TOTH, Elek; ZUKANYI, Berta

Plum varieties suitable for preservation. Konzerv paprika no.3:
107 My-Je '63.

1. Kerteszeti es Szoleszeti Foiskola.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065610019-1"

COUNTRY : POLAND
CATEGORY : Zooparasitology - Mites and Insects - Vectors of Agents of Diseases
ABS. JOUR. : RZBiol., No.19 1958 No. 86345

AUTHOR : Zukasiak, J.
INST. :
TITLE : Data on the Fauna of the Blood-Sucking Mosquitoes in Lower Silesia

ORIG. PUB. : Wiadom. Parazytol., 1957, Vol.3, No.4, 419-420

ABSTRACT : In August 1956 in Shchavno-Zdru, near Ealbshikha, in the concrete basins in the resort park, larvae of 6 species of mosquitoes were discovered. The majority were of Anopheles bifurcatus and Aedes geniculatus; the others were the larvae of A. maculipennis, Ae. cataphylla, Culex torrentium, and C. apicalis. During this period the numbers of winged mosquitoes were negligible; in living quarters the females of Ae. geniculatus were encountered, as well as males and females of Ae. cataphylla and C. torrentium. Isolated mosquitoes were also found in the plant growth of the park. Swarming was noted among the female C. torrentium.

CARD: 1/2

ZUKALOVA, Vlasta

SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: /not given/

Affiliation: [illegible] Institute (Ustredni ustav geologicky), [illegible].

Source: [illegible], [illegible] Geologickeho, Vol XXXVI, No [illegible], [illegible], [illegible].

Data: "[illegible] of the [illegible] between the Middle and Upper Devonian Limestones of the Moravian Karst."

GPO 981643

ZUKAITE, E.

Some morphometrical characteristics of the Svogine Lake in various stages of its development. Liet ak darbai E no.2:181-194 '60.
(EEAI 10:1)

1. Lietuvos TSR Mokslu akademijos Zoologijos ir parazitologijos institutas.
(Lithuania--Lakes)

ZUKAUSKAS, Jurgis, dots., kand. med. nauk; VIKSRAITIS, Ceslovas, st. nauchn. sotr., kand. med. nauk; MIKUCIONIENE, B., red.

[Everyday and work hygiene for women] Moters buities ir darbo higiena; antrasis pataisytas ir papildytas leidimas. Vilnius, Leidykla "Mintis," 1965. 135 p. (MIRA 18:1)

S/253/62/000/002/001/001
1056/1256

AUTHOR: Žukas, Juozas

TITLE: Calculation of surfaces resting on elastic base by optical polarization methods

PERIODICAL: Mokslas ir technika, no. 2, 1962, 35-37

TEXT: Theoretical calculations of planes on elastic surfaces are complicated processes requiring much labor and a high degree of mathematical proficiency, but transparent isotropic materials under stress and illuminated by monochromatic isotropic materials under stress and illuminated by monochromatic light provide an experimental method to establish planar dimensions, utilizing the stress differences and curves of isoclinic and isostatic interpolations, as well as band interpolations of the surface in horizontal sections. A series of formulas and equations governing these relationships is provided. There are 5 figures.

Card 1/1

ZHYUGZHDA, I.I. [Ziugzda, J.]; MAKARYAVICHYUS, V.I. [Makarevicius, V.]; SHLANCHYAUSKAS, A.A. [Slanciauskas, A.]; AMBRAZYAVICHYUS, A.B. [Ambrazevicius, A.]; EYDUKYAVICHYUS, P.I. [Eidukevicius, P.]; ZHUKAUSKAS, A.A. [Zukauskas, A.]

Speed and temperature distribution in the turbulent boundary layer on a plate. Trudy AN Lit. SSR Ser. B no.3:99-105 '63. (MIRA 18:3)

1. Institut energetiki i elektrotekhniki AN Litovskoy SSR.

SHLANCHYAUSKAS, A.A. [Slanciauskas, A.]; ZHUKAUSKAS, A.A. [Zukauskas, A.]

Experimental study of heat transfer and motion rate in the trace of a plate. Trudy AN Lit. SSR. Ser.B no.1:133-136 '65. (MIRA 18:7)

1. Institut energetiki i elektrotekhniki AN Litovskoy SSR.

MAKARYAVICHYUS, V.I. [Makarevicius, V.]; ZHUKAUSKAS, A.A. [Zukauskas, A.]

Potential velocity distribution in a transverse hydrodynamic flow past a single row of cylinders. Trudy AN Lit. SSR Ser. B no.3:183-190 '62. (MIRA 18:3)

1. Institut energetiki i elektroniki AN Litovskoy SSR.

MAKARYAVICHYUS, V.I. [Makarevicius, V.]; ZHYUGZHDA, I.I. [Ziugzda, J.]; AMBRAZYAVICHYUS, A.B. [Ambrazevicius, A.]; EYDUKYAVICHYUS, P.I. [Eidukevicius, P.]; ZHUKAUSKAS, A.A. [Zukauskas, A.]

Speed distribution in the isothermal boundary layer on a plate. Trudy AN Lit. SSR Ser. B no.3:91-97 '63.

(MIRA 18:3)

1. Institut energetiki i elektrotekhniki AN Litovskoy SSR.

ZHUKAUSKAS, A.A. [Zukauskas, A.]; SHLANCHYAUSKAS, A.A. [Blanciauskas, A.]

Calculating a turbulent boundary layer taking into consideration the variability of physical parameters of a fluid. Trudy AN Lit. SSR Ser. B no.3:107-112 '63.

(MIRA 18:3)

1. Institut' energetiki i elektrotekhniki AN Litovskoy SSR.

SOV/128-59-3-26/31

18(5), 25(5)

AUTHOR: Zukerman, S.I., Engineer

TITLE: Mixing Method for the Production of the Malleable Cast Iron

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 3, p 47 (USSR)

ABSTRACT: The production of malleable cast iron in foundries with conveyor belt systems is always difficult, as it is necessary to interrupt the work when adding sulphuric type castings. (This is true for methods using the cupola furnace or the electric furnace). At the electro- mechanical plant at Khar'kov ("KHEMZ"), at which 6 to 7 tons of malleable cast iron are needed per month a casting method has been started in which the liquid cast iron is mixed with steel at a rate 3 to 2. The cast iron thus produced has the following contents: 2,0 to 2,2% of C, 1,3 to 1,7% of Si, 0,4 to 0,5% of Mn. In this manner the cast iron is changed into white heart malleable cast iron. The mixing is done in the pouring ladle. Despite the smallness of the capacity of the production, the plant KHEMZ achieved an annual

Card 1/2

SOV/128-59-3-26/31

Mixing Method for the Production of the Malleable Cast Iron

saving of 15.000 Rubles (a saving of electric current valued at 60 to 65 Rubles per ton, and a saving of a man power valued at 25 Rubles per ton). The good mechanical properties of the white heart malleable cast iron make it suitable for a row of casting shapes otherwise to be made from steel.

Card 2/2

ZUKERMAN, V. A.

please see TSUKERMAN, V. A.

RUMANIA/Human and Animal Physiology (Normal and Pathological) T
Nervous System. Metabolism.

Abs Jour : Ref Zhur Biol., No 6, 1959, 26960

Author : Zukermann, E.
Inst : -
Title : On the Study of Acetylcholine Metabolism in the Brain. VII. Acetylcholine Metabolism in the Focus of Convulsive Seizure Induced by Direct Stimulation of Cerebral Cortex

Orig Pub : Studii si cercetari neurol. Acad. RPR. Inst. neurol., 1957, 2, No 1, 135-140

Abstract : In 22, cats convulsive seizure was induced by applying focal electrical stimulation on the region of the motor analyser. Cholinergic metabolism in the focus of stimulation was characterized by the ratio of protein-bound acetylcholine to the free exceeding 1 during the whole duration of the seizure. After general action of current on the brain (electroshock), the acetylcholine metabolism

Card 1/2

RUMANIA/Human and Animal Physiology (Normal and Pathological) T
Nervous System. Metabolism.

Abs Jour : Ref Zhur Biol., No 6, 1959, 26960

is characterized by wave-like oscillations (phases of stimulation and inhibition). -- K.S. Ratner

Card 2/2

USSR/Medicine - Virus Diseases Nov/Dec 51

"The Effect of Vagotropic Substances on Functions of the Liver (Problem of the Effect of the Nervous System on the Liver," O. Ye. Zukershteyn, Naval Med Acad

"Terap Arkhiv" Vol XXIII, No 6, pp 43-55

In cases of Botkin's disease (acute infectious hepatitis), atropinization brings about reduction of alimentary hyperglycemia and galactosuria after satn with galactose. Effects of carbocholine are exactly opposite. In Botkin's disease there is vegetative dystonia

198T62

USSR/Medicine - Virus Diseases (Contd) Nov/Dec 51

with predominance of the parasympathetic tonus. This may be a factor which brings about disturbance of liver functions. Treatment with atropine is not merely symptomatic, but represents a method of pathogenetic therapy.

198T62

ZUKERWANIK, I. P.

"Alkylation of Aromatic Compounds with Alcohols in the Presence of Anhydrous Ferric Chloride." Nazarova, Z. N. and Zukerwanik, I/ P. (p. 77)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1944, Volume 14, no. 1-2.

ZUKERVANIK, I. P.

"On the Mechanism of Alkylation Reaction under the Influence of Anhydrous Ferric-Chloride." Nazarova, Z. N., and Zukervanik, I. P. (p. 236)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1944, Volume 14, no. 3.

ZUKERVANIK, I. P.

"On the Condensation of Alcohols with Aromatic Compounds in the Presence of Aluminium Chloride. XI. On the Mechanism of Alkylation of Aromatic Hydrocarbons by Alcohols."
Zukervanik, I. P. (p. 635)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1945, Volume 15, no. 7-8.

ZUKHANOVA, E. A.

E. A. Zukhanova, "Synthesis of Hydraulic Designs for a Specified Motion Law for Piston Slowdown."

paper presented at the 2nd All-Union Conf. on Fundamental Problems in the Theory of Machines and Mechanisms, Moscow, USSR, 24-28 March 1958.

KREINDLER, A., academician,; ZUKERMANN, E.

Study of the functional structure of the motor analyser centers. Bul. stiint., sect. med. 7 no.2:367-393 Apr-June 55

(LEARNING
conditioned motor reflexes in dogs, develop. & extinction processes)
(REFLEXES, CONDITIONED
motor, develop. & extinction processes, in dogs)

ZAVALOVA, N.D. (Moskva); ZUKHAR', V.P. (Moskva); PETROV, Yu.A. (Moskva)

On the problem of hypnopedia. Vop. psikhol. 10 no.2:98-102 Mr-Ap '64. (MIRA 17:9)

ZUKHAR', V.P.

ZUKHAR', V.P.

Changes in cortical dynamics during hypnotic sleep; according to data from research on vascular reactions. Zhur.nevr. i psikh. Supplement:55-56 '57. (MIRA 11:1)

1. Kafedra psikhiatrii (zav. - prof. A.S.Chistovich) Voyenno-morskoy meditsinskoy akademii.
(HYPNOTISM) (BLOOD VESSELS) (CEREBRAL CORTEX)

ZUKHAR', V.P. (Moskva); KAPLAN, Ye.Ya. (Moskva); MAKSIMOV, Yu.A. (Moskva); PUSHKINA, I.P. (Moskva)

Experiment in collective hypnopedia. Vop. psikhol. 11 no.1:143-148 Ja-F '65. (MIRA 18:4)

ZUKHAR', V.P.

Mental disorders related to odontogenic infection. Vop.psikh.i nevr. no.7:182-188 '61. (MIRA 15:8)
(PSYCHOSES) (FOCAL INFECTION) (TEETH--DISEASES)

ACC NR: AT6036567 SOURCE CODE: UR/0000/66/000/000/0178/0179

AUTHOR: Zukhbaya, T. M.; Kalandarova, M. P.; Markelov, B. A.; Popova, N. A.; Sizan, Ye. P.; Khakhanova, N. L.

ORG: none

TITLE: The biological effect of 12 exposures to gamma irradiation on white mice [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 178-179

TOPIC TAGS: ionizing radiation biologic effect, central nervous system, radiation sickness, mouse, radiation tolerance

ABSTRACT: Literature studies dealing with the effect of fractionated irradiation on injury and recovery processes in the animal organism have produced widely varying results. Furthermore, little data is available on the effect of repeated irradiation with small doses in the course of a year. In this series of experiments, 430 white mice were subjected to repeated monthly gamma irradiation on a GOP-1 installation in a dose of 12.5 r (dose power 17 μr/sec) with a total dose of 150 r/yr.

Card 1/2

ACC NR: AT6036567

A definite reaction of the hematopoietic system to irradiation was established. The most pronounced changes were observed in the white blood cell component. Study of the mitotic activity of corneal epithelium in experimental mice also showed a measurable reaction of the organism to irradiation. Chain motor conditioned reflexes in different periods after repeated irradiation indicate the sufficient compensation of radiation injuries in the central nervous system. Data from these experiments and results of statistical analysis indicate the existence of a definite reaction of white mice to twelve monthly gamma irradiations in the indicated dose. However, study of the dynamics of injury in a number of systems makes it seem possible that sufficiently complete recovery of the observed changes occurs owing to the compensatory mechanisms of the organism. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

ZUKHBAYA, V. A.

"Geology and Petrography of the Baryte Bearing Region in Southeastern Abkhaziya." Cand Geol-Min Sci, Inst of Geology and Mineralogy, Acad Sci Georgian SSR, Tbilisi 1953. (RZhGeol, Sep 54)

SO: Sum 432, 29 Mar 55

ZUKHER, M.S., inzh.; RUDOY, B.L., inzh.

"Glakrezit", a decorative fiber glass. Stroi. mat. 10 no.9:
7 S '64 (MIRA 18:2)

YEVDOKIMOV, O.I. [IEvodokymov, O.I.], kand.med.nauk; ZUKHER, V.Ya., kand. med.nauk; BREGMAN, Ye.L., ordinator; STARIKOVSKAYA, E.L. [Starykovs'ka, IE.L.], ordinator

Use of lydase for hastening the opening of the cervix uteri and weakening the pelvic fundus to prevent cranial injury to the fetus and the newborn. Ped., akush. i gin. 22 no.4:57-59 '60. (MIRA 14:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut okhrany materinstva i detstva im. Geroya Sovetskogo Soyuza prof. P.M.Buyka (direktor - kand.med.nauk O.G.Pap [Pap, O.H.], nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR, prof. A.P.Nikolayev.
(HYALURONIDASE) (LABOR (OBSTETRICS))

ZUKHOV, V.K., inzh. (Chelyabinsk)

Efficient devices for repairing pipe-laying machinery. Stroi. truboprov. 7 no.11:19-20 N '62. (MIRA 15:12)

(Pipe-laying machinery—Maintenance and repair)

ZUKHOVICH, N., inzh.

Self-ignition of leatherette, "granitol," and "lederin." (MIRA 12:12)
Pozh.delo 5 no.8:7-8 Ag '59.
(Leather substitutes)

SOLOV'YEV, M., ZUKHOVITSKIY, M.; NIKIFOROV, Yu., aspirant

Large panels made of foamed polystyrene. Na stroi.Ros. no.4:26-27 Ap '61. (MIRA 14:6)

1. Leningradskiy nauchno-issledovatel'skiy institut polimerizatsionnykh plastmass (for Solov'yev). Nachal'nik laboratorii Domostroitel'nogo kombinata No.1 Glavleningradstroya (for Zukhovitskiy). 3. Leningradskiy inzhenerno-stroitel'nyy institut (for Nikiforov).

(Plastics)

ZUKHOVITSKIY M S

ZHUKHOVITSKIY, M.S., doktor med.nauk (Yevpatoriya, ul. Lenina, d.15)

Osteoplastic reconstruction of the fornix acetabuli. Vest.khir. 79 no.12:113-116 D '57. (MIRA 11:1)

1. Iz kliniki kostnogo tuberkuleza (zav. - doktor med.nauk M.S. Zhukhovitskiy) Yevpatoriyskogo instituta klimatologii klimatoterapii tuberkuleza im. I.M.Sechenova.

(ACETABULUM, surg.
fornix acetabuli reconstruction, technic)

NIKIFOROV, Yuriy Yefimovich, inzh.; SOLOV'YEV, Mikhail Ivanovich; ZUKHOVITS-KIY, Moisey Yefimovich; KOMAROVSKIY, M.F., red.; GVIRTS, V.L., red. izd-va

[Using foamed polystyrene to insulate exterior wall panels] Opyt primeneniia penopolistirola v kachestve uteplitelia naruzhnykh stenovykh panelei. Leningrad, 1961. 14 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennost', no.9) (MIRA 14:7)
(Insulation (Heat)) (Concrete walls) (Styrene)

ZUKHOVITS'KIY, S.I., dotsent.
[redacted]

Some problems of approximation theory. Nauk.zap.Kiev.un. 7 no.4:169-183 '48. (MLRA 10:5)
(Approximate computation)

ZUKHOVITSKIY, S. I.

USSR/Mathematics - Approximation 1 Aug 51

"Algorithm for Solving Chebyshev's Approximation Problem in the Case of a Finite System of Non-Simultaneous Linear Equations," S. I. Zukhovitskiy, Kiev State Pedagogic Inst imeni A. M. Gor'kiy

"Dok Ak Nauk SSSR" Vol LXXIX, No 4, pp 561-564

Proposed algorithm represents an adaptation of the method of steepest descent to subject problem. Submitted by Acad S. N. Bernshteyn 7 Jun 51.

211T68

Mathematical Reviews
Vol. 15 No. 4
Apr. 1954
Numerical and Graphical Methods

9-24-54
LL

Zuhovickiĭ, S. I. On best approximation in the sense of P. L. Čebyšev of a finite system of incompatible linear equations. Mat. Sbornik N.S. 33(75), 327–342 (1953). (Russian)

Let there be given a set of m equations in n unknowns, $Ax=b$, where A is an $m\times n$ matrix, $m>n$, b is an m-vector and x is an n-vector. The problem is to find an x for which the residual m-vector $r=Ax-b$ has the least possible value for its longest component. Though the idea is simple, it does not lend itself readily to calculation. The purpose of the paper is to present an algorithm for the actual numerical evaluation of the vector x. Two cases are considered, first that in which the condition of Haar is satisfied, namely where all n-rowed determinants in A are non-zero, and second, where this condition is not fulfilled. The author devises computational procedures for each case and illustrates each with a numerical example.

W. E. Milne.

ZUKHOVITSKIY, S.I.

SUBJECT USSR/MATHEMATICS/ Functional analysis CARD 1/1 PG - 8
AUTHOR ZUCHOVICKIJ S.I.
TITLE On the problem of the Čebyšev's approximation in the Hilbert space.
PERIODICAL Dopovidi Akad. Nauk ukrain RSR No. 1, 7-11(1955)
reviewed 5/1956

On the compactum Q let be given n operator functions $F_1(q), F_2(q), \dots, F_n(q)$ which depend uniformly continuous on the parameter $q \in Q$ and the values of which are linear continuous operators for every $q \in Q$ which act in the Hilbert space H. Furthermore let be given the continuous vector function $\phi(q)$ with values in H. The problem of Čebyšev's approximation of the vector function $\phi(q)$ by the polynomial $\sum_{k=1}^{n} F_k(q)A_k$ $(A_k \in H)$ consists in finding such vectors A_k^0 that the deviation

$$\max_{q \in Q} \left\| \sum F_k(q)A_k - \phi(q) \right\|$$

becomes least.- In the present paper the case n = 1 is investigated, the existence theorem is established and generalizations of the theorems of A.N.Kolmogorov and A.Haar are given.

ZUKHOVITSKIY, S.I.

CARD 1/1 PG - 469

SUBJECT USSR/MATHEMATICS/Functional analysis
AUTHOR ZUCHOVIČKIJ S.I.
TITLE On approximations of real functions according to Čebyšev.
PERIODICAL Uspechi mat. Nauk 11, 2, 125-159 (1956)
reviewed 12/1956

Joining a former idea of Krejn, the author combines the classical theory of Čebyšev approximations with a problem of the moment theory. At first the author establishes some theorems on linear functionals which in given n points of certain linear normalized spaces assume given values and here possess a minimal norm. Starting from this, the author proves the existence theorem of the Čebyšev approximation on an arbitrary compactum and a theorem on the connection between the Čebyšev approximations on the whole compactum and on a certain subset of it which consists of not more than n+1 points. By this it is possible to prove the generalized theorem of Čebyšev, the theorem of Haar, ect..

ZUKHOVITSKIY, S.I.; STECHKIN, S.B.

Approximation of abstract functions with values in banach space. Dokl.AN SSSR 106 no.5:773-776 F '56. (MLRA 9:7)

1. Lutskiy pedagogicheskiy institut imeni Lesi Ukrainki i Matematicheskiy institut imeni V.A.Steklova Akademii nauk SSSR. Predstavleno akademikom N.N.Bogolyubovym.

(Functions) (Spaces, Generalized)

ZUKHOVITSKIY, S.I.

CARD 1/2

SUBJECT USSR/MATHEMATICS/Functional analysis

AUTHOR ZUCHOVIČKIJ S.I.

TITLE On a minimal problem in the space of continuous functions.

PERIODICAL Doklady Akad. Nauk 108, 383-384 (1956)

reviewed 12/1956

Let E be a linear normalized space; $G \subset E$. As is well-known, then each linear, continuous functional defined on G possesses a minimal extension in E. But this must not be unique. The author investigates the corresponding situation for the space $C(a,b)$ of the functions $x(t)$ being continuous and real in the interval $[a,b]$ with the norm $\|x\| = \max_{a \le t \le b} |x(t)|$. Three theorems are formulated without proof:

1. Let the linear continuous functional $\varphi(x)$ be defined in the subspace $G \subset C(a,b)$ and possess a maximal element $X(t) \in G$, i.e. $\|X\| = 1$ and $\varphi(X) = \|\varphi\|$.

Then the kernels $g(t)$ of all its minimal extensions $f(x) = \int_a^b x(t)dg(t)$ have the same structure. Here the same structure means: all $g(t)$ are constant on the same intervals of $[a,b]$ where $|X(t)| < 1$, they are not decreasing in every poi of the same closed set $F^+ \subset [a,b]$, where $X(t) = +1$, and they are not increasi in every point of the same closed set $F^- \subset [a,b]$, where $X(t) = -1$.

Let the maximal element $X(t)$ of $\varphi(x)$ have the property that the equation

$|X(t)| = 1$ holds only for a finite number of points $t_1, t_2, \ldots t_m$ of $[a,b]$. Then all kernels $g(t)$ of the minimal extensions of $\varphi(x)$ are step functions, where the jumps are at most in the points t_i $(i=1,\ldots,m)$.

3. In order that the linear continuous functional $f(x) = \int_a^b x(t)dg(t)$ defined in $C(a,b)$ possesses a maximal element $X(t)$ in this space, it is necessary and sufficient that a) in every point of $[a,b]$ the function $g(t)$ either increases only, or decreases only, or is constant; b) the sets of those points in which $g(t)$ increases or decreases are closed (their intersection obviously is empty).

INSTITUTION: Educational Institute, Luzk.

ZUKHOVITS'KIY, S.I.

On a minimum problem in certain spaces of number sequences. [with summary in English]. Dop. AN URSR no.1:3-7 '57. (MIRA 10:4)

1. Luts'kiy pedagogichniy institut. Predstaviv akademik M. M. Bogolyubov.
(Spaces, Generalized) (Functions)

ZUKHOVITSKIY, S.I.

SUBJECT USSR/MATHEMATICS/Theory of approximations CARD 1/1 PG - 756
AUTHOR SUCHOWIZKIJ S.I., STEČKIN S.B.
TITLE On the approximation of abstract functions.
PERIODICAL Uspechi mat.Nauk 12, 1, 187-191 (1957)
reviewed 5/1957

The present paper contains a survey of several generalizations of the classical Čebyšev approximation by polynomials of a function which is given on a compactum Q. These generalizations have been found by Kolmogorov and the authors. For the case of some infinite-dimensional abstract spaces and in spaces of finite dimension the existence, uniqueness and conditions of such approximations are considered.

AUTHOR ZUKHOVITSKIY S.I., 38-3-6/7

TITLE On the Minimum Extensions of Linear Functionals in the Space of the Steady Functions.
(O minimal'nykh rasshireniyakh lineynykh funktsionalov v prostranstve nepreryvnykh funktsiy-Russian)

PERIODICAL Izvestiia Akad.Nauk SSSR,Ser.Mat.,1957,Vol 21,Nr 3,pp 409-422 (U.S.S.R.)

ABSTRACT The present paper describes the general properties of all minimum extensions of linear functionals in the spaces of the steady, real and complex functions. At first the case of the complex space C(a,b) is dealt with. The elements of the space C(a,b) are complex functions x(t) (which are steady on the segment [a,b] with the norm $\|x\| = \max_{a \leq t \leq b} |x(t)|$. The linear functional in this space has the general form shape $f(x) = \int_a^b x(t)dg(t)$. For this case two theorems are given and proved. The second chapter deals with the case of the real space $C_r(a,b)$; its elements are real; steady functions on the segment [a,b] . Naturally all theorems of the previous chapter apply also in this case, but they may be increased and formulated more distinctly in the space of the real functions. These theorems are given here and the proofs are followed step by step. The last chapter deals with the case of the space C(Q); its elements are on the compact Q complex, steady functions with the norm $\|x\| = \max_{q \in Q} |x(q)|$. In this space the linear functional has the

Card 1/2

On the Minimum Extensions of Linear Functionals in the Space of the Steady Functions. 38-3-6/7

general shape $f(x) = \int_Q x(q)d\Psi$, where $\Psi(E)$ denotes a finite, totally additive function on the body of the BOREL quantities $B(Q)$. The theorems of the first chapter may also be applied to this case. The case of the space $C_r(Q)$, the elements of which are real, functions $x(q)$, which are steady on Q, is specially dealt with here. The corresponding theorems are given and proved. (No illustrations).

ASSOCIATION Not Given.
PRESENTED BY BOGOLYUBOV N.N., Member of the Academy
SUBMITTED 25.9.1956
AVAILABLE Library of Congress.
Card 2/2

ZUKHOVITSKIY, Semen Izrailevich; AVDEYEVA, Ligiya Igorevna; RADCHIK, I.A., red.

[Linear and convex programming; a reference manual] Lineinoe i vypukloe programmirovanie; spravochnoe rukovodstvo. Moskva, Nauka, 1964. 348 p. (MIRA 17:11)

L 00536-66 EWT(d)/T IJP(c)
ACCESSION NR: AP5023910 UR/0020/64/159/004/0726/0729

AUTHOR: Zukhovitskiy, S. I.; Polyak, R. A.

TITLE: Algorithm for the solution of the problem of a rational chebushev approximation

SOURCE: AN SSSR. Doklady. v. 159, no. 4, 1964, 726-729

TOPIC TAGS: algorithm, approximation, function

ABSTRACT: The article concerns the solution of the problem

$$R_l(x;y) \equiv \frac{a_l^T x}{b_l^T y} + \gamma_l \equiv \frac{\alpha_{l1}x_1 + \ldots + \alpha_{ln}x_n}{\beta_{l1}y_1 + \ldots + \beta_{lm}y_m} + \gamma_l, \quad l \in I = (1, \ldots, 2p), \quad (1)$$

where space Ω containing interior points is defined by

$$\varphi_j(x;y) \equiv \varphi_j(x_1, \ldots, x_n; y_1, \ldots, y_m) \leqslant 0, \quad j \in J = (1, \ldots, q). \quad (2)$$

It is assumed that in system $(2)_1$ where the functions $\varphi(x,y)$ are convex and smooth,

$$b_l^T y > \tau > 0, \quad l \in I; \quad |y_i| - 1 \leqslant 0, \quad i \in I_1 = (1, \ldots, m).$$

The problem is solved by finding a point of system (1) $(x^*; y^*) \in \Omega$ such that

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L 00536-66

ACCESSION NR: AP5023910

$$\max_{i \in I} R_i(x^*; y^*) = \min_{(x, y) \in \Omega} \max_{i \in I} R_i(x; y).$$

The second algorithm, unlike the first, depends on the direction of descent, instead of striving to obtain a maximum decrease of the function, max R_i (x, y), which at some steps is a maximum distance away from the boundary of Ω.

Subsequently a minimization problem is solved with certain constraints.

Orig. art. has: 11 formulas.

ASSOCIATION: Kievskiy gosudarstvennyy pedagogicheskiy institut im. A. M. Gor'kogo (Kiev State Pedagogical Institute); Ukrainskiy dorozhno-transportnyy nauchno-issledovatel'skiy institut (Ukrainian Highway Transportation Scientific Research Institute)

SUBMITTED: 18Apr64 ENCL: 00 SUB CODE: MA

NR REF SOV: 003 OTHER: 002 JPRS

Card 2/2

L 01472-66 EWT(d)/T/EWP(l) IJP(c)

UR/0020/65/163/002/0282/0284

ACCESSION NR: AP5018737

AUTHOR: Zukhovitskiy, S. I.; Polyak, R. A.; Primak, M. Ye.

TITLE: A numerical method for the solution of a problem of convex programming in Hilbert space

SOURCE: AN SSSR. Doklady, v. 163, no. 2, 1965, 282-284

TOPIC TAGS: programming, control theory, Hilbert space, numerical method

ABSTRACT: In a Hilbert space H given the convex functional $f_0(x)$ in a bounded region defined by the inequalities

$$f_j(x) \leqslant 0, \quad j \in J = (1, \ldots; p),$$

the problem is to minimize $f_0(x)$. To solve this problem, an algorithm of steepest descent is constructed in which the direction of descent is found at each step by a quadratic programming in a finite-measure space. A proof for the convergence of the algorithm is sketched out. Orig. art. has: 18 formulas.

ASSOCIATION: Kievskiy gosudarstvennyy pedagogicheskiy institut im. A. M. Gor'kogo,

Card 1/2

L 01472-66

ACCESSION NR: AP5018737

Ukrainskiy dorozhno-transportnyy nauchno-issledovatel'skiy institut (Kiev State Pegagogical Institute, Ukrainian Scientific Research Institute of Roads and Transportation) 44,55 44,55

SUBMITTED: 28Dec64 ENCL: 00 SUB CODE: MA, DP

NO REF SOV: 004 OTHER: 001

Card 2/2

ZUKHOVITSKIY, Semen Izrailevich; RADCHIK, Irina Abramovich;
KHATSET, B.I., red.

[Mathematical methods of network planning] Matematicheskie metody setevogo planirovaniia. Moskva, Nauka, 1965. 296 p. (MIRA 18:11)

ACC NR: AR6028107 SOURCE CODE: UR/0372/66/000/005/V038/V038

AUTHOR: Zukhovitskiy, S. I.

TITLE: Algorithms for solving some problems of the nonlinear Chebyshev approximation and nonlinear programming

SOURCE: Ref. zh. Kibernetika, Abs. 5V250

REF SOURCE: Sb. Issled. po sovrem. probl. konstruktivn. teorii funktsiy. Baku, AN AzerbSSR, 1965, 9-17

TOPIC TAGS: algorithm, algorithmic language, nonlinear programming

ABSTRACT: A series of algorithms have been already developed for solving the basic problems of the linear Chebyshev approximation and linear programming. At present, however, some nonlinear problems, whose solution requires complex algorithms, are of special interest. The simplest among them are the problems of convex nonlinear programming in which local extrema are absent so that different variations of the method of descent may be used to find the absolute extremum. Several algorithms are presented for solving a series of nonlinear problems linked together by the numerical methods of linear programming. [Translation of author's introduction] Bibliography of 16 titles.

SUB CODE: 09, 12

UDC: 512.25/.26+519.3:330.115

Card 1/1

ACC NR: AT7000904 SOURCE CODE: UR/0000/66/000/000/0084/0094

AUTHORS: Zukhovitskiy, S. I.; Leyfman, L. Ya.

ORG: none

TITLE: On one algorithm for convex quadratic programming

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut matematiki. Matematicheskiye modeli i metody optimal'nogo planirovaniya (Mathematical models and methods of optimal planning). Novosibirsk, Izd-vo Nauka, 1966, 84-94

TOPIC TAGS: algorithm, nonlinear programming, complex function, differentiation, matrix element, linear equation, partial derivative

ABSTRACT: It is required to maximize the quadratic function

$$f(x) \equiv \sum_{j,k=1}^{n} b_{jk}\xi_j\xi_k + \sum_{j=1}^{n} b_j\xi_j + c,$$

which has the negatively defined form

$$\sum_{j,k=1}^{n} b_{jk}\xi_j\xi_k \quad (b_{jk} = b_{kj};\ j, k = 1, \ldots, n),$$

in the presence of the linear restraints

$$\delta_i(x) \equiv \sum_{j=1}^{n} a_{ij}\xi_j + a_i = (A^i, x) + a_i \geq 0 \quad (i = 1, \ldots, m).$$

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ACC NR: AT7000904

$$(x = x(\xi_1, \ldots, \xi_n), \quad A^l = A^l(a_{l1}, \ldots, a_{ln}))$$

defining a nonempty polyhedron Ω. A unique point α^0, at which f(x) reaches a maximum, is found (see Table 1).

Table 1

	$\xi_1 \ldots$	$\xi_j \ldots$	ξ_n	1
$\delta_1 =$	$a_{11} \ldots$	$a_{1j} \ldots$	a_{1n}	a_1
$\ldots$	$\ldots$	$\ldots$	$\ldots$	$\ldots$
$\delta_l =$	$a_{l1} \ldots$	$a_{lj} \ldots$	a_{ln}	a_l
$\ldots$	$\ldots$	$\ldots$	$\ldots$	$\ldots$
$\delta_m =$	$a_{m1} \ldots$	$a_{mj} \ldots$	a_{mn}	a_m
$l'_{\xi_1} =$	$2b_{11} \ldots$	$2b_{1j} \ldots$	$2b_{1n}$	b_1
$\ldots$	$\ldots$	$\ldots$	$\ldots$	$\ldots$
$l'_{\xi_k} =$	$2b_{k1} \ldots$	$2b_{kj} \ldots$	$2b_{kn}$	b_k
$\ldots$	$\ldots$	$\ldots$	$\ldots$	$\ldots$
$f'_{n\xi} =$	$2b_{n1} \ldots$	$2b_{nj} \ldots$	$2b_{nn}$	b_n

Then a unique point α^1, at which the function f reaches a relative maximum providing $\delta_1 = \ldots = \delta_q = 0$, is found (see Table 2). If $\alpha_1 \in \Omega$, then the point is considered stationary, and r derivatives are calculated from Table 2:

$$f'_{\delta_i}(x^q) = 2b^{(r)}_{i,r+1}\xi^{(q)}_{r+1} + \ldots + 2b^{(r)}_{in}\xi^{(q)}_n + b^{(r)}_i \quad (i = 1, \ldots, r).$$

If they are all positive, then $x^q = x^*$. The algorithm terminates in a finite number of steps. Examples are provided.

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ACC NR: AT7000904

Table 2

	δ_1	...	δ_r	ξ_{r+1}	...	ξ_n	1
$\delta_{r+1} =$	$a^{(r)}_{r+1,1}$	...	$a^{(r)}_{r+1,r}$	0	...	0	0
$\delta_q =$	$a^{(r)}_{q1}$	...	$a^{(r)}_{qr}$	0	...	0	0
$\delta_{q+1} =$	$a^{(r)}_{q+1,1}$	...	$a^{(r)}_{q+1,r}$	$a^{(r)}_{q+1,r+1}$	...	$a^{(r)}_{q+1,n}$	$a^{(r)}_{q+1}$
$\delta_m =$	$a^{(r)}_{m1}$	...	$a^{(r)}_{mr}$	$a^{(r)}_{m,r+1}$	...	$a^{(r)}_{mn}$	$a^{(r)}_{m}$
$L'_{\delta_1} =$	$2b^{(r)}_{11}$	...	$2b^{(r)}_{1r}$	$2b^{(r)}_{1,r+1}$	...	$2b^{(r)}_{1n}$	$b^{(r)}_{1}$
$L'_{\delta_r} =$	$2b^{(r)}_{r1}$	...	$2b^{(r)}_{rr}$	$2b^{(r)}_{r,r+1}$	...	$2b^{(r)}_{rn}$	$b^{(r)}_{r}$
$L'_{\xi_{r+1}} =$	$2b^{(r)}_{r+1,1}$	...	$2b^{(r)}_{r+1,r}$	$2b^{(r)}_{r+1,r+1}$	...	$2b^{(r)}_{r+1,n}$	$b^{(r)}_{r+1}$
$L'_{\xi_n} =$	$2b^{(r)}_{n1}$	...	$2b^{(r)}_{nr}$	$2b^{(r)}_{n,r+1}$	...	$2b^{(r)}_{nn}$	$b^{(r)}_{n}$

Orig. art. has: 5 formulas and 9 tables.

SUB CODE: 12/ SUBM DATE: 12Apr66/ ORIG REF: 009

Card 3/3

ZUKHOVITSKIY, S.I.; POLYAK, R.A.; PRIMAK, M.Ye.

Numerical method for solving the problem of convex programming in Hilbert space. Dokl. AN SSSR 163 no.2:282-284 Jl '65. (MIRA 18:7)

1. Kiyevskiy gosudarstvennyy pedagogicheskiy institut im. A.M. Gor'kogo i Ukrainskiy dorozhno-transportnyy nauchno-issledovatel'skiy institut. Submitted January 14, 1965.

ZUKHOVITSKIY, S.I.;PRIMAK, M. Ye.

An algorithm for solving the problem of Chebyshev approximation in a Hilbert space. Dokl. AN SSSR 159 no.3:497-500 N '64
(MIRA 18:1)

1. Kiyevskiy gosudarstvennyy pedagogicheskiy institut imeni A.M. Gor'kogo i Ukrainskiy dorozhno-transportny nauchno-issledovatel'skiy institut. Predstavleno akademikom N.N. Bogolyubovym.

ZUKHOVITSKIY, S.I.; POLYAK, R.A.

Algorithm for solving the problem of rational Chebyshev approximation. Dokl. AN SSSR 159 no.4:726-729 D '64 (MIRA 18:1)

1. Kiyevskiy gosudarstvennyy pedagogicheskiy institut imeni A.M. Gor'kogo i Ukrainskiy dorozhno-transportnyy nauchno-issledovatel'skiy institut. Predstavleno akademikom A. Yu. Ishlinskim.

ZUKHOVITSKIY, S.I., doktor fiz.-matem. nauk, prof.; LEYFMAN, L.Ya., kand. fiz.-matem. nauk; MESHEL', B.S., inzh.

Optimum distribution of condensers in the power supply networks of industrial enterprises. Elektrichestvo no.7:35-38 Jl '64. (MIRA 17:11)

ZUKHOVITSKIY, S.I.; POLYAK, R.A.; PRIMAK, M.Ye.

Algorithm for solving the problem of convex programming. Dokl. AN SSSR 153 no.5:991-994 D '63. (MIRA 17:1)

1. Kiyevskiy gosudarstvennyy pedagogicheskiy institut im. A.M. Gor'kogo i Ukrainskiy dorozhno-transportnyy nauchno-issledovatel'skiy institut. Predstavleno akademikom A.Yu. Ishlinskim.

G/0030/63/003/006/0990/1000

ACCESSION NR: AP3003529

AUTHOR: Zukotynski, S.; Kolodziejczak, J.

TITLE: On the theory of transport phenomena in semiconductors possessing non-spherical and non-quadratic energy bands

SOURCE: Physica status solidi, v. 3, no. 6, 1963, 990-1000

TOPIC TAGS: transport phenomenon, semiconductor, nonspherical energy band, nonquadratic energy band, free carrier, magneto-optical effect, transport equation

ABSTRACT: The transport equation is solved for the case in which external magnetic and electric fields as well as temperature concentration gradients are present. All calculations are carried out for energy surfaces of arbitrary shape. The electric current and heat flux are expressed in terms of three fundamental tensors. The case of ellipsoidal energy surfaces with a nonquadratic dependence of the energy on the absolute value of the wave vector is analyzed in detail. The transport equation is solved for an arbitrary energy

ACCESSION NR: AP3003529

surface by using the iteration method extended to the case in which temperature and concentration gradients are present. The magnetoconductivity tensor in the case of a time-dependent electric field is derived. The results can be used with Maxwell equations to calculate all magneto-optical effects due to free carriers. Orig. art. has: 65 formulas.

ASSOCIATION: Institute of Physics, Warsaw University (Zukotynski); Institute of Physics, Polish Academy of Sciences, Warsaw (Kolodziejczak)

SUBMITTED: 04Mar63 DATE ACQ: 15Jul63 ENCL: 00

SUB CODE: PH NO REF SOV: 005 OTHER: 019

Card 2/2

ZUKHOVITSKIY, S.I.; POLYAK, R.A.; PRIMAK, M.Ye.

Algorithm for solving the problem of convex Chebyshev approximation. Dokl. AN SSSR 151 no.1:27-30 Jl '63. (MIRA 16:9)

1. Kiyevskiy gosudarstvennyy pedagogicheskiy institut im. A.M. Gor'kogo. Predstavleno akademikom N.N.Bogolyubovym.
(Linear equations) (Algorithms)

ZUKHOVITSKIY, S.I. (Kiyev)

A problem in piecewise linear programming. Zhur. vych. mat. i mat. fiz. 3 no.3:599-605 My-Je '63. (MIRA 16:5)

(Linear programming)

L 12616-63 EWT(d)/FCC(w)/BDS AFFTC/ESD-3/APGC IJP(C)
ACCESSION NR: AP... S/0208/63/003/003/0599/0605

55

AUTHOR: Zukhovitskiy, S. I. (Kiev)

TITLE: A problem in piecewise linear programming

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 3, no. 3, 1963, 599-605

TOPIC TAGS: linear programming, linear constraints, algorithm

ABSTRACT: The author develops an algorithm for finding the point in n-dimensional space for which the sum of the distances to m hyperplanes is minimized, subject to p linear constraints on this point. Orig. art. has: 20 formulas and 8 tables.

ASSOCIATION: none

SUBMITTED: 05May62 DATE ACQ: 10Jun63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 002

Card 1/1

L 13710-63 AFFTC IJP(C)

ACCESSION NR: AP3003501 S/0020/63/151/001/0027/0030

AUTHORS: Zukhovitskiy, S. I.; Polyak, R. A.; Primak, M. Ye. 54

TITLE: Algorithm for the solution of the convex Tchebycheff approximation problem 16

SOURCE: AN SSSR. Doklady*, v 151, no. 1, 1963, 27-30

TOPIC TAGS: algorithm, Tchebycheff approximation, linear complex equation

ABSTRACT: In a previous work by the first-named author an algorithm was developed for the solution of a system of linear complex equations. In the present work, the authors further develop the algorithm and apply it to the solution of the more general problem of determining the minimum of an arbitrary convex piece-wise smooth function. The paper was presented by Academician N. N. Bogolyubov on 18 January 1963. Orig. art. has: 10 formulas.

ASSOCIATION: Kiyevskiy gosudarstvenny*y pedagogicheskiy institut im. A. M. Gor'kogo (Kiev Pedagogical Institute)

SUBMITTED: 02Jan63 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: MM NO REF SOV: 003 OTHER: 000

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L 13710-63 EWT(d)/FCC(w). AFFTC IJP(C)

ACCESSION NR: AP3003501 S/0020/63/151/001/0027/0030

54

AUTHORS: Zukhovitskiy, S. I.; Polyak, R. A.; Primak, M. Ye.

TITLE: Algorithm for the solution of the convex Tchebycheff approximation problem

16

SOURCE: AN SSSR. Doklady, v 151, no. 1, 1963, 27-30

TOPIC TAGS: algorithm, Tchebycheff approximation, linear complex equation

ABSTRACT: In a previous work by the first-named author an algorithm was developed for the solution of a system of linear complex equations. In the present work, the authors further develop the algorithm and apply it to the solution of the more general problem of determining the minimum of an arbitrary convex piece-wise smooth function. The paper was presented by Academician N. N. Bogolyubov on 18 January 1963. Orig. art. has: 10 formulas.

ASSOCIATION: Kiyevskiy gosudarstvennyy pedagogicheskiy institut im. A. M. Gor'kogo (Kiev Pedagogical Institute)

SUBMITTED: 02Jan63 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: MM NO REF SOV: 003 OTHER: 000

Card 1/1

39875
S/044/62/000/007/012/100
C111/C333

16,3000

AUTHOR: Zukhovitskiy, S. I.

TITLE: On some algorithms for the construction of the best approximation of continuous functions using polynomials in a complex domain

PERIODICAL: Referativnyy zhurnal, Matematika, no. 7, 1962, 24, abstract 7B124. ("Issled. po sovrem. probl. teorii funktsiy kompleksn. peremennogo." M., Fizmatgiz, 1961, 201-208)

TEXT: Given is a geometric description of the idea of a finite algorithm to solve the following approximation problems: A finite system of k-dimensional ($0 \leq k \leq s-1$) planes is given in s-dimensional Euclidean space; each plane is assigned a non-negative weight (i. e., a number by which the distance of an arbitrary point from this plane is multiplied); determine the point which, [illegible] has the least distance from these planes. It is shown that the construction of a polynomial $z_1 \varphi_1(t) + \ldots + z_n \varphi_n(t)$ ($z_1, \ldots, z_n$ are complex numbers and $\varphi_1(t), \ldots, \varphi_n(t)$ are functions with complex values) which best

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065610019-1"

approximates the function of complex values f(t) on the lattice $t_1, \ldots$
$\ldots, t_m$ is a special case of the problem formulated above.
[Abstracter's note: Complete translation.]

ZUKHOVITSKIY, S.I.

Approximation of an incompatible system of linear equations on the principle of minimizing the sum of the moduli of all deviations. Dokl. AN SSSR 143 no.5:1030-1033 Ap '62. (MIRA 15:4)

1. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti. Predstavleno akademikom N.N.Bogolyubovym.

(Linear equations)

S/020/62/143/005/002/018
B112/B102

AUTHOR: Zukhovitskiy, S. I.

TITLE: Approximation of an incompatible system of linear equations according to the principle of minimization of the sum of the absolute values of all the deviations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 5, 1962, 1030-1033

TEXT: For the incompatible system of linear equations

$$\eta_i(x) = \eta_i = \sum_{j=1}^{n} a_{ij}\xi_j + a_i = 0 \quad (i = 1,\ldots,m),$$

a point $x^* = (\xi_1^*,\ldots,\xi_n^*)$ is sought such that

$$z(x^*) = \sum_{i=1}^{m} |\eta_i(x^*)| = \min_x \sum_{i=1}^{m} |\eta_i(x)|.$$

By means of a corresponding number of Jordan eliminations (cf. E. Stiefel, Numer. Math., 2, 1 (1960)), the system

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Approximation of an...

$$\begin{pmatrix} \eta_1 \\ \cdot \\ \cdot \\ \cdot \\ \eta_m \end{pmatrix} = \begin{pmatrix} a_{11} & a_{12} & \cdots & a_{1n} & a_1 \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ a_{m1} & a_{m2} & \cdots & a_{mn} & a_m \end{pmatrix} \begin{pmatrix} \xi_1 \\ \xi_2 \\ \cdot \\ \cdot \\ \cdot \\ \xi_n \\ 1 \end{pmatrix}$$

is replaced by

$$\begin{pmatrix} \eta_{n+1} \\ \cdot \\ \cdot \\ \cdot \\ \eta_m \end{pmatrix} = \begin{pmatrix} a^{(n)}_{n+1,1} & a^{(n)}_{n+1,2} & \cdots & a^{(n)}_{n+1,n} & a^{(n)}_{n+1} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ a^{(n)}_{m1} & a^{(n)}_{m2} & \cdots & a^{(n)}_{mn} & a^{(n)}_{m} \end{pmatrix} \begin{pmatrix} \eta_1 \\ \eta_2 \\ \cdot \\ \cdot \\ \cdot \\ \eta_n \\ 1 \end{pmatrix}$$

so that

Approximation of an...

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B112/B102

$$\left|\sum_{\substack{i=n+1\\ a_i^{(m)}\neq 0}}^{m} \operatorname{sign} a_i^{(n)}\, a_{ik}^{(n)}\right| \leqslant 1 + \sum_{\substack{i=n+1\\ a_i^{(n)}=0}}^{m} \left|a_{ik}^{(n)}\right|$$

for k = 1,...,n. Then, the values $\eta_1,\dots,\eta_m$ have the required property.

ASSOCIATION: Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti (Kiyev Technological Institute of the Food Industry)

PRESENTED: December 1, 1961, by N. N. Bogolyubov, Academician

SUBMITTED: November 10, 1961

Card 3/3

25703
S/020/61/139/003/002/025
C111/C222

16.6500

AUTHOR: Zukhovitskiy, S.I.

TITLE: A new number scheme of the algorithm for Chebyshev's approximation of an incompatible system of linear equations and a system of linear inequalities

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no.3, 1961, 534-537

TEXT: In (Ref. 2: DAN 79, no. 4 (1951)) and (Ref. 3: Matem.sborn., 33 (75), v.2 (1953)) the author developed a finite and monotone algorithm for the Chebyshev approximation of the incompatible linear system of equations

$$\eta_i = \eta_i(x) = a_{i1}\xi_1 + a_{i2}\xi_2 + \dots + a_{in}\xi_n + a_i = 0 \ (i=1,\dots,m). \quad (1)$$

By keeping of the earlier geometric scheme of the algorithm by use of the Jordan's exclusions, in the present paper the author obtains an essential simplification of the numerical scheme of the algorithm.
At first an arbitrary point $x'(\xi_1',\dots,\xi_n')$ is taken and the table

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S/020/61/139/003/002/025
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A new number scheme of the algorithm ...

$$\begin{array}{ccccccc} & \xi_1' & \xi_2' & \dots & \xi_n' & 1 & \\ & \xi_1 & \xi_2 & \dots & \xi_n & 1 & \\ \eta_1 = & a_{11} & a_{12} & \dots & a_{1n} & a_1 & \eta_1(x') \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ \eta_m = & a_{m1} & a_{m2} & \dots & a_{mn} & a_m & \eta_m(x') \end{array} \qquad (2)$$

is established.

Let $|\eta_{r_1}(x')| = \dots = |\eta_{r_p}(x')| > |\eta_i(x')|$, $i \neq r_1, \dots, r_p$

where $\delta_{r_1} \eta_{r_1}(x') = \dots = \delta_{r_p} \eta_{r_p}(x')$, where $\delta_{r_1} = \pm 1, \dots, \delta_{r_p} = \pm 1$.

The point x' is denoted with x_p and understood as the p-th approximation.

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Now successive Jordan's exclusions with those r_1-st, ..., r_p-th rows are carried out which have coefficients different from zero for the ξ_i remained in the preceding steps. Putting for simplicity $r_1 = 1, \ldots, r_p = p$ then in analogy to (Ref. 4 : E. Stiefel, Numer. Math., 2 (1960)) one obtains the new table

$$\begin{array}{r|ccccccc|c}
 & \eta_1(x_p) & \ldots & \eta_p(x_p) & \xi'_{p+1} & \ldots & \xi'_n & 1 & \\
 & \eta_1 & \ldots & \eta_p & \xi_{p+1} & \ldots & \xi_n & 1 & \\
\hline
\eta_{p+1} = & a^{(p)}_{p+1,1} & \ldots & a^{(p)}_{p+1,p} & a^{p}_{p+1,p+1} & \ldots & a^{p}_{p+1,n} & a^{(p)}_{p+1} & \eta_{p+1}(x_p) \\
\ldots & \ldots & \ldots & \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \\
\eta_m = & a^{(p)}_{m1} & \ldots & a^{(p)}_{mp} & a^{(p)}_{m,p+1} & \ldots & a^{(p)}_{mn} & a^{(p)}_{m} & \eta_m(x_p)
\end{array} \quad (4)$$

Then the author puts $\eta_1 = \delta_1\eta, \ldots, \eta_p = \delta_p\eta$ and solves the system

$$\pm\eta = a^{(p)}_{i1}\delta_1\eta + \ldots + a^{(p)}_{ip}\delta_p\eta + \left[\eta_i(x_p) - a^{(p)}_{i1}\eta_1(x_p) - \ldots - a^{(p)}_{ip}\eta_p(x_p)\right].$$

$$(i = p+1,\ p+2, \ldots, m). \quad (5)$$

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Among the solutions one chooses the greatest positive $\eta = \eta^{(p+1)}$ being smaller than $\eta^{(p)} = |\eta_1(x_p)|$. Let the maximal deviation $\eta^{(p+1)}$ be reached by the first t equations (5). Then for the new (p+t)-th approximation x_{p+t} one obtains :

$$|\eta_1(x_{p+t})| = \dots = |\eta_{p+t}(x_{p+t})| > \eta_i(x_{p+t}) \qquad (i > p + t)$$

$$\delta_1 \eta_1 (x_{p+t}) = \dots = \delta_{p+t} \eta_{p+t}(x_{p+t}) .$$

This process is continued as long as e.g. for the approximation x_q the first q deviations are maximal, where in the upper part of the table there are only $r < q$ of them so that there appears the table

$$\begin{array}{rc|ccccccc|c|} & & \eta_1(x_q) & \dots & \eta_r(x_q) & \xi'_{r+1} & \dots & \xi'_n & 1 & \\ & & \eta_1 & \dots & \eta_r & \xi_{r+1} & \dots & \xi_n & 1 & \\ \hline \eta_{r+1} & = & a^{(q)}_{r+1,1} & \dots & a^{(q)}_{r+1,r} & 0 & \dots & 0 & a^{(q)}_{r+1} & \eta_{r+1}(x_q) \\ \dots & & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ \eta_q & = & a^{(q)}_{q1} & \dots & a^{(q)}_{qr} & 0 & \dots & 0 & a^{(q)}_q & \eta_q(x_q) \\ \eta_{q+1} & = & a^{(q)}_{q+1,1} & \dots & a^{(q)}_{q+1,r} & a^{(q)}_{q+1,r+1} & \dots & a^{(q)}_{q+1,n} & a^{(q)}_{q+1} & \eta_{q+1}(x_q) \\ \dots & & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ \eta_m & = & a^{(q)}_{m1} & \dots & a^{(q)}_{mr} & a^{(q)}_{m,r+1} & \dots & a^{(q)}_{mn} & a^{(q)}_m & \eta_m(x_q) \\ \hline \end{array} \qquad (6)$$

If all free terms $a^{(q)}_{r+1}, \dots, a^{(q)}_q$ equal zero then the process is continued, namely like after the finding of the point x'_p in the equations analogous to (5) it only must be put $i = q + 1, \dots, m$. If only one of the free terms is different from zero then x_q is a stationary point (cf. (Ref. 3)) so that it is no longer possible to diminish all maximal deviations if they shall remain equal. The further course of the algorithm is carried out as in (Ref. 3).

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25703
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C111/C222

number .
A new scheme of the algorithm ...

There are 4 Soviet-bloc and 3 non Soviet-bloc references. The reference to the English-language publication reads as follows: A.A. Goldstein, F. Cheney, Pacific J. Math., 3, no. 8 (1958).

ASSOCIATION: Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti (Kiev Technological Institute of the Food Industry)

PRESENTED: March 13, 1961, by N.N. Bogolyubov, Academician

SUBMITTED: March 12, 1961

Card 6/6

25841
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C111/C333

16.6500

AUTHOR: Zukhovitskiy, S. I.

TITLE: Some complements to the algorithm for the solution of the generalized problem of linear programming

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 4, 1961, 783-786

TEXT: In the paper of the author (Ref. 1: DAN, 133, No. 1 (1960)) an algorithm for the solution of the following problem is given: In the n-dimensional Euclidean space the s planes

$$\eta_j \equiv \eta_j(x) = b_{1j}\xi_1 + b_{2j}\xi_2 + \dots + b_{nj}\xi_n = 0 \quad (j=1,\dots,s) \qquad (1)$$

and the convex closed polyhedron Ω

$$\delta_k = \delta_k(x) = a_{1k}\xi_1 + a_{2k}\xi_2 + \dots + a_{nk}\xi_n + a_k \geqslant 0 \quad (k=1,\dots,m); \qquad (2)$$

are given; determine the point $x^*(\xi_1^*,\dots,\xi_n^*)$ in Ω so that

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$$\min_{1 \leq j \leq s} \eta_j(x^*) = \max_{x \in \Omega} \min_{1 \leq j \leq s} \eta_j(x) \text{ (optimum point).}$$

In the present paper the author uses the method of E. Stiefel (Ref. 3: Numer. Math., 2 (1960)) in order to simplify the numerical scheme of the mentioned algorithm in a similar way as it was carried out in the author's paper (Ref. 4: DAN, 132, No. 3 (1961)) for the algorithm of the Chebyshev approximations of an incompatible linear system of equations and of a system of linear inequalities.

An arbitrary point $x'(\xi_1', \ldots, \xi_n') \in \Omega$ is taken, and the tablo

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	ξ_1'	ξ_2'	...	ξ_n'	1	
	ξ_1	ξ_2	...	ξ_n	1	
...	...	...	...	...	...	...
$\eta_l =$	b_{1l}	b_{2l}	...	b_{nl}	0	$\eta_l(x')$
...	...	...	...	...	...	...
...	...	...	...	...	...	...
$\delta_k =$	a_{1k}	a_{2k}	...	a_{nk}	a_k	$\delta_k(x')$
...	...	...	...	...	...	...

$(l = 1, \ldots, s;\ k = 1, \ldots, m)$, (3)

is set up. Let $\eta_{j_1}(x') = \ldots = \eta_{j_{p_1}}(x') < \eta_j(x')$ $(j \neq j_1, \ldots, j_{p_1})$ and $\delta_{k_1}(x') = \delta_{k_2}(x') = \ldots = \delta_{k_{p_2}}(x') = 0$, $\delta_k(x') > 0$ $(k \neq k_1, \ldots, k_{p_2})$. Put $p_1 + p_2 = p$ and understand x' as p-th approximation of x^*, denotation:

$$x_p(\xi_1^{(p)}, \ldots, \xi_n^{(p)}).$$ The deviations $\eta_{j_1}(x'), \ldots, \eta_{j_{p_1}}(x')$

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Some complements to the algorithm ...

and the corresponding planes are called minimum; the $\delta_{k_1}(x'),\dots$ $\dots,\delta_{k_{p_2}}(x')$ and the corresponding planes are called cancelling. As in (Ref.4) the author carries out successive Jordan exclusions with $j_1,\dots,j_{p_1},k_1,\dots,k_{j_2}$ - lines which have coefficients different from zero for the ξ_i remaining in the preceding steps. If, for simplicity, it is assumed that $j_1=1,\dots,j_{p_1}=p_1$, $k_1=1,\dots,k_{p_2}=p_2$, the η_j are interchanged with the ξ_j and δ_k with ξ_{p_1+k}, then the process is continued until the table

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(4)

	$\eta_1(x_p)$	$\eta_{p_1}(x_p)\ \delta_1(x_p) \ldots \delta_{p_2}(x_p)$	$\xi'_{p+1} \ldots$	ξ'_n	1	
	η_1 .	$\eta_{p_1}\ \ \delta_1 \ldots \delta_{p_2}$	$\xi_{p+1} \ldots$	ξ_n	1	
$\eta_{p_1+1} =$	$b^{(p)}_{1,p_1+1} \ldots$	$b^{(p)}_{p_1+1,p_1+1} \ldots$	$b^{(p)}_{p+1,p_1+1} \ldots$	b_{n,p_1+1}	$b^{(p)}_{p_1+1}$	$\eta_{p_1+1}(x_p)$
. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
$\eta_s =$	$b^{(p)}_{1s} \ldots$	$b^{(p)}_{p_1+1,s} \ldots$	$b^{(p)}_{p+1,s} \ldots$	$b^{(p)}_{ns}$	$b^{(p)}_s$	$\eta_s(x_p)$
$\delta_{p_2+1} =$	$a^{(p)}_{1,p_2+1} \ldots$	$a_{p_1+1,p_2+1} \ldots$	$a^{(p)}_{p+1,p_2+1} \ldots$	$a^{(p)}_{n,p_2+1}$	$a^{(p)}_{p_2+1}$	$\delta_{p_2+1}(x_p)$
. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
$\delta_m =$	$a^{(p)}_{1m} \ldots$	$a^{(p)}_{p_1+1,m} \ldots$	$a^{(p)}_{pm} \ldots$	$a^{(p)}_{nm}$	$a^{(p)}_m$	$\delta_m(x_p)$

is obtained, where the expressions for $\xi_1, \ldots, \xi_p$ are written out additionally.

Now, put $\eta_1 = \eta_2 = \ldots = \eta_{p_1} = \eta$ and $\delta_1 = \delta_2 = \ldots = \delta_{p_2} = 0$ and solve the $(s-p_1) + (m-p_2)$ equations with the unknown η:

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$$\eta = b_{1j}^{(p)}\eta + \dots + b_{p_1 j}^{(p)}\eta + [\eta_j(x_p) - b_{1j}^{(p)}\eta_1(x_p) - \dots - b_{p_1 j}^{(p)}\eta_{p_1}(x_p)]$$
$$(j = p_1 + 1, \dots, s); \qquad (5)$$
$$0 = a_{1k}^{(p)}\eta + \dots + a_{p_1 k}^{(p)}\eta + [\delta_k(x_p) - a_{1k}^{(p)}\eta_1(x_p) - \dots - a_{p_1 k}\eta_{p_1}(x_p)]$$
$$(k = p_2 + 1, \dots, m).$$

The smallest solution $\eta = \eta^{(p+1)}$ greater than $\eta^{(p)} = \eta_1(x_p)$ is assumed to be attained by t_1 first equations of the first part of system (5) and by t_2 first equations of the second part. Let $t_1 + t_2 = t$. For the new $(p+t)$ - th approximation x_{p+t}, then it holds

$$\eta_1(x_{p+1}) = \dots = \eta_{p_1+t_1}(x_{p+t}) < \eta_j(x_{p+t}) \quad (j > p_1 + t_1);$$
$$\delta_1(x_{p+t}) = \dots = \delta_{p_2+t_2}(x_{p+t}) = 0, \ \delta_k(x_{p+t}) > 0 \ (k > p_2 + t_s).$$

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If all free terms in the remaining lines with minimum or cancelling deviations are equal to zero, then the process is repeated with the point x_{p+1} as with x_p. If, however, only one free term of these lines is different from zero, then x_{p+t} is a stationary point.

Let x_q be a stationary point. Let $\eta_1(x_q),\ldots,\eta_{q_1}(x_q)$ be the minimum and $\delta_1(x_q),\ldots,\delta_{q_2}(x_q)$ the cancelling deviations, $q_1 + q_2 = q$. The table obtained is assumed to be $(r_1 + r_2 = r)$.

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Some complements to the algorithm ...

	$\eta_1(x_q) \dots \eta_{r_1}(x_q)$	$\delta_1(x_q) \dots$	$\delta_{r_s}(x_q)$	ξ_{r+1}	$\dots$	ξ_n	1	
	$\eta_1 \dots \eta_{r_1}$	$\delta_1 \dots$	δ_{r_s}	ξ_{r+1}	$\dots$	ξ_n,	1	
$\eta_{r_s+1} =$	$b^{(q)}_{1,r_s+1}$	$\dots$	$b^{(q)}_{r,r_s+1}$	0	$\dots$	0	$b^{(q)}_{r_s+1}$	$\eta_{r_s+1}(x_q)$
$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$
$\eta_{q_1} =$	$b^{(q)}_{1q_1}$	$\dots$	$b^{(q)}_{rq_1}$	0	$\dots$	0	$b^{(q)}_{q_1}$	$\eta_{q_1}(x_q)$
$\eta_{q_1+1} =$	$b^{(q)}_{1,q_1+1}$	$\dots$	$b^{(q)}_{r,q_1+1}$	$b^{(q)}_{r+1,q_1+1}$	$\dots$	$b^{(q)}_{n,q_1+1}$	$b^{(q)}_{q_1+1}$	$\eta_{q_1+1}(x_q)$
$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$
$\eta_s =$	$b^{(q)}_{1s}$	$\dots$	$b^{(q)}_{rs}$	$b^{(q)}_{r+1,s}$	$\dots$	$b^{(q)}_{ns}$	$b^{(q)}_{s}$	$\eta_s(x_q)$
$\delta_{r_s+1} =$	$a^{(q)}_{1,r_s+1}$	$\dots$	$a^{(q)}_{r,r_s+1}$	0	$\dots$	0	$a^{(q)}_{r_s+1}$	$\delta_{r_s+1}(x_q)$
$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$
$\delta_{q_s} =$	$a^{(q)}_{1q_s}$	$\dots$	$a^{(q)}_{rq_s}$	0	$\dots$	0	$a^{(q)}_{q_s}$	$\delta_{q_s}(x_q)$
$\delta_{q_s+1} =$	$a^{(q)}_{1,q_s+1}$	$\dots$	$a^{(q)}_{r,q_s+1}$	$a^{(q)}_{r+1,q_s+1}$	$\dots$	$a^{(q)}_{n,q_s+1}$	$a^{(q)}_{q_s+1}$	$\delta_{q_s+1}(x_q)$
$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$	$\dots$
$\delta_m =$	$a^{(q)}_{1m}$	$\dots$	$a^{(q)}_{rm}$	$a^{(q)}_{r+1,m}$	$\dots$	$a^{(q)}_{nm}$	$a^{(q)}_{m}$	$\delta_m(x_q)$

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As an (n-r) - dimensional edge the author denotes the linear manifold which satisfies r equations obtained when arbitrary r linearly independent of the minimum η_j and of the cancelling δ_k are set equal to zero. As the characteristic of the edge the author denotes the sum: number of the minimum and cancelling planes going through this edge plus number of the minimum planes separating x_q from the edge plus number of the cancelling planes separating the edge from Ω if $\eta_1(x_q) > 0$, and which do not separate the edge from Ω if $\eta_1(x_q) < 0$. If the characteristic is equal to q (i. e. maximum), then it is put $\eta_1 = \dots = \eta_{r_1} = \eta$, $\delta_1 = \dots = \delta_{r_2} = 0$ and the equations

$$\eta = b_{1j}^{(q)}\eta + \dots + b_{r_1 j}^{(q)}\eta + [\eta_j(x_q) - b_{1j}^{(q)}\eta_1(x_q) - \dots - b_{r_1 j}^{(q)}\eta_{r_1}(x_q)]$$
$$(j = q_1 + 1, \dots, s);$$

$$0 = a_{1k}^{(q)}\eta + \dots + a_{r_1 k}^{(q)}\eta + [\delta_k(x_q) - a_{1k}^{(q)}\eta_1(x_q) - \dots - a_{r_1 k}^{(q)}\eta_{r_1}(x_q)]$$
$$(k = q_2 + 1, \dots, m),$$

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are solved from which the smallest solution $\eta = \eta^{(q+1)}$ greater than $\eta^{(q)} = \eta_1(x_q)$ is determined.

If the characteristic is smaller than q, then the Jordan exclusion is applied again. The process is continued until one states that all (n-r) - dimensional edges formed by the q-planes posses characteristics smaller than q. Then x_q is the sought optimal point (see S. J. Zukhovitskiy (Ref. 5: Matem. sborn., 33 (75), v. 2 (1953)).

L. V. Kantorovich is mentioned.

There are 4 Soviet-bloc references and 1 non-Soviet-bloc reference.

ASSOCIATION: Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti (Kiev Technological Institute of the Food Industry)

PRESENTED: March 13, 1961, by N. N. Bogolyubov, Academician

SUBMITTED: March 12, 1961

Card 10/10

BANACH, Stefan (1892-1945); ŽUKHOVITSKIY, S.I. [translator]

[Differential and integral calculus] Differentsial'noe i integral'noe ischislenie. Red. S.I.Zukhovitskogo. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1958. 404 p. (MIRA 14:8)
(Calculus)

ZUKHOVITSKIY, S.I., ESKIN, G.I.

Certain theorems pertaining to the best approximation by unlimited operator-functions. Izv. AN SSSR Ser. mat. 24 no.1:93-102 Ja-F '60. (MIRA 13:6)

1. Predstavleno akademikom N.N. Bogolyubovym.
(Operators (Mathematics)) (Approximate computation)

ZUKHOVITSKIY, S.I.

Algorism for the solution of a generalized problem on linear programming. Dokl.AN SSSR 133 no.1:20-23 Jl '60. (MIRA 13:7)

1. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti. Predstavleno akademikom N.N.Bogolyubovym.
(Algorism) (Linear programming)

Zukhovitskiy, S. I.

PHASE I BOOK EXPLOITATION SOV/3581

Issledovaniya po sovremennym problemam teorii funktsiy kompleksnogo peremennogo; sbornik statey (Investigation of Modern Problems in the Theory of Complex Variables; Collection of Articles) Moscow, Fizmatgiz, 1960. [illegible] p. 3,000 copies printed.

Ed. (Title page): A. I. Markushevich; Ed. (Inside book): V. S. [illegible] and S. Ya. Khavinson; Tech. Ed.: N. Ya. [illegible].

PURPOSE: This book is intended for specialists in the theory of functions of a complex variable. It may also be used by advanced university students, scientific workers, and specialists in other fields of [illegible].

COVERAGE: The book contains 43 papers originally read at the Third All-Union Conference on the Theory of Functions of a Complex Variable held at [illegible] University from May 23 to June [illegible] 1957. The articles treat [illegible] in the modern theory of functions and its applications. The book is divided into 7 parts. The first part discusses the problem of [illegible] series, boundary and extremal properties. The second part discusses [illegible] functions and interpolation and approximation problems. The third part discusses functions of many complex variables. The fourth part discusses conformal mappings and boundary-value problems. The fifth part discusses [illegible] and the theory of distribution of values. The sixth part [illegible] functions, and the seventh part discusses [illegible]

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AUTHOR: Zukhovitskiy, S. I.

TITLE: An Algorithm for the Solution of a Generalized Problem on Linear Programing

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 1, pp. 20-23

TEXT: A problem of industrial planning considered by L. V. Kantorovich (Ref. 1) is geometrically formulated as follows: Let in E_n the planes

(1) $\Delta_j(x) \equiv b_{1j}\xi_1 + b_{2j}\xi_2 + \ldots + b_{nj}\xi_n = 0, \; j = 1,\ldots,s,$

and the closed convex polyhedron Ω be given, which lies in the positive octant and which is defined by

(2) $\delta_k(x) \equiv a_{1k}\xi_1 + a_{2k}\xi_2 + \ldots + a_{nk}\xi_k \geq 1_k, \; k = 1,\ldots,m+n.$

Determine a point $x^* = (\xi_1^*, \ldots, \xi_n^*)$ in Ω for which it is

(3) $\min\limits_{1 \leq j \leq s} \Delta_j(x^*) = \max\limits_{x \in \Omega} \min\limits_{1 \leq j \leq s} \Delta_j(x)$

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An Algorithm for the Solution of a Generalized Problem on Linear Programing

This geometric formulation of the problem enables the author to give a solution different from (Ref. 1) which consists in a monotonous and finite algorithm for the determination of the point x^*. The proposed algorithm is a variation of an algorithm, corresponding to the problem, which the author formerly devoloped (Ref. 2,3,4) in connection with the approximation by Chebyshev polynomials.

The author thanks G. Sh. Rubinshteyn for valuable advices.

There are 5 Soviet references.

ASSOCIATION: Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti (Kiyev Technological Institute of the Food Industry)

PRESENTED: March 4, 1960, by N. N. Bogolyubov, Academician.

SUBMITTED: February 17, 1960

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S/038/60/024/01/004/006

~~16(1)~~ 16.4600

AUTHORS: Zukhovitskiy, S.I., and Eskin, G.I.

TITLE: Some Theorems on the Best Approximation by Unbounded Operator Functions

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960, Vol 24, Nr 1, pp 93-102 (USSR)

ABSTRACT: The authors consider the existence and uniqueness of the best approximation of a continuous function with values in the Hilbert space and reflexive Banach space, respectively, with the aid of a closed operator function. The results of the paper are already published [Ref 1].
The authors mention S.Ye. Stechkin.
There are 9 references, 6 of which are Soviet, 1 American, 1 Polish, and 1 French.

PRESENTED: December 15, 1958

SUBMITTED: by N.N.Bogolyubov, Academician.

Card 1/1

Zukhovitskiy, S.I.

16(1) PHASE I BOOK EXPLOITATION SOV/2660

Vsesoyuznyy matematicheskiy s"yezd. 3rd, Moscow, 1956

Trudy. t. 4: Kratkoye soderzhaniye sektsionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.N. Shevchenko; Editorial Board: A.A. Abramov, V.G. Boltyanskiy, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Rybnikov, P. L. Ul'yanov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, the title of the paper is cited and, if the paper was printed in a previous volume, reference is made to the appropriate volume. The papers, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

Section on Functional Analysis

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16(1) SOV/20-127-6-3/51

AUTHORS: Zukhovitskiy, S.I., and Eskin, G.I.

TITLE: Some Remarks on the Best Approximation of Differential Equations by Polynomials

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 6, pp 1158-1160 (USSR)

ABSTRACT: In the domain G let be given the system of differential equations

(1) $Lu = f \quad (u = (u_1, \dots, u_n); \quad f = (f_1, \dots, f_n))$

with the boundary conditions $lu|_{\Gamma} = \psi$. The approximate solution is sought in the form of a polynomial $u_m = \sum_{k=1}^{m} \xi_k \varphi_k$ for which

$$\inf_{\xi} \max \left\{ \max_{\bar{G}} \left| \sum_{k=1}^{m} \xi_k L \varphi_k - f \right|, \max_{\Gamma} \left| \sum_{k=1}^{m} \xi_k l \varphi_k - \psi \right| \right\}$$

is reached. This problem of the Cauchy approximation of a function continuous on a compactum, by a polynomial is reduced to the problem of the best approximation of a system of non-compatible linear algebraic equations by the introduction of sufficiently dense nets on G and Γ so that the algorithm of

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