SUMMARY :

SOV. FOR. : RZBiol., No. 3, 1959, No. 6122

AUTHOR :
INST. :
TITLE :

ORIG. P UB. :

ABSTRACT : Percentage of loss in young growth is 35.5, medium aged stands 47.2, stands approaching ripening 45.4, ripe stands 43.3 and over-ripe stands 38.2%. Natural seed regeneration is either lacking or encountered in isolated cases. After cutting, the stands are renewed by the undergrowth of secondary species. The cause of the drying up of the stands is attributed to "continuous improvement cutting" (1952-1957) and fringe felling

CARD: 2/3

COUNTRY :
CATEGORY :

ABS. JOUR. : RZBiol., No. 2, 1959, No. 6122

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : (1943-1945). Methods for partial and total cultivation of the area are suggested. -- V. I. Klimov

CARD: 1/3

BONDARENKO, N.Z. (g.Krasnodar)

Apparatus for the distillation of water. Khim. v shkole 14 no.2:74-75 Mr-Ap '59. (MIRA 12:4)
(Distillation--Equipment and supplies)

BONDARENKO, N.Z.

Method of shaping the concept of a decomposition reaction.
Khim.v shkole 15 no.1:34-36 Ja-F '60. (MIRA 13:5)

1. Krasnodarskiy pedagogicheskiy institut.
(Chemical reactions--Study and teaching)

BONDARENKO, N.Z.

Obtaining furfural and glucose. Khim. v shkole 15 no.3:63 '60. (MIRA 14:7)

1. Pedagogicheskiy institut, g. Krasnodar.
(Chemistry--Experiments) (Glucose) (Furaldehyde)

BONDARENKO, N.Z. (Krasnodar)

Development of electronic concepts in chemistry. Khim. v shkole 16 no.5:18-26 S-O '61. (MIRA 14:9)
(Electrons)
(Pisarzhevskii, Lev Vladimirovich, 1874-1938)

POZHIDAYEV, Nikolay Nikolayevich, dotsent; PAVLOV, Anatoliy Ivanovich, dotsent; VADIMOVICH, Ivan Ivanovich, dotsent; KOVAL'SKIY, Anatoliy Grigor'yevich, inzh.; ZORUK, Vladimir Luk'yanovich, inzh.; ANOKHIN, Viktor Vasil'yevich, inzh.; SERGIYENKO, L., red.; BONDARENKO, O., red.; GUSAROV, K., tekhn.red.

[Textile materials for the clothing industry] Materialovedenie shveinogo proizvodstva. Pod obshchei red. N.N.Pozhidaeva. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1959. 411 p. (MIRA 13:2)
(Clothing industry) (Textile fabrics)

Bondarenko, O.

RADCHENKO, Leonid Aleksandrovich; BONDARENKO, O., vedushchiy redaktor; PATSALYUK, P., tekhnicheskiy redaktor

[Automatic control of electric drives.] Avtomaticheskoe upravlenie elektroprivodom; rukovodstvo k laboratornym zaniatiiam. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1957. 271 p. (MLRA 10:5)

(Automatic control)
(Electric driving)

BONDARENKO, O.

GOLOVNINA, M.V.; LOZOVS'KIY, N.A.; BONDARENKO, O., veduchiy redaktor; NOVIK, O., tekhnichnyy redaktor

[Cutting and sewing of outer garments] Krii ta shyttia verkhn'oho odiahu. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR, 1957. 277 p. (Dressmaking) (MLRA 10:8)

BONDARENKO, O.

KRIKSUNOV, Vladimir Grigor'yevich; BONDARENKO, O., red.; PATSALYUK, P., tekhn.red.

[Rheostat-capacitance generators of sinusoidal oscillations] Reostatno-emkostnye generatory sinusoidal'nykh kolebanii. Kiev, Gos. izd-vo tekhn.lit-ry USSR, 1958. 205 p. (MIRA 11:4)
(Oscillators, Electron-tube)

PETROV, Viktor Pavlovich; BONDARENKO, O., red.; PATSALYUK, P., tekhn.red.

[Rockets and satellites] Rakety i suputnyky. Kyiv, Derzh. vyd-vo tekhn.lit-ry URSR, 1958. 261 p. (MIRA 12:1)
(Rockets (Ordnance)) (Artificial satellites)

POPOV, Vladimir Dmitriyevich; BONDARENKO, O., red.; BEZP'YATOV, R., tekhn.red.

[Heat calculation of massecuite vacuum apparatuses; physical fundamentals and methods] Teplovyi rozrakhunok utfel'nykh vakuum-aparativ; fizychni osnovy i metodyka. Kyiv, Derzh. vyd-vo tekhn.lit-ry, 1958. 326 p. (MIRA 12:8)
(Sugar industry--Equipment and supplies)
(Evaporating appliances)

BONDARENKO, O.

IVANOV, Anatoliy Aleksandrovich; BONDARENKO, O., red.; MATUSEVICH, S., tekhn.red.

[Laboratory experiments in general electric engineering and on electric equipment used in industrial enterprises] Laboratornye raboty po obshchei elektrotekhnike i elektrooborudovaniiu promyshlennykh predpriiatii. Kiev, Gos. izd-vo tekhn. lit-ry, 1958. 407 p. (MIRA 11:4)

(Electric engineering--Experiments)

BOSYY, Nikolay Dmitriyevich; BONDARENKO, O., red.; PATSALYUK, P., tekhn. red.

[Electric filters] Elektricheskie fil'try. Izd.3., dop. i perer. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1959. 616 p. (MIRA 13:2)

(Electric filters)

BOGDANOV, V.A.; BASHILOV, A.A.; BONDARENKO, O.A.

Possibility of obtaining a motor oil from paraffin-production filtrate. Izv.vys.ucheb.zav.; neft' i gaz 6 no.9:61-64 '63. (MIRA 17:2)

1. Groznenskiy neftyanoy institut.

BONDARENKO, O.B.; KELLER, B.M.

Silurian deposits of the Kuruil Valley in the Southern Urals.
Izv.AN SSSR. Ser.geol. 21 no.7:90-94 Jl '56. (MLRA 9:10)

1. Geologicheskiy institut Akademii nauk SSSR, Moskva.
(Kuruil Valley--Paleontology, Stratigraphic)

BONDARENKO, O.D.

Ordovician Heliolitidae and Tabulata in the Chu-Ili Mountains. Trudy GIN no.9:197-228 '58. (MIRA 11:12)
(Chu-Ili Mountains--Corals, Fossil)

BONDARENKO, O.B.

Convergence of Liopora and Nyctopora genera of the Tabulate corals of the Lower Ordovician in the Tarbagatay Range. Paleont.zhur. no.1:58-65 '62. (MIRA 15:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Tarbagatay Range--Corals, Fossil)

BONDARENKO, O.B.

Taeniolites, a new late Ordovician genus of Heliolitoidea from Kazakhstan. Paleont.zhur. no.3:125-127 '61. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Kazakhstan--Corals, Fossil)

BONDARENKO, O.B.

Plasmopora genus. Biul. MOIP. Otd.geol. 37 no.3:132-133 My-Je '62. (MIRA 15:10)

(Corals, Fossil)

BONDARENKO, O.B.

Upper Silurian Heliolitidae of the Nurinsk synclinorium (southern margin of the Karaganda Basin). Biul. MOIP Otd. geol. 37 no.6:136-137 N-D '62. (MIRA 16:8)

BONDARENKO, O.B.

Revision of genus Plasmopora. Paleont.zhur. no.1:42-52 '63. (MIRA 16:4)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Kazakhstan—Corals, Fossil)

L 1702-66 EWT(d)/EWP(e)/EWT(m)/EPF(c)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(z)/EWP(b)/EWP(l) IJP(c) JD/HW

ACCESSION NR: AP5020777 UR/0226/65/000/008/0103/0107

AUTHOR: Pozin, Yu. M.; Vogman, M. Sh.; Gamaskin, Ye. I.; Bondarenko, O. I.

TITLE: Producing an electrode strip from cadmium oxide by rolling powder compositions in rollers

SOURCE: Poroshkovaya metallurgiya, no. 8, 1965, 103-107

TOPIC TAGS: electrode, rolling mill, cadmium oxide, nickel compound, powder metallurgy

ABSTRACT: The general method for preparing the powder composition is as follows: cadmium oxide is mixed successively with solar oil and with a solution of nickel sulfate and is then passed through a 0.5x0.5 mm sieve and mixed with an aqueous solution of polyvinyl alcohol and then passed again through the same sieve. The finished electrode has dimensions of 35x70x1.9±0.2 mm, a weight of 15.0±0.5 grams, a porosity of 30%, and contains 1.9-2.1 grams cadmium/cm^3. The present article considers methods of producing continuous electrode strips with better characteristics (thinner with a higher volumetric cadmium content, that is, more dense). The rolling unit did not differ from the standard type. To

Card 1/2

L 1702-66
ACCESSION NR: AP5020777

3

increase the friability of the composition, the cadmium oxide, before mixing with the other components, was rolled on rollers with a diameter of 60 mm, ground in a ball mill, and then passed through a 5x5 mm sieve. 10-20% of an aqueous solution of sodium-carboxy methyl cellulose was introduced into the composition, which was then dried to a residual moisture content of 3.0%. It is established that additions of nickel hydroxide and sodium-carboxymethyl cellulose improve the pressability of the composition. The strip can be obtained with different thicknesses and densities. The article also considers various mechanical methods for rolling and for cutting the strip into individual electrodes. Orig. art. has: 3 figures and 2 tables

ASSOCIATION: Nauchno-issledovatel'skii akkumulyatornyi institut (Scientific Research Institute for Accumulators)

SUBMITTED: 06Aug64 ENCL: 00 SUB CODE: MM

NR REF SOV: 003 OTHER: 000

Card 2/2

L 5335-66 EWP(e)/EWT(m)/ETC/EWG(m)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c)
ACC NR: AP5026269 IJP(c) JD/HW UR/0226/65/000/010/0005/0010

6-58 B

AUTHOR: Pozin, Yu. M.; Murachkovskiy, A. P.; Bondarenko, O. I.
44,55 44,55 44,55

TITLE: Production of storage-battery electrodes by rolling of carbonyl-nickel powder
27 27

SOURCE: Poroshkovaya metallurgiya, no. 10, 1965, 5-10

TOPIC TAGS: electrode, storage battery, battery component, powder metallurgy, powder metal sintering, metal rolling
44,55

ABSTRACT: Electrodes of this kind represent plates sintered from carbonyl nickel powder and filled with Ni and Cd hydroxides. Normally, they are fabricated by the powder-pressing method. In this connection, the authors describe a study performed with the object of sugmenting the porosity of these electrodes by rolling a continuous strip of carbonyl powder with a filler (urea) which can be subsequently removed during sintering. The rolled strip (60% Ni, 40% urea), reinforced with a supporting grid, was cut into blanks and sintered in a hydrogen atmosphere. The rolled-powder edge of the strip projected 1-2 mm beyond the edge of the supporting grid, and the porosity of the strip was ~75%, which meets the requirements for storage-battery electrodes. It is established that the porosity of the electrode is a function of not only the sintering regime but also the roll pressure, and that , compared with the production of powdered-metal electrodes by the pressing method rolled pow-

Card 1/2

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L 5125-66

ACC NR: AP5026269

4

dered-metal strip displays greater homogeneity of thickness and porosity. Orig. art. has: 5 figures, 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy akkumulyatornyy institut (Scientific Research Institute of Storage Batteries)

SUBMITTED: 01Nov64 ENCL: 00 SUB CODE: MM, EE

NO REF SOV: 004 OTHER: 000

Powder rolling 18

Card 2/2 Mdl

Bondarenko, O. I.

18

Purification of natural, powdered ore from Krivoi Rog. M. V. Gribov, I. I. Koval', V. I. Akseneva, Yu. I. Bashurina, O. I. Bondarenko, V. P. Gryadinskaya, E. G. Margolin, M. N. Ostanina, N. I. Rappoport, G. V. Rozanov, and S. A. Rotenberg. U.S.S.R. 102,636, Apr. 30, 1956. The ore is mixed with an alk. soln. of d. 1.4–1.5 so that the mixt. contains 0.5–4% NaOH, based on the wt. of the dry ore. The mixt. is heated at 600–700° under reducing conditions and in the presence of a gaseous, liquid, or solid reducing agent. The impurities thus converted to a solid state are washed out with water, and the remaining mass is dried at up to 600°. The product is used as the active mass of neg. electrodes in alk. batteries. M. Hosch

12
1-4E2c

1.1600

S/226/62/00/003/011/014
I003/I203

AUTHOR: Pozin, Yu. M., Bondarenko, O. I. and Fishman, V. I.

TITLE: The production of highly porous metal powders for the accumulator industry

PERIODICAL: Proroshkovaya metallurgiya, no. 3, 1962, 80-85

TEXT: The authors describe their experience in the production of metal powder plates having open pores of an average porosity of 75%. The requirements which must be met by such plates are given, and a number of production problems are discussed such as raw materials, pressing, sintering and sizing. The recent trends in the production of highly porous and corrosion-resistant electrodes are mentioned, such as the production of iron-nickel powder electrodes or very porous plastic electrodes which can subsequently be metallized. There are 4 figures and 2 tables.

ASSOCIATION: Nauchno-issledovatel'skiy akkumulyatornyy institut (Scientific Accumulator Research Institute)

SUBMITTED: October 1, 1961

Card 1/1

POZIN, Yu.M.; BONDARENKO, O.I.; FISHMAN, V.I.

Obtaining highly porous ceramic metal products in the storage battery industry. Porosh. met. 2 no.3:80-85 My-Je '62. (MIRA 15:7)

1. Nauchno-issledovatel'skiy akkumulyatornyy institut.
(Metal powder products) (Storage batteries)

BONDARENKO, O.I.

Trichomonas in chickens and ducks. Trudy VIEV 26:157-162 '62.
(MIRA 16:2)

1. Laboratoriya protozoologii Vsesoyuznogo instituta eksperimental'-noy veterinarii.
(Trichomonas) (Parasites—Poultry)

BONDARENKO, O.M.

Some data on poliomyelitis in the Armenian S.S.R. Vop.virus. 4 no.5:548-551 S-O '59. (MIRA 13:2)

1. Laboratoriya virusov i rikketsiy Instituta epidemiologii i gigiyeny Ministerstva zdravookhraneniya Armyanskoy SSR, Yerevan.
(POLIOMYELITIS, epidemiol.)

[illegible], G. N.

[illegible]/[illegible]'KO, G. N.: "The plants of Namangan Oblast and their economic significance." Published by Central Asia State U. Min Higher Education USSR. Central Asia State U imeni V. I. Lenin. Tashkent, 1956. (Dissertation for the Degree of Candidate in Biological Science.)

Knizhnaya letopis', No. 30, 1956. Moscow.

BONDARENKO, O.N.; BUTKOV, A.Ya.; VVEDENSKIY, A.I.; DROBOV, V.P. [deceased]; ZAKIROV, K.Z.; KOVALEVSKAYA, S.S.; LINCHEVSKIY, I.A.; NABIYEV, M.M.; PAZIY, V.K.; ROZHKOVA, O.I.; CHERNEVA, O.V.; KOROVIN, Ye.P., akad., red.; MUZAFAROV, A.M., akad., red.; EYDEL'MAN, A.S., red.; RAKHMANOVA, M.D., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Flora of Uzbekistan] Flora Uzbekistana. Tashkent, Izd-vo Akad. nauk Uzbekiskoi SSR. Vol.5. 1961. 666 p. (MIRA 15:3)
(Uzbekistan--Dicotyledons)

BONDARENKO, O.N.; BUTKOV, A.Ya.; VVEDENSKIY, A.I.; KOVALEVSKAYA, S.S.; NABIYEV, M.M.; CHERNEVA, O.V.; NURATDINOVA, M.R., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Flora of Uzbekistan] Flora Uzbekistana. Tashkent, Izd-vo Akad. nauk UzSSR. Vol.6. 1962. 629 p. (MIRA 16:5)
(Uzbekistan--Compositae)

BONDARENKO, O.N.; VVEDENSKIY, A.I., kand. biol. nauk, otv. red.; MOSHCHENKO, Z.V., red.

[Key for identification of the highe plants of the Karakalpak A.S.S.R.] Opredelitel' vysshikh rastenii Karakalpakii. Tashkent, Izd-vo "Nauka" UzSSR, 1964. 302 p. (MIRA 18:1)

BONDARENKO, O.P.; GAVRISH, V.S.

Programmed control system of hard facing machines. Avtom.svar. 16 no.5:43-48 My '63. (MIRA 16:11)

1. Institut elektrosvarki imeni Patona AN UkrSSR.

L 29031-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(l)/ETI JD/BC

ACC NR: AP6015042 (N) SOURCE CODE: UR/0125/66/000/004/0067/0072

AUTHOR: Bondarenko, O. P. 99 B

ORG: Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UKrSSR)

TITLE: Programming and automatic control of the process of electroslag remelting 14 14

SOURCE: Avtomaticheskaya svarka, no. 4, 1966, 67-72

TOPIC TAGS: electroslag melting, automatic control, electric motor, negative feedback, transistorized circuit, vacuum tube, metal crystallization

ABSTRACT: A device for programmed control of the conditions of electroslag remelting is described. The device (see Fig. 1) consists of a program setter, an automatic regulator, apparatus for electroslag remelting, and a movable electrode. Transistor and vacuum-tube versions of current regulators are examined. In order to increase the quality of metal, the current and voltage of electroslag remelting should be programmed so that the depth of immersion of the electrode remains constant during smelting and so that the rate of filling of the crystallizer is equal to the speed of the crystallization front of the ingot. High-speed current regulators with an RU502M program device have been introduced in a number of metallurgical works. The characteristics of the proposed regulator circuits can easily be corrected by

Card 1/3 UDC: 621.791.756:669.187.6:62-503.53

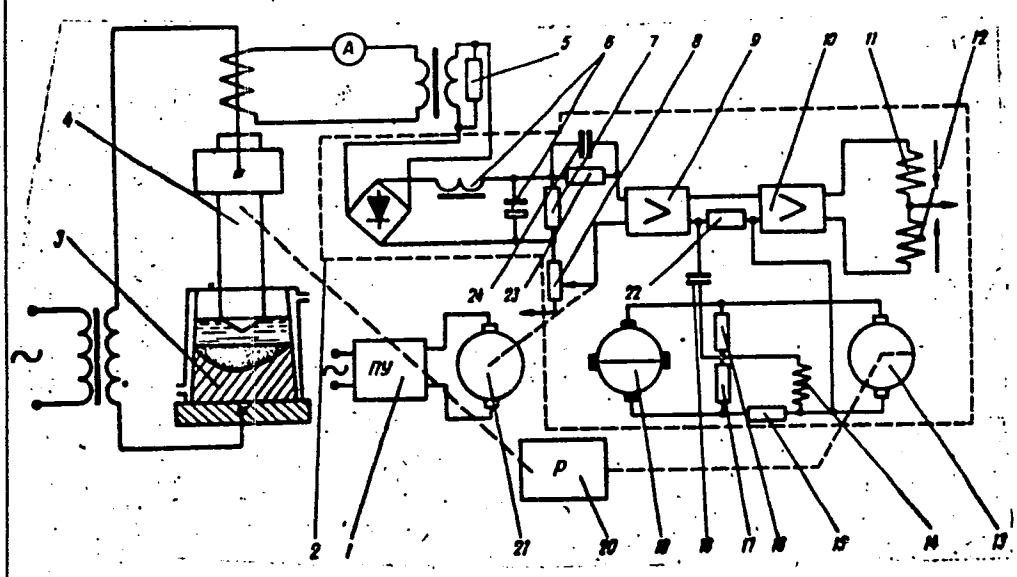


Fig. 1. Block diagram of programmed control device 1 - program setter; 2 - automatic regulator; 3 - remelting apparatus; 4 - movable electrode; 5 - resistor; 6 - LC filter; 7 - resistor; 8 - resistor; 9 - amplifier; 10 - power amplifier; 11, 12 - windings; 13 - motor; 14 - control winding; 15, 16, 17 - resistors; 18 - capacitor; 19 - electromechanical amplifier; 20 - reducing gear; 21 - reversible motor; 22, 23 - resistors; 24 - capacitor.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206220009-0"

L 29691-66

ACC NR: AP6015042

O

introducing correcting elements and feedback. Orig. art. has: 7 figures and 16 formulas.

SUB CODE: 11, 09/ SUBM DATE: 10Jun65/ ORIG REF: 003

Card 3/3 fv

BONDARENKO, O.P.

SKOBLO, David Il'ich, kandidat tekhnicheskikh nauk; GLYBIN, Illarion Petrovich, kandidat tekhnicheskikh nauk; PERETYATKO, Yevgeniy Nikolayevich, inzhener; KASPERSKAYA, Ye.A., redaktor; BONDARENKO, O.P., redaktor; MATUSEVICH, S.M., tekhnicheskiy redaktor

[Automatization of production processes in the food industry] Avtomatizatsiia proizvodstvennykh protsessov pishchevoi promyshlennosti. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1957. 363 p. (MLRA 10:7)
(Automatic control) (Food industry)

SKOBLO, David Il'ich; GLYBIN, Illarion Petrovich; BONDARENKO, O.P., red.; MATUSEVICH, S.M., tekhn. red.

[Automation of food industry processes] Avtomatizatsiia protsessov pishchevykh proizvodstv. 2. izd. dop. i perer. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1962. 508 p. (MIRA 15:7)
(Food industry--Equipment and supplies) (Automation)

BONDARENKO, O.P.

Flotation of manganese ores containing calcium minerals.
Obog. rud 6 no.5:15-18 '61. (MIRA 15:1)
(Flotation)
(Manganese ores)

SKIRSTYMONSKIY, Abram Iosifovich; BONDARENKO, O.P., red.; STARODUB, T.A., tekhn. red.

[Production of sodium glutamate]Proizvodstvo gliutamata natriia. Kiev, Gostekhizdat USSR, 1962. 38 p. (MIRA 15:11)
(Glutamic acid)

L 44454-66 EWT(d)/EWT(m)/EWP(c)/EWP(v)/EWP(t)/ETI/EWP(k) LJP(c) JD

ACC NR: AP6018260 (N) SOURCE CODE: UR/0133/66/000/002/0135/0139

AUTHORS: Medovar, B. I.; Bondarenko, O. P.; Klyuyev, M. M.; Antuan, L.; Zhallas, P.; Bushe, P.; Giber, Zh.; Valle, P. 39 B

ORG: [Medovar, Klyuyev, Bondarenko] Institute for Electrowelding im. Ye. O. Paton AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: Experimental results obtained on the first electroslag furnace built in France according to a Soviet license

SOURCE: Stal'. no. 2, 1966, 135-139

TOPIC TAGS: steel alloy, steel industry, steel microstructure, steel impurity, austenitic steel

ABSTRACT: The performance of the first Soviet-built electroslag steel furnace in France is described. The performance of the furnace was tested on a number of alloy and austenitic steels. The chemical composition, the usual mechanical properties, microstructure, and the distribution of nonmetallic impurities in the steel ingots were determined. The experimental results are presented in graphs and tables (see Fig. 1). It is concluded from the experimental results that the furnace performance was highly satisfactory and that the electroslag method of steel smelting seems to be very promising indeed.

UDC: 669.187.26

Card 1/2

L 44454-66

ACC NR: AP6018260

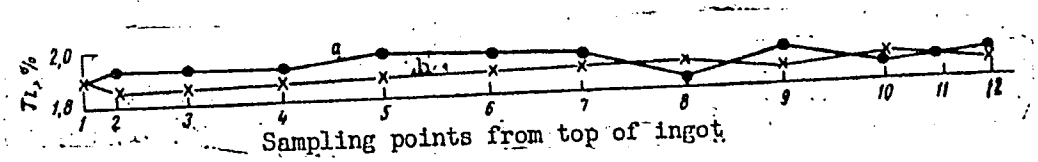


Fig. 1. Distribution of titanium in the ingot of steel G after electroslag smelting (refining) (EShP). a - specimens at 5 mm from edge; b - at 40 mm; height of ingot 1000 mm, cross section at bottom 200 x 200, at 160 x 160 mm; 1 - about 50 mm from top; 12 - about 50 mm from bottom.

Orig. art. has: 3 tables and 7 graphs.

SUB CODE: 11/ SUBM DATE: none

Card 2/2

L 63643-65 EWT(m)/EWP(i)/EWP(b)/EWP(t) IJP(c) JD

ACCESSION NR: AP5016736 UR/0286/65/000/010/0048/0048

621.315.849

AUTHOR: Bondarenko, O. Ye.; Ignat'yev, V. V.; Kondyba, P. Ye.; Korobov, A. I.

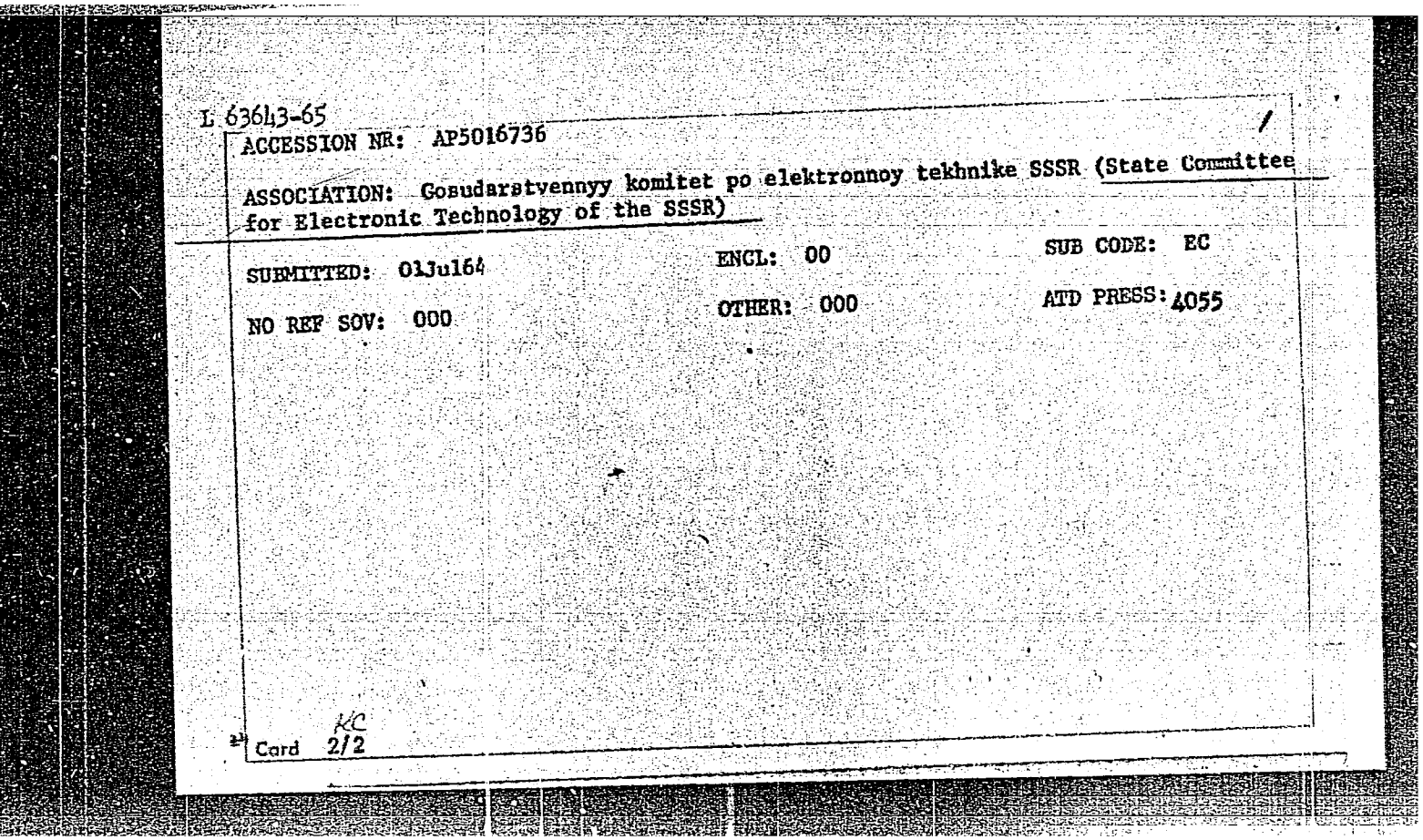
TITLE: A method for the preparation of heat-resistant thin-film resistors. Class 21, No. 171044

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 10, 1965, 48

TOPIC TAGS: heat resistant microresistor, thin film resistor, resistor production

ABSTRACT: This Author Certificate introduces a method for the preparation of heat-resistant thin-film resistors for micro circuits by thermal evaporation of the metallo-silicide alloy on planar heated pyroceramic supports in a vacuum. The method is distinguished by: 1) triple annealing in vacuum of the evaporator carrying the layer of the evaporating alloy at a temperature on the order of 1750C; 2) holding the just sprayed resistor in vacuum for 3 min at a temperature of 340—360C; and 3) final oxidation of the free silicon within the film by atmospheric action. This procedure reduces the scattering of the rated values and increases the stability of the resistor. [03]

Card 1/2



L 63643-65

ACCESSION NR: AP5016736

ASSOCIATION: Gosudarstvennyy komitet po elektronnoy tekhnike SSSR (State Committee for Electronic Technology of the SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: EC

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4055

Card 2/2 KC

ROZOV, Yu. (Moskva); BORODIN, V. (pos.Tuchkovo); SHIFRIN, A. (Leningrad); BONDARENKO, P. (pos.Belyy Kolodez'); VOROVICH, B. (st. Yarmolintsy)

Readers exchange practices. Sov.foto 19 no.11:61-62 N '59. (MIRA 13:4)

(Photography--Equipment and supplies)

BONDARENKO, P., instruktor

Youth on the frontiers of progress. Stroitel', no.7:8-9 Jl '61. (MIRA 14:8)

1. TSentral'nyy komitet Vsesoyuznogo Leninskogo kommunitricheskogo soyuza molodezhi.
(Construction industry--Technological innovations)

BONDARENKO, P.

Council in a field camp. Sov. profsoiuzy 18 no.19:14-15 O '62.
(MIRA 15:9)

1. Sovkhoz "Tikhoretskiy" Krasnodarskogo kraya.
(Krasnodar Territody—Farm mechanization)

STEFANOV, P.; BONDARENKO, P.; KHROMOV, K.

Notes of a naturalist. IUn.nat. no.1:36-39 Ja '63. (MIRA 16:1)

(Animals, Habit and behavior of)

COUNTRY : USSR
CATEGORY : Farm Animals. Q
The Honeybee.
ABS . JOUR. : RZhBiol., No. 6, 1959, No. 25936

AUTHOR : Bondarenko, P. D.
INST. :
TITLE : An Experiment on Using Colonies after Swarming.

ORIG. PUB. : Pchelovodstvo, 1958, No 7, 27-28

ABSTRACT : In an industrial experiment 24 colonies that had swarmed in 1955-1957 were given fertile queens which were readily accepted by the bees. These colonies returned to working conditions rapidly and gathered 10-19 kg more honey than control colonies.

CARD: 1/1

BONDARENKO, P. I.

The lifting and transporting apparatus of open hearth plants Khar'kov, Gos. nauchno-tekhn. izd-vo Ukrainy, 1938. 355 p. (50-53725)

TJ1363.B77

BONDARENKO, P. I.

"Sheet Welding in Blast Furnace Construction," Stal', No.5, p. 432, 1945

Evaluation B-59660

PA 24T32

BONDARENKO, P. I.

USSR/Engineering
Furnaces, Blast
Furnaces - Design

"Experience with Large-capacity Blast Furnaces,"
P. I. Bondarenko, Engr, Glyrokez, 8½ pp

"Stal'" No 9

Sep 1947

Operation of new large-capacity blast furnaces has resulted in some important findings in the technological and construction fields. In particular, it was established that it is necessary to have a good mixture of fuel and cold blast and a change-over to electric starting. The use of welded construction has given many favorable results. The article is well illustrated with diagrams of blast furnaces, installations, and such parts as the loading buckets, etc.

24T32

USSR/Engineering (Contd) Sep 1947

24T32

BONDARENKO, P.M., inzh.; MARISHCHUK, V.T., inzh.; PANOV, I.P., inzh.

Method of manufacturing reinforced concrete rings with a 3.5 diameter. Transp.stroi. 13 no.9:65-66 S '63. (MIRA 16:12)

BONDARENKO, P.M., inzhener-geolog; GOROSHNIKOV, B.I., kand.geologo-mineralogicheskikh nauk; KULISHOV, M.P., kand.geologo-mineralogicheskikh nauk; KUCHER, V.N., geolog

Relationship between the Krivoy Rog metamorphic series and Saksagan plagioclastic granites. Sbor. nauch. trud. NIGRI no.2:132-142 '59. (MIRA 14:1)

(Krivoy Rog Basin—Rocks, Crystalline and metamorphic)
(Saksagan Valley—Granite)

SHLIDERMAN, V.Ya.; BONDARENKO, P.M.

Automation of basic oil ejector pumping processes. Trudy NIITransneft' no.1:151-159 '61. (MIRA 16:5)
(Automation) (Tank cars) (Ejector pumps)

SHLIDERMAN, V.Ya.; BONDARENKO, P.M.

Accelerating the rate of pumping of tank cars of petroleum products having highly elastic vapors. Trudy NIITransneft' no.1:176-186 '61. (MIRA 16:5)

(Tank cars) (Ejector pumps) (Vapors--Elastic properties)

BONDARENKO, P.M.

Measurement of the dielectric permeability of petroleum products.
Trudy NIITransneft' no.3:193-196 '64.
(MIRA 18:2)

BONDARENKO, P.M.

Manifestation of recent movements in the Aktash ore zone and the practical significance of their study. Izv. Alt. otd. Geog. ob-va SSSR no.5:25-27 '65. (MIRA 18:12)

1. Kurayskaya ekspeditsiya Zapadno-Sibirskogo geologicheskogo upravleniya.

S/143/62/000/012/001/005
D238/D308

AUTHORS: Renne, V.T., Doctor of Technical Sciences, Bondarenko, P.N., Li Kuo-ho, Engineers and Kalantar, N.G., Candidate of Technical Sciences

TITLE: Electrical properties of electrical insulating oils obtained from eastern sulfurous petroleum

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 12, 1962, 19-25

TEXT: The tests were carried out on Д -89 (D-89) and D-105 oils obtained by the selective refinement of low-viscosity Tuymaza petroleum distillates. The properties of D-89 and D-105 oils were respectively: d_4^{20} 0.8515; kinematic viscosity at 50°C, 8.67 and 8.10 cst; sulfur content 0.95 and 0.42%; stability by the ВТИ (VTI) method: acid number 0.29 and 0.68 mg KOH/g; sediment 0.04 and 0.03%. Comparisons were made against a high-purity vaseline oil as employed in Class A capacitors. Gassing tests were carried out on impregnated paper insulation. As a function of temperature at 50 c/s, the loss

Card 1/3

Electrical properties ...

angles were greater for both oils than for the vaseline oil while the permittivity of the D-105 oil was very near to that of the vaseline oil, a fact which is associated with the aromatic constituents, while the difference in the loss angles can be atrributed to the influence of electrolytic additions in the D-105 oil. The resistivity/temperature tests showed a lower resistivity for the D-89 and D-105 oils. Slightly lower breakdown voltages as compared with the vaseline oil over the temperature range 20° to 120°C are attributed to inferior refinement. Gassing tests were carried out at 2.5 kv, 50 c/s across 10 layers of impregnated paper with an overall thickness of 0.1 mm representing 25 kv/mm. The higher content of aromatics in the D-89 oil affords improved resistance to gassing, approaching that of the vaseline oil. Loss angle measurements at 50 c/s carried out on test capacitors over a temperature range of 20° to 100°C indicated a marked deviation from the vaseline oil only at temperatures exceeding ~ 90°C. Loss angle tests on D-89 and the vaseline oil at 1800 v, 50 c/s representing 45 kv/mm, indicated complete stability at tan δ = 0.004, over 33 hours, for the D-89 oil. The vaseline oil, starting at 0.003, displayed a catastrophic trend after 20 hours, manifested

by the development of intense ionization processes. The D-89 oil was considered as having advantages over the vaseline oil. The Tuymaza oils are assessed as suitable for power capacitors, given the correct pretreatment. There are 6 figures and 3 tables.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M.I. Kalinina (Leningrad Polytechnic Institute im. M.I. Kalinin) (Renne, Bondarenko and Li Kuo-ho); Institut organicheskoy khimii Bashkirskogo filiala AN SSSR (Institute of Organic Chemistry, Bashkirskiy Division, AS USSR) (Kalantar)

DOLGOV, B.N., doktor khim.nauk; prof. [deceased]; KHUDOBIN, Yu.I., inzh.; KHARITONOV, N.P., kand.khim.nauk; RENNE, V.T., doktor tekhn.nauk, prof.; BONDARENKO, P.N., inzh.; SOYA, G.P., inzh.

Effect of the composition and structure of the molecules of certain organosilicon liquids on their electrical properties. Izv. vys. ucheb. zav.; energ. 5 no.6:31-36 Je '62. (MIRA 15:6)

1. Institut khimii silikatov AN SSSR (for Dolgov, Khudobin, Kharitonov).
2. Leningradskiy politekhnicheskiy institut imeni M.I.Kalinina (for Renne, Bondarenko. Soya).

(Silicon organic compounds--Electric properties)

VOLUBUYEV, S.A.; KOCHUBEY, I.M.; BONDARENKO, D.O.; IZMAYLOV, V.G., inzhener; DOTSENKO, M., redaktor; VUYEK, M., tekhnichniy redaktor.

[Continuous-sequence method in plastering work] Potokovo-rozchlenovanyi metod shtukaturnykh robit. Kyiv, Derzh.vyd-vo tekhn. lit-ry URSR, 1954. 61 p. (MLRA 8:2)
(Plastering)

BONDARENKO, P. P.

Bondarenko, P. P. - "For progressive Michurinist biology in medicine", (On the discussions of the expaned meeting of the Presidium of the academy of medical Sciences, USSR, on 9 and 10 September 1948), Vestnik Akad. med. nauk SSSR, 1948, No. 5, p. 11-19.

So: U-3042, 11 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 7, 1949).

BONDARENKO, P. P.

Science

Methodical material for the study of the philosophical bases of Pavlov's teachings. Moskva, Akademiia med. nauk SSR, 1951.

9. Monthly List of Russian Accessions, Library of Congress, November 1953/2 Unclassified.

BONDARENKO, P.P., professor; FAGOVA, N.M., redaktor; KIRSANOVA, N.A., tekhnicheskiy redaktor.

[Handbook on methods for studying the philosophical principles of Pavlov's physiology] Metodicheskoe posobie k izucheniiu filosofskikh osnov Pavlovskoi fiziologii. Moskva, Izd-vo Akad.med. nauk SSSR, 1953. 37 p. (MLRA 7:11)
(Pavlov, Ivan Petrovich, 1849-1936)

BONDARENKO, P.P., professor

Everlasting and indestructible friendship and unity of brotherly nations; 300th anniversary of the reunification of the Ukraine and Russia. Vest AMN SSSR no.2:3-8 '54. (MLRA 7:7)
(MEDICINE, history,
*Russia)

BONDARENKO, P.P.; KIBOVSKIY, N.I.; BRYANSKIY, I.N.

Ideological work in institutes of the Academy of Medical Sciences of the U.S.S.R. Vest. AMN SSSR no.3:41-46 '54. (MLRA 7:11)
(EDUCATION, MEDICAL,
in Russia, ideol. aspects)

BONDARENKO, P.P.

USSR/Medicine - Regional Pathology, Conference

ID-1773

Card 1/1 · Pub 122-5/9

Author : Bondarenko, P. P., Professor and Karandayev, S. Ye., Can Med Sci

Title : Joint scientific session of the Academy of Medical Sciences USSR and the Ministry of Health Uzbek SSR, dedicated to the problems of regional pathology

Periodical : Vest. AMN SSSR, 1, 40-54, Jan/Mar, 1955

Abstract : A conference on regional pathology and medical parasitology, jointly sponsored by the Academy of Medical Sciences USSR and the Ministry of Health of the Uzbek SSR, was held in Tashkent on September 20-26 1954. About 50 active and corresponding members of the Academy of Medical Sciences USSR and scientists and physicians of Soviet Republics of Central Asia and Transcaucasus were in attendance. Polish People's Republic and Asian countries within and without the Soviet orbit sent their delegates in response to invitation of the Soviet government. It was reported that a reliable vaccine has been developed against Omsk hemmorrhagic fever and that an avirulent brucellar vaccine and dry live vaccine have proven effective in preventing brucellosis in cattle. It was also reported that vaccine against typhus fever has been manufactured in large quantities in the USSR. Vice-President of the Academy of Medical Sciences USSR who presided over the conference stated that "the Soviet medical scientists are under obligation to develop preventive measures against a number of diseases prevalent predominantly in the Republics of Central Asia."

Institution: --

Submitted

BONDARENKO, P.P., professor

Father of Russian physiology; on the 50th anniversary of I.M. Sechenov's death. Vest. AMN SSSR no.4:37-49 '55. (MLRA 9:2)

(BIOGRAPHIES,
Sechenov, I.M.)

BONDARENKO, P.P., professor

Champion of the scientific outlook and progress in science. Vest. AMN SSSR 11 no.2:89-91 '56. (MIRA 9:8)
(MECHNIKOV, IL'IA IL'ICH, 1845-1916)

BONDARENKO, P.P.; MINASOV, V.S.

A new international medical magazine, "Living conditions and health." Vest. AMN SSSR 12 no.1:90-94 '57 (MLRA 10:5)
(PUBLIC HEALTH--PERIODICALS)

BONDARENKO, P.P., professor

Darvinism and medicine; on the 75th anniversary of Charles Darwin's death. Vest.AMN SSSR 12 no.2:45-51 '57. (MIRA 10:10)

(MEDICINE
Darwinism in med.)
(DARWIN, CHARLES ROBERT, 1809-1882)

BONDARENKO, P.P., prof.

[redacted]

Founder of physiological science on the 300th anniversary of W.Harvey's death, 1578-1657. Vest. AMN SSSR 12 no.6:66-71 '57. (MIRA 11:2)
(PHYSIOLOGY
contribution of William Harvey)
(HARVEY, WILLIAM, 1578-1657)

BONDARENKO, P.P., prof.

Valuable handbook on public health problems in the socialist countries. Vest.AMN SSSR. 13 no.7:89-95 '58 (MIRA 11:8)
(PUBLIC HEALTH)

BONDARENKO, P.P., prof.; RABINOVICH, M.Kh., dots.

Problem of the ideological struggle with modern freudianism. Vest. AMN SSSR 14 no.1:73-91 '59. (MIRA 12:2)
(PSYCHOANALYTICAL THEORY,
Freud's doctrines (Rus))

BONDARENKO, P.P., prof.

Certain philosophical problems in theoretical medicine.
Vest.AMN SSSR 14 no.7:87-92 '59. (MIRA 12:9)
(PHILOSOPHY, MEDICAL)

BONDARENKO, P.P., prof.; RABINOVICH, M.Kh., dotsent

Remarkable date in the history of the struggle for materialism in philosophy and natural science. Vest. AMN SSSR 14 no.9:76-85 '59.
(MIRA 13:1)

(MEDICINE--PHILOSOPHY)

BONDARENKO, P.P.; RABINOVICH, M.Kh.

"Interesting and necessary book on theoretical problems of the structure and activity of the brain." Reviewed by P.P.Bondarenko, M.Kh. Rabinovich. Vest. AMN SSSR 16 no.6:88-91 '61. (MIRA 15:1)
(BRAIN)

BONDARENKO, P.P.; RABINOVICH, M.Kh.

Great founder of Russian science; on the 250th anniversary of the birth of M.V.Lomonosov. Vest. AMN SSSR 16 no.11:83-87 '61. (MIRA 15:2)

(LOMONOSOV, MIKHAIL VASIL'EVICH, 1711-1765)

OPARIN, A.I., akademik; STUDITSKIY, A.N., prof.; NAUMOV, N.P., prof.; KOVAL'SKIY, V.V.; YUROVA, I.L., dots.; PLATONOV, G.V., prof.; KAGANOV, V.M.; FURMAN, A.Ye., dots.; MEDVEDEV, N.V., prof.; YAKIMOV, V.P., kand. biol. nauk; ZHUKOV-VEREZHNIKOV, N.N.; BONDARENKO, P.P., prof.; MAYSKIY, I.N., prof.; TRIBULEV, G.P., dots.; TSAREGORODTSEV, G.I., dots.; DOBROKHVALOV, V.P., kand. biol. nauk; YAZDOVSKIY, V.I., prof.; VIKTOROVA, V., red.; CHEREMNYKH, I., mlad. red.; ULANOVA, L., tekhn.red.

[Studies on the dialectic of living nature] Ocherk dialektiki zhivoi prirody. Moskva, Sotsekgiz, 1963. 527 p. (MIRA 16:12)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni V.I.Lenina (for Koval'skiy).
2. Deystvitel'nyy chlen AMN SSSR (for Zhukov-Verezhnikov).
(Biology--Philosophy)

PA 192T51

USSR/Mathematics - Approximation Methods Sep/Oct 51

"Problem Concerning the Uniqueness for Infinite Systems of Linear Equations," P. S. Bondarenko, Artemovsk

"Matemat Sbor" Vol XXIX (71), No 2, pp 403-418

Bondarenko's purpose is to establish sufficiently general and easily verifiable conditions governing the uniqueness for systems of the following type: $x_i = a_{ik}x_k + b_i$ $(i=1,2,\ldots)$, where the summation convention with regard to

192T51

USSR/Mathematics - Approximation Methods (Contd) Sep/Oct 51

repeated indices holds. At the basis of the investigations lies the idea of the majoration of the given systems to a certain other system. Boundary-value problems of math physics, integration of ordinary differential eqn by aid of series, the expansion of functions assigned in advance, and other problems lead to the necessity of studying such systems. Submitted 7 Jul 50.

192T51

BONDARENKO, P. S.

BOND AFSWP, U.S.

Bondarenko, P. S. On uniqueness (or infinite systems of linear equations. Mat. Sbornik N.S. 29 71 (1951). (Russian)

Various theorems on uniqueness are obtained for the system (1) $x_i = \sum_{k=1}^{\infty} a_{ik} x_k - B_i$, $(i = 1, 2, \ldots)$, equivalent in relation to a majorant system (1') $X_i = \sum_{k=1}^{\infty} A_{ik} X_k - B_i$, $(i = 1, 2, \ldots)$, defined as any system for which $|a_{ik}| \leq A_{ik}$ and $|b_i| \leq B_i$. A principal tool is the method of successive approximations, wherein starting with initial values $x_i^{(0)}$ one defines a sequence of approximations $x_i^{(n)} = \sum_{k=1}^{\infty} a_{ik} x_k^{(n-1)} - b_i$ $(i = 1, 2, \ldots; n = 1, 2, \ldots)$. If the initial values $x_i^{(0)}$ are all zero, the corresponding solution $x_i^{(n)}$ of (1), if it exists, is called the principal solution, correspondingly for system (1').

Some results found in Kantorovič and Krylov, Approximate methods of higher analysis, 3d ed., Moscow-Leningrad, 1950, pp. 31–35; these Rev. 13, 77) are stated for reference. Among the theorems proved the following are typical:

(i) If system (1') satisfies condition (c) $\sum_{k=1}^{\infty} A_{ik} \leq \lambda < 1$ $(i = 1, 2, \ldots)$, λ constant), then (1') cannot have a finite solution different from the principal solution and if (1') has a solution bounded below as above, then system (1) has a unique bounded solution. [illegible] system (1') is regular (i.e., $\sum_{k=1}^{\infty} A_{ik} < 1$, $(i = 1, 2, \ldots)$) and has a non-negative solution, then system (1) satisfies condition (c), and has a unique bounded solution, and this solution can be obtained by the method of successive approximations, starting with an arbitrary bounded set of initial values $x_i^{(0)}$.

(iii) A regular system cannot have more than one solution tending to zero.

An example in the theory of condensation of singularities of analytic functions of several complex variables is given, in which the uniqueness of a solution is established by means of the results of this paper.

[illegible] State [illegible]

Source: Mathematical Reviews, Vol. 13 No.5

BONDARENKO, P.S.

Convergence of the algorithm of successive approximations and the evaluation of errors connected with the numerical solution of infinite systems of linear algebraic equations. Nauk.zap.Kyiv. un. 16 no.2:81-89 '57. (MIRA 11:11)
(Mathematical analysis)

S/044/62/000/002/030/092
C111/C333

16.3800
24.4000

AUTHOR: Bondarenko, P. S.

TITLE: On the solution of the fundamental biharmonic problem with the aid of power series

PERIODICAL: Referativnyy zhurnal, Matematika, no. 2, 1962, 63-64, abstract 2B282. ("Nauk. zap. Kyivs'k. un-t", 1957, 16, no. 16, 171-193)

TEXT: The author considers the approximative solution of the fundamental beharmonic problem for domains which can be mapped onto a circle; the problem is reduced to an infinite system of linear algebraic equations. Sufficient conditions are given that the infinite system possesses a solution guaranteeing the existence of the solution of the biharmonic problem. The same conditions also guarantee the convergence of the approximative solution to the rigorous solution. If $\omega(\zeta)$ maps the unit circle onto the given domain, if $\sigma = e^{iv}$ -- point on the circle γ and if $P(\sigma)$ is a given function of the arc v of γ, then the main results of the paper can be formulated in two sentences:

Card 1/3

1. Let be satisfied: a.) $\frac{\omega(\sigma)}{\omega'(\sigma)}$ has derivatives of first and second order on $0 \leq v \leq 2\pi$, $F(\sigma)$ there has derivatives of first order; the second derivative of the first function and the first derivative of the second function satisfy the Lipschitz condition with an exponent $\alpha = \frac{1}{2}$; b.) $\operatorname{Re}\left[\sum_{\gamma} F(\sigma)\,\overline{\omega'(\sigma)}\,\overline{d\sigma}\right] = 0$. Then the system

$$a_k + \sum_{\nu=1}^{\infty} \overline{\nu a}_{\nu}\, \delta_{k+\nu-1} = A_k \quad (k = 1,2,\ldots), \tag{1}$$

$$b_k + \sum_{\nu=1}^{\infty} \nu\, \bar{a}_{\nu}\, \delta_{-k+\nu-1} = A_{-k} \quad (k = 0, 1, 2,\ldots)$$

has a solution which for $|\delta| \leq 1$ guarantees the absolute convergence of the series

Card 2/3

$$\tau(\zeta) = \sum_{k=1}^{\infty} a_k \zeta^k, \quad \psi(\zeta) = \sum_{k=0}^{\infty} b_k \zeta^k,$$

$$\varphi'(\zeta) = \sum_{k=1}^{\infty} k a_k \zeta^{k-1} .$$

2. If the conditions a.), b.) are satisfied, then the approximative system obtained from (1), when all σ_k with $k > n$ are put equal to zero, is absolutely solvable and gives an approximative solution which tends for $n \to \infty$ to the solution of (1); here the approximative solution of the biharmonic problem converges to its rigorous solution.
[Abstracter's note: Complete translation.]

Card 3/3

S/044/62/000/006/087/127
B166/B112

AUTHOR: Bondarenko, P. S.

TITLE: The convergence of the algorithm of successive approximations for a biharmonic difference equation

PERIODICAL: Referativnyy zhurnal. Matematika, no. 6, 1962, 35, abstract 6V165 (Visnik Kiivs'k. un-tu, no. 1, 1958, ser. astron., matem. ta mekhan., no. 2, 31-39)

TEXT: The convergence of one of the modifications of Seidel's iterative method is proved in its application to the system of linear algebraic equations obtained in the fundamental biharmonic problem where the biharmonic equation is replaced by difference equations. Convergence follows from the fact that the matrix of the system of biharmonic difference equations possesses the same properties as the matrix of the system of harmonic difference equations (in the fundamental Dirichlet problem), namely: it depends only on the arrangement of the mesh points within the domain and on the boundary (it does not depend on the given boundary values), and is symmetric, non-singular, and positive definite.

Card 1/2

S/044/62/000/006/087/127
B166/B112

The convergence of the algorithm ...

[Abstracter's note: Complete translation.]

Card 2/2

S/044/62/000/006/076/127
B168/B112

16.3900

AUTHOR: Bondarenko, P. S.

TITLE: One class of linear difference operators

PERIODICAL: Referativnyy zhurnal. Matematika, no. 6, 1962, 25, abstract 6V132 (Visnyk Kyivs'k. un-tu, no. 2, 1959, Ser. astron., matem. ta mekhan., no. 2, 26-44)

TEXT: The class of differential equations

$$L_u = \sum_{\nu=0}^{p} (-1)^{\nu} \frac{d^{\nu}}{dt^{\nu}} \left[P_{\nu}(t) \frac{d^{\nu} u}{dt^{\nu}} \right] = f(t) \qquad (1)$$

with the boundary conditions

$$l_i u = \sum_{\nu=0}^{2p-1} \left[a_{i\nu} u^{(\nu)}(\alpha) + b_{i\nu} u^{(\nu)}(\beta) \right] = 0, \quad i=1,\ldots,2p. \qquad (2)$$

is solved by the method of finite differences. The conditions which must be imposed on the coefficients $P_{\nu}(t)$ and the constants $a_{i\nu}$ and $b_{i\nu}$, in

Card 1/4

One class of linear difference...

order that the corresponding system of difference equations have a symmetrical positive definite difference operator, are investigated. Two sets of functions are introduced into the consideration:

(1) $C^{2p}(\alpha,\beta)$ is the set of functions $u(t)$, defined on (α,β), differentiable 2p times and satisfying the boundary conditions (2);
(2) $C(\alpha,\beta)$ is the set of functions $x(t)$, defined and continuous on $[\alpha,\beta]$, and also the differential operator A with the domain of definition $C^{2p}(\alpha,\beta)$ and such that the result of its application to the function $u(t)\in C^{2p}(\alpha,\beta)$ is the right-hand side of equation (1). Then (1) and (2) can be written in the form of one operator equation

$$Au = f. \qquad (3)$$

Using the method of finite differences from the operator equation (3) the author goes over to the difference equation

$$\tilde{A}_h \tilde{u}_h = f_h^*. \qquad (4)$$

Having defined the concept of approximation of the differential equation by difference equations, as well as the concept of the order of approximation and that of stability of the difference equation, the author proves the

Card 2/4

following propositions: (1) If $P_\nu(t)$ ($\nu = 0,1,\ldots,p$) is ν times continuously differentiable on (α,β), then in the class of functions $C^{2p}(\alpha,\beta)$ the difference equation (4) approximates the differential equation (3). (2) If the difference operator $\tilde{A}_h$ is positive definite, then it has the inverse operator $\tilde{A}_h^{-1}$, which is defined on a set of vectors F_h^* of the form $f_h^* = (\underbrace{0,\ldots,0}_{p}, f_p,\ldots, f_{N-p}, \underbrace{0\ldots,0}_{p})$; $f_j = f(t_j)$, and is uniformly (relative to h) bounded on this set:

$$\left\| \tilde{A}_h^{-1} f_h^* \right\| \leqslant \frac{\beta - \alpha}{\gamma^2} \left\| f_h^* \right\|,$$

where $\gamma > 0$ is a constant not dependent on h or $\tilde{u}_h$. (3) If the difference operator $\tilde{A}_h$ is positive definite, then the difference equation (4) is stable. (4) If the difference operator $\tilde{A}_h$ is positive definite, then there is a unique solution of $u(t) \in C^{2p}(\alpha,\beta)$ for the differential equation (3) for any given function $f(t) \in C(\alpha,\beta)$. The solution of the difference equation (4)

Card 3/4

One class of linear difference...

S/044/62/000/006/076/127
B168/B112

with $h \to 0$ converges to the solution of the differential equation (3): $\lim_{h \to 0} \|u - \tilde{u}_h\| = 0$. (5) The difference operator approximating differential operator (1) with the boundary conditions $u^{(\nu)}(\alpha) = 0$, $u^{(\nu)}(\beta) = 0$ $(\nu = 0,1,\ldots,p-1)$ will be positive definite if $P_\nu(t) \geqslant 0$, $(\nu = 0,1,\ldots,p-1)$ and $P_p(t) \geqslant \sigma_0 > 0$, $\alpha \leqslant t \leqslant \beta$, $P_\nu(t)$ are ν times continuously differentiable, whilst $f(t)$ is continuous on $[\alpha,\beta]$. In the concluding section, four boundary value problems are examined - two for the Sturm-Liouville equation and two for the equation for the flexion of a beam of varying cross section resting on an elastic base with different boundary conditions. [Abstracter's note: Complete translation.]

Card 4/4

16.6500

39893
S/044/62/000/007/054/100
C111/C333

AUTHOR: Bondarenko, P. S.

TITLE: On the error estimation and the stability of numerical methods for solving the Cauchy problem for systems of ordinary differential equations

PERIODICAL: Referativnyy zhurnal, Matematika, no. 7, 1962, 26-27, abstract 7V132. ("Visnyk Kyivs'k. un-tu", 1959, no. 2, ser. astron., matem. ta mekhan., no. I, 47-73)

TEXT: The author suggests the so-called generalized numerical method for the solution of the Cauchy problem

$$\frac{du}{dt} = f(t,u),\ u(t_0) = u_0,\ (t_0, u_0) \in D^* \qquad (1)$$

where f(t,u) and u are vector functions of the p-dimensional space R^p, where f(t,u) has continuous partial derivatives of the order s according to $t, u^{(1)}, \ldots, u^{(p)}$ in a certain domain D^* of the p+1-dimensional space. The suggested method consists of the following: The

Card 1/4

approximate solution of (1) is constructed in the nodes

$$t_j = t_o + jh_n, \quad h_n = \frac{T-t_o}{n} \quad (j = 0,1,\ldots,n)$$

of the interval $[\, t_o, T \,]$ according to the formula

$$u^n_{k+1} = u^n_k + h_n C(t_k, u^n_k) \quad (k = 0, \ldots, n-1) \qquad (2)$$

and in the points situated between the nodes t_k and t_{k+1} according to the formula

$$u^n(t) = u^n_k + h_n \sum_{j=0}^{k-1} C(t_j, u^n_j) + (t - t_k)\, C(t_k, u^n_k), \qquad (3)$$

$k = 0, \ldots, n-1;$ $t_k < t < T,$ $u(t) \in D.$

where

$$C(t_k, u^n_k) = a(t_k, u^n_k) + b(t_{k+1}, u^n_{k+1})$$

Card 2/4

If $b(t,u) = 0$, then the method (2), (3) is called extrapolating, and if $b(t,u) \neq 0$, interpolating. For the error of the approximate solution of (1) $z_k = u_k - \overset{n}{u}_k$ in point t_k, where u_k is the rigorous and $\overset{n}{u}_k$ is the approximate solution of (1), the author gives the estimate

$$\| z_k \| \leq \| z_\nu \| \exp \left\{ \int_{t_\nu}^{t_k} \vartheta(x)dx \right\} + \int_{t_\nu}^{t_k} \| \varepsilon(s) \| \exp \left\{ \int_{s}^{t_k} \vartheta(x)dx \right\} ds \qquad (4)$$

where

$$\varepsilon(t) = -c(t_k, \overset{n}{u}_k) + f(t, \overset{n}{u}_k)$$

and $\vartheta(t)$ is a continuous function on $[t_0, T]$ which satisfies

$$\frac{\left(\int_0^1 l(t, \overset{n}{u} + \theta z)d\theta z, z \right)}{(z,z)} < \vartheta(t), \quad t_0 < t < T.$$

Card 3/4

where I(t,u) is the Ostrogradskiy-Jacobi matrix of the vector function f(t,u).The generalized method (2), (3) comprises all presently known numerical methods for the solution of the Cauchy problem for systems of ordinary differential equations. As special cases the author obtains from (2), (3) the Runge-Kutta method of second, third and fourth order, the Nystroem scheme, the extrapolation and interpolation methods of Adams, the polygonal line method of Euler and the improved polygonal line method of Euler, the improved Euler-Cauchy method, several new calculating schemes and numerical methods that use the Hermite-Markov interpolation polynomial. From (4) automatically follow for all these methods the error estimates of the solutions z_k as well as explicit expressions for $\varepsilon(t)$ and for the method error δ_i. The author defines the stability of the difference schemes and proves the theorem: If the vector functions a(t,u) and b(t,u) constructed with the help of the vector function f(t,u) (cf. (3)) satisfy a Lipschitz condition in D, then the calculation scheme (2) of the generalized numerical method is certainly stable. With sufficient smoothness in f(t,u) all the calculating schemes enumerated above are stable.

[Abstracter's note: Complete translation.]