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