

82048

The Possible Cause of the Change in the
Relationship Between the Sun and the
Terrestrial Atmosphere

S/050/60/000/07/02/002
B019/B063

82048

that solar activity has different effects on atmospheric circulations. Magnetic storms on the Sun had different effects. Next, the author gives data on violent and very violent magnetic storms between 1900 and 1939. The examples given here, supplemented by various diagrams (Figs. 1 and 2), indicate that an increase in solar activity may have different effects upon the processes taking place in the lower strata of the atmosphere. Mention is made of M. S. Eygenson's (Ref. 7) and A. I. Ol's (Ref. 4) discovery of cyclic variations in the hardness and direction of the corpuscular radiation of the Sun, and it is noted that the type of change in the relationship between the Sun and the atmosphere is thus also dependent on the rotation of the Sun. This hypothesis is now being verified with material from the International Geophysical Year. There are 2 figures and 7 Soviet references.

X

Card 2/2

VITEL'S, L.A.

Solar calendar of ultrapolar processes. Trudy GGO no.90:116-129
'60. (MIRA 13:6)

(Sun) (Meteorology)

VITE 1/3, 2 A.

PHASE I BOOK EXPLOITATION

SOV/4192

SOV/2-S-90

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy sinopticheskoy klimatologii (Problems in Synoptic Climatology) Leningrad, Gidrometeoizdat, 1960. 154 p. (Series: Its: Trudy, vyp. 90) Errata slip inserted. 1,100 copies printed.

Additional Sponsoring Agency: USSR. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

Ed. (Title page): O. A. Drozdov, Doctor of Geography; Ed. (Inside book): V. S. Protopopov; Tech. Ed.: M. I. Braynina.

PURPOSE: The publication is intended for meteorologists and climatologists.

COVERAGE: This is a collection of 11 articles published as No. 90 of the Transactions of the Main Geophysical Observatory imeni A. I. Voyeykov
Card 1/4

Problems in Synoptic Climatology

SOV/4192

and dealing with problems of synoptic climatology. Individual articles are concerned with the succession of synoptic processes as the basic for forecasting, atmospheric circulation over China, frequency of typhoons over China, and various processes of the eastern and western forms of atmospheric circulation. References accompany each article.

TABLE OF CONTENTS:

Afanas'yeva, V.B. **Testing a Forecasting Method**
Based on the Succession of Synoptic Processes 3

Chzhan Tszya-chen. Long-Term Mean Characteristics
of Some Meteorological Elements and of Circulation
over China in Winter 11

Chzhan Tszi-tszya. Long-Term Mean Characteristics
of Atmospheric Circulation and Weather Conditions
over China in Summer 43

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Problems in Synoptic Climatology

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Chzhan Tszi-tszya. Long-Term Change in Some Meteorological Elements and the Frequency of Typhoon over China and Their Connection With the Epochal Transformations of W, C, E Forms 63

Dunayeva, A. V. Relation Between the Diurnal Anomalies of Air Temperature and the Variety of Processes of the Eastern Form of Circulation 79

Dunayeva, A. V. Relation Between the Diurnal Anomalies of Air Temperature and the Variety of Processes of the Western Form of Circulation 87

Vitel's, L. A. Long-Term Changes in the Frequency of Various Forms of Atmospheric Circulation and Their Transformations in Connection With Solar Activity 95

Vitel's, L. A. Solar Calendar of Ultrapolar Processes 116

Shapayev, V. M. Trade-Wind Circulation Over the Atlantic Ocean 130

Card 3/4

Problems in Synoptic Climatology

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Spitsyna, N. L. Application of Some General Laws of Cyclone
Movement to Those Cyclones Which Cause the Danger of Flood
on the Neva River

149

AVAILABLE: Library of Congress

Card 4/4

JA/cdw/ec
9-15-60

VITEL'S, L.A.

3(7) PHASE I. BOOK EXPLOITATION NOV/3121

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy sinopticheskoy klimatologii i geofiziki (Problems of Synoptic Climatology and Helio-geophysics). Leningrad. Glavnaya geofizicheskaya observatoriya. 1959. 81 p. (Series: Nauch. Trudy, vyp. 89) Errata slip inserted. 1,200 copies printed.

Sponsoring Agency: USSR. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

Ed. (title page): L.A. Vitel's, Candidate of Geographical Sciences; Ed. (inside book): Yu.V. Vlasov; Tech. Ed.: M.V. Volkov.

Summary: These articles are intended for geophysicists and meteorologists in the field of long-range weather forecasting.

COVERAGE: This is a collection of 8 articles in the field of synoptic climatology with emphasis on the methodology of long-range forecasting and problems of helio-geophysics in relation to weather. An analysis is made of studies conducted in the transfer of moisture over the USSR and the use of the results obtained in quantitative precipitation forecasting. Problems in the formation of thermal anomalies in the USSR, taking into account the effects of the thermal regime, macrocirculation, and helio-geophysical relations, are discussed. Forecasting the level of the Caspian Sea for the coming ten-year period on the basis of expected solar activity is attempted. Problems in the verification of long-range weather forecasts are also discussed. References accompany individual articles.

TABLE OF CONTENTS:

Grigor'yeva, A.S. Transfer of Water Vapor Over European USSR During Different Times of the Year	3
Grigor'yeva, A.S., and O.A. Dvortsov. Applying the Characteristics of Moisture Transfer to Quantitative Forecasting of Precipitation	21
Pokrovskaya, T.V. The Two-Year Cycle in Meteorological Phenomena	28
Grigor'yeva, A.S., and T.V. Combined Use of the Characteristics of Forms and Intensity of Atmospheric Circulation in Analysing Thermal Anomalies	35
Spivakov, L.F. Leningrad and Orenburg as Examples in Inertia Forecasting of Monthly Anomalies of Air Temperature	53
Vitel's, L.A. Verification of the Method of Forecasting Seasonal Characteristics of Circulation	60
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Card 1/3

TM/jb
2/12-60

VITEL'S, V.L.

Testing and adjusting the vibrating converters for electronic
potentiometers. Bum.prom. 34 no.6:10-11 Je '59.
(MIRA 12:10)

1. Sazezhskiy tsellyulozno-bumazhnyy i derevoobrabatyvayushchiy
kombinat.

(Paper industry—Equipment and supplies)
(Potentiometer)

KOROL'KOV, I.I.; KAL'MANOVICH, S.L.; VITEL'S, V.L.; EFROS, I.N.

Introducing automatic control for the stabilization of hydrolysis processes. Gidroliz.i lesokhim.prom. 13 no.4: 11-14 '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy institut gidroliznoy i sul'fitno-spirovoy promyshlennosti (for Kal'manovich). 2. Segezhskiy gidroliznyy zavod (for Efros).
(Segezha--Hydrolysis) (Automatic control)

VITEL'S, V.L.

Regulator of pulp concentration equipped with an induction
pickup. Bum.prom. 35 no.6:16-18 Je '60.
(MIRA 13:7)

1. Nachal'nik kontrol'no-ismeritel'nykh priborov i avtomatiki
Segeshakogo kombinata.
(Segesha--Paper industry--Equipment and supplies)

VITEL'S, V.L.

Measuring and recording device of a papermaking machine. Bum.prom.
35 no.4:20-22 Ap '60. (MIRA 13:10)

1. Nachal'nik tsekha kontrol'no-izmeritel'nykh priborov i avtomatiki
Segezhdskogo tsellyulozno-bumazhnogo i derevoobrabatyvayushchego kom-
binata.

(Segezha--Papermaking machinery)

POLAND/Chemical Technology - Cellulose and Its Derivatives.
Paper.

H.

Abs Jour : Ref Zhur - Khimiya, No 16, 1958, 56086

Author : Bukala, Burchik, Viten.

Inst : -

Title : Side Products in the Cellulose-Paper Industry. I.
Investigation of a Crude Turpentine Composition
(Sulfate Process). 2. Separation of Camphene.

Orig Pub : Przegl. papieru, 1957, 13, No 12, 360-364

Abstract : Turpentine is one of the side products in the sulfate processing of cellulose, and it contains 1.5 - 1.7% of SO_2 . Its composition was established by means of fractional distillation, and was found to contain: cymene (87.1%), dl-camphene (1.36%), other terpenes (0.86%) and fractions not steam distillable (7%). The camphene was isolated in a crystalline form. The presence of alpha pinene, beta- and gamma-terpines in the mixture

Card 1/2

BELEN'KIY, B.G.; VITENBERG, A.G.; D'YAKONOV, I.A.

Use of 1,2,3-tris-(2-cyanoethoxy)propane as a stationary phase for
gas-liquid chromatography. Izv.AN SSSR. Ser.khim. no.1:193-195 Ja
'64. (MIRA 17:4)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR i Leningradskiy
gosudarstvennyy universitet.

BATUNER, L.M.; LYASHEVICO, V.D.; VOVSI, B.A.; VITENBERG, A.G.

Thermokinetics of the catalytic decomposition of o-methoxyphenyl
diazonium sulfate. Trudy Len. khim-farm. inst. no.14:113-122
'62 (MIRA 17:12)

ADAMOVICH, A.I.; VITENBERG, A.G.

Synthesis of dopane. Med.prom. 14 no.3:12-15 Nr '60.

(MIRA 13:6)

1. Zavod "Farmakon".

(URACIL)

NIKOLAYEV, A.N.; YARTSEV, V.G.; VITENBERG, A.R.; NAUMOVA, V.V.

Protection of the internal surfaces of chemical apparatus. Plast.
massy no.6:37-40 '63. (MIRA 16:10)

ACCESSION NR: AP4009835

S/0191/64/000/001/0052/0054

AUTHOR: Nikolayev, A. N.; Yartsev, V. G.; Kulikov, N. V.; Vitenberg, A. R.; Matveyeva, Ye. A.; Ter-Mkrtchan, G. S.; Naumova, V. V.

TITLE: Glass plastics for constructional purposes

SOURCE: Plasticheskiye massy*, no. 1, 1964, 52-54

TOPIC TAGS: plastics, glass plastics, binders, polyester, resin PH-1, epoxy resins, styrene, glass lubricants, glass fillers, plastic tubes, hexamethylenediamine, metaphenylene diamine

ABSTRACT: A very simple and effective technological process for the continuous manufacture of shaped products from glass plastics is described. The products obtained on the stretching apparatus are characterized by high strength and can be applied in various industrial fields. The relationship between the hardeners and the processibility of resin on the continuous apparatus is investigated for a styrene-epoxide compound at a hardening temperature of 140 C. The properties of the styrene-epoxide compound with different hardeners

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are tabulated. The influence of new lubricants, As-1, AF-1, PVE, PVE-3, on the strength of glass plastic was investigated. The relationship between the strength of glass plastic pipes under axial compression and the glass filler content is established. Suggestions for the best choice of binders, lubricants and fillers are given. Glass plastic rods of small diameter made on the continuous machine have a high breaking strength similar to the strength of steel cables. Orig. art. has: 2 tables.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 10Feb64

ENCL: 00

SUB CODE: CH, MA

NO REF SOV: 000

OTHER: 000

Card 2/2

L 58975-65 EWP(e)/EPA(s)-2/EWT(m)/EPP(c)/EPR/EWP(j)/T Pc-L/Pr-L/Ps-L/Pt-L
EM/WW

ACCESSION NR: AP5014698

UR/0191/65/000/006/0062/0064

AUTHOR: Vitenberg, A.R.; Dudina, Yu. D.; Mikhaylova, Z.V.; Mironova, V.V.

TITLE: Properties of fiberglass reinforced plastics of high transparency

SOURCE: Plasticheskiye massy, no. 6, 1965, 62-64

TOPIC TAGS: fiberglass reinforced plastic, transparent plastic, glass filler, sizing agent, binder, polyester resin, polymer stability

ABSTRACT: The authors studied the influence of various types of glass fillers, sizing agents and binders on the properties of fiberglass reinforced plastics of high transparency.

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L 58975-65

ACCESSION NR: AP5014698

stability of the fiberglass reinforced plastics to water, light, and the atmosphere was also studied. It is concluded that the plastics prepared by using PNM-8 and PNM-2 are characterized by a high transparency (70-80%), good physicochemical properties, and resistance to the effect of the atmosphere and light.

the experimental work.

ASSOCIATION: none

SUBMITTED: 00

NO REF SOV: 000

ENCL: 00

SUB CODE: MT

OTHER: 004

2/2

NIKOLAYEV, N.; YARTSEV, V.G.; KULIKOV, N.V.; VITENBERG, A.R.;
MATVEYEVA, Ye.A.; TER-MKRTCHAN, G.S.; NAUMOVA, V.V.

Glass plastics for building purposes. Plast.massy no.1:52-54
'64. (MIRA 17:6)

VITENBERG, A.R.; DUDINA, Yu.D.

Colored glass-reinforced plastics as building materials. Plast.
massy no.10:47-49 '60. (MIRA 13:12)
(Glass reinforced plastics) (Building materials)

WILSON, A.B.; WILSON, A.B.; WILSON, A.B.; WILSON, A.B.

Properties of some plastic films in contact with water. Part 1.
WILSON, A.B.; WILSON, A.B. (MIRA 18:8)

VITENBERG, A.S.; BAKHSHIYAN, TS.A.; LEONTOVICH, V.Ye.; LETNIKOV, Yu.S.

Gas furnace for the heating of tubular blanks. Stal' 22
no.3:279 № 162. (MIRA 15:3)
(Furnaces, Heating--Patents)

VITENBERG, G., Cand Med Sci -- (diss) "Electrogastrography
in the diagnosis of ^{gastro}intestinal diseases." Riga, 1958. 29 pp
with illustrations (Inst of Experimental Medicine Acad Sci
LaSSR). 200 copies.
(KL, 12-58, 101)

-78-

VITENBERG,

*Subsidiary Apparatus +
Materials*

1334. THE OPERATING TIME OF IMPULSE RELAYS --
Vitenberg. (*Automatics & Telemechanics* [in
Russian], No. 2, 1941, pp. 73-83.)

A general formula (6) determining the operating time
of an impulse relay is written down and the mathematical
difficulties involved in the use of this formula are pointed
out. Accordingly a simplified method is proposed and
a number of numerical examples are given.

VITENBERG,
W. E.

Subsidiary Apparatus and Materials

1335. THE INDUCTANCE OF A RELAY CARRYING A CON-
STANT CURRENT. Vitenberg. (*Automatics & Tele-
mechanics* (in Russian), No. 2, 1941, pp. 85-94)

In calculating the operating time of a relay it is necessary
to know the dynamic inductance of the relay, i.e. the
inductance when the current is growing and the armature
moving. In view of the difficulties in determining the
dynamic inductance it is normal in practice to use the
static inductance. A method for calculating this, with the
magnetic reluctance of iron taken into account, is proposed
and a number of numerical examples are given.

VITENBERG,
14 E

*Subsidiary apparatus
Apparatus*

139. NOMOGRAMS FOR THE DESIGN OF THE WINDINGS OF
TELEPHONE RELAYS -- VITENBERG (Automaticheskaya
Telemechanika [in Russian], No. 7, 1945, pp. 13)

137)
To ensure the most economical use of copper, nomo-
grams have been prepared for various types of winding
showing the relationships between the number of turns,
depth of winding, wire diameter, and winding resistance.

D'YAKONOV, I.A.; VITENBERG, A.G.; KOMENDANTOV, M.I.

Kinetics of catalytic decomposition of ethyl diazo acetate.

Part 1: Induction period. Zhur. org. khim. 1 no.7:1183-1188

Jl '65.

(MIRA 18:11)

1. Leningradskiy gosudarstvennyy universitet.

4E

*Subsidiary Apparatus &
Material*

VITENBERG

149. Notes on the Design of the Winding
Interphone Relays. Available in English
Translation in Russian, No. 2, pp. 1-14
(1971)

To ensure the most economical use of copper wire,
grams have been prepared for various types of winding,
showing the relationships between the number of turns,
depth of winding, wire diameter, and winding resistance.

VITENBERG, G.F., ERDMANIS, Ya.V.

Reaction to adrenalin test in cancer. Vopr.klin.lech.zlok.novoobraz.
Riga. 2:87-91 1955

1. Sektor onkologii (zav. - prof. doktor P.I. Stradyn') Instituta
eksperimental'noy meditsiny AN Latvyskoy SSR (dir. - prof. doktor
P.Ya. Gerke), Respublikanskiy onkologicheskiy dispanser (glavvrach -
M.G. Sopil'niak).

(EPINEPHRINE,

test in cancer (Rus))

(NEOPLASMS, diagnosis

epinephrine test (Rus))

VITENBERG, G.F.

USSR/General Problems of Pathology - Tumors.

T-5

Abs Jour : Ref Zhur - Biol., No 3, 1958, 12690

Author : Vitenberg, G.F.

Inst : Not given.

Title : The Functional State of the Autonomic Nervous System in Cancer Patients.

Orig Pub : Tr. In-ta eksperim. med. AN Latv SSR, 1956, 10, 59-66.

Abstract : The state of the autonomic nervous system was studied by various clinical methods. The most usual were studies of the blood pressure following a subcutaneous injection of acrenalin and observations on dermographism. The blood pressure reaction was aberrant in 59.6% and dermographism was weakened in 53.2% of the cases. The blood pressure changes and a slight acceleration of the pulse in an orthostatic test indicate a weakening of the sympathetic

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USSR/General Problems of Pathology - Tumors.

T-5

Abs Jour : Ref Zhur - Biol., No 3, 1958, 12690

division; a slight slowing of the pulse in a bed-ridden patient indicates involvement of the parasympathetic division.

Card 2/2

VITENBERG, G.P.; NEMIRO, Ye.A.

Report on the Fourth Latvian Republic Conference of Oncologists and
the Third Out-of-Town Session of the Institute of Oncology of the
Academy of Medicine of the U.S.S.R. Vop.onk. 5 no.6:756-759 '59.

(MIRA 12:12)

(ONCOLOGY--CONGRESSES)

PESIN, V.G.; KHALETSKIY, A.M.; VITENBERG, I.G.

Salts of dialkylthiophosphoric acids. Part 4: Reactions of
dialkylthiophosphoric acid salts with aromatic and heterocyclic
halogen derivatives. Zhur. ob. khim. 31 no.8:2522-2526 Ag '61.
(MIRA 14:8)

1. Leningradskiy khimiko-farmatsevticheskiy institut.
(Phosphorothioic acid) (Halogen compounds)

PESIN, V.G.; KHALETSKIY, A.M.; VITENBERG, I.G.

Salts of dialkyl phosphorothioic acids. Part 5: Interaction
of salts of dialkyl phosphorothioic acids with aromatic
halogen derivatives. Zhur.ob.khim. 33 no.2:388-391 F '63.
(MIRA 16:2)

1. Leningradskiy khimiko-farmatsevtichenkiy institut.
(Phosphorothioic acid) (Halogen compounds)

PESIN, V.G.; VITENBERG, I.G.

Reaction of aromatic and heterocyclic thiocyno derivative with
diethyl and triethyl phosphite. Zhur. ob. khim. 35 no.5:930
My '65. (MIRA 18:6)

1. Leningradskiy khimiko-farmatsevtichenkiy institut.

- L 17957-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM
6/1964 164/034/008/2769/2773

AUTHOR: Pesin, V. G.; Vitenberg, I. G.; Khaletskiy, A. M.

TITLE: Salts of dialkyl- and diarylmonothio- and dithiophosphoric acids. VIII. Interaction of salts of dialkyl- and diarylmonothio- and dithiophosphoric acids with aromatic and heterocyclic halo derivatives.

SOURCE: Zhurnal obshchey khimii, v. 34, no. 8, 1964, 2769-2773

TOPIC TAGS: phosphoric acid, sulfide, halogenated organic compound, ester, ammonium salt, elemental halogen

Abstract: Halogen derivatives that form chiefly sulfides with alkali salts of dialkyl- and diphenylthiophosphoric acids also react with alkali salts of dialkyl- and diphenylthiophosphoric acids. The reaction products have the structure S-R . The reaction products are characterized by their solubility, melting point, and refractive index. The reaction of the salts of dialkyl- and diphenylthiophosphoric acids with aromatic and heterocyclic halogen derivatives is studied. The nature of the halogen and heterocyclic halogen derivatives, the nature of the solvent, and that of the solvent influence the course of the reaction. For example, toluene reacts with the potassium or ammonium salt of diethylthiophosphoric acid to form a sulfide. The reaction of the salts of diphenylthiophosphoric acid with 2,4,2',4'-tetranitrodiphenyl disulfide, in acetone, 40% of the

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L 17957-65

ACCESSION NR: AP5002623

sulfide, 2-3% of the disulfide, and some O,O-diethyl-S-2,4-dinitrophenyl dithiophosphate were formed. When the reaction is conducted with 4-nitro-5-bromobenz-1,1,3-thiadiazole, both in alcohol and in acetone, a mixture of the sulfide and the dithiophosphoric acid ester is formed. The reaction is also studied with the chloro derivatives: 2,4-dinitrochloronaphthalene, 2-ethoxy-6-nitro-9-chloroacridine, 4-bromo-4-buty-1,2-diphenyl, pyrazolidine, and 4-bromoantipyrine. Orig. art. has 1 formula and 2 tables.

ASSOCIATION: Leningradskiy khimiko-farmatsevticheskiy institut (Leningrad Chemico-pharmaceutical Institute)

SUBMITTED: 19Jun63

ENGL: 00

SUB CODE: 00, GC

NO REF SOV: 007

OTHER: 005

JPRS

Card 2/2

KHALETSKIY, A.M.; PESIN, V.G.; VITENBERG, I.G.

Synthesis of amides of β -phenylisopropylamine and of some carboxylic acids. Zhur.ob.khim. 32 no.4:1068-1071 Ap '62. (MIRA 15:4)

1. Leningradskiy khimiko-farmatsevtichenkiy institut.
(Isopropylamine) (Amides)

PESIN, V.G.; VITENBERG, I.G.; KHALETSKIY, A.M.

Salts of dialkyl- and diarylphosphorothioic and diaryl
phosphorodithioic acids. Part 7: Interaction of the salts
of dialkyl- and diphenylphosphorodithioic acids with aromatic
and heterocyclic halo derivatives. Zhur. ob. khim. 34 no.8:
2769-2773 Ag '64. (MIRA 17:9)

1. Leningradskiy khimiko-farmatsevticheskiy institut.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Address: 65/66, 76/77, 87/88, 97/98, 107/108, 117/118.

Yudin, V. G., VINogradov, M. G., Leningrad Chemical-Pharmaceutical Institute
(Leningradskiy Khimiko-Farmatsevticheskii Institut)
"Salts of Dithiyl- and Diarylmonochloro- and Dithiophosphoric Acids. VIII.
Reaction of Salts of Diethyldithio and Dithiophosphoric Acids with Aromatic and
Heterocyclic Halo-Derivatives"

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 7, 1966, pp 1263-1274.

Abstract: In the reaction of potassium diethyldithiocarbamate with 2,4-

Abstract: In the reaction of potassium diethylthiophosphate with 2,4-dinitrofluorobenzene, diethylfluorophosphate and 2,4-dinitro-thiophenolate were formed. A mechanism of their formation was proposed. Potassium diethyldithiophosphate was found to react analogously with 2,4-dinitro-chlorobenzene and 2,4-dinitrofluorobenzene. Potassium diethylthiophosphate reacted with pieryl chloride, 2-chlorobenzothiazole, 2-chloro-6-nitrobenzothia-zole, 4-chloro-7-nitrobenz-2,1,3-thiadiazole, 2-chloro-5-nitropyridine, and 2-chloro-3,5-dinitropyridine, forming sulfides R-S-R. o-Nitrochlorobenzene, p-nitrochlorobenzene, 2-bromopyridine, and 8-chlorocaffeine do not take part in this reaction with potassium diethylthiophosphate. Potassium diethylthio-phosphate reacted with benzoyl chloride and p-nitrobenzoyl chloride to form the corresponding thiol derivatives: O,O-diethyl-S-benzoyl thiophosphate and O,O-diethyl-S-p-nitrobenzoyl thiophosphate, respectively. Orig. art. has: 2 figures and 1 table. [JPRES: 38,970]

SUB CODE: 07 / SUBM DATE: 15Jun65 / ORIG REF: C15 / OTH REF: 024

Card 1/1 50 UDC: 547.26'118

UDC: 547.26'118

L 20757-1. (NTIS) Pg. 1. 10/10/67

10/10/67 10/10/67 10/10/67 10/10/67

26

AUTHOR: Vitenberg, I. M.

10/10/67

TITLE: Questions concerning the solution of boundary value problems for systems of ordinary differential equations on analog computers

SOURCE: Vitenberg, I. M. (1962) Problemy resheniya zadach (Anal. g. 10/10/67) analogicheskimi vychislitel'nymi mashinami. Moskva, 1962 g. Kiev, Naukova dumka, 1962, 10/10/67

TOPIC TAGS: analog computer, electrosimulation, electromodel, boundary value problem, ordinary differential equation

ABSTRACT: The paper considers various problems of design philosophy for analog computers intended for the solution of boundary value problems of ordinary differential equations.

$$\frac{dx}{dt} = f(x, t), \quad x(t_0) = x_0$$

The author points out that the chief drawback in the use of these machines is the impossibility of solving boundary value problems. The author also notes the potential use of these machines for the solution of initial value problems.

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L 25767-65

ACCESSION NR: AT5002508

in laboratory situations, taking their data from laboratory apparatus. The chief design characteristic of interest in the paper is the method by which a would-be solution is tested for precision by the device. In all cases, a functional of either absolute deviation (1) or quadratic error sum (2) is evaluated.

$$\mu' = \sum_{i=1}^l \alpha_i |\varepsilon_i| \quad (4)$$

$$\mu'' = \sum_{i=1}^l \alpha_i \varepsilon_i^2 \quad (5)$$

where

$$\varepsilon_i = F_i(x_1, x_2, \dots, x_n) - [F_i(x_1, x_2, \dots, x_n)]_{\text{avg}} \quad (3)$$

The author divides all precise testing into three categories: 1) Where the values of the function F_i are known for all values of the variables $x_1, x_2, \dots, x_n$.

techniques is discussed in the remainder of the paper. Orig. art. has 3 figures and 6 formulas.

ASSOCIATION: None

SUBMITTED: 05Sep64

ENCL: 00

SUB CODE: MA, DP

NO REF SOV: 304

OTHER: 000

Card 2/2

VITENBERG, I.M.

Possibility of using a magnetic drum in electric simulating
devices with automated search of the solution. Vych. tekhn.
no.2:56-72 '61. (MIRA 15:3)
(Magnetic memory (Calculating machines))
(Electronic differential analyzers)
(Electromechanical analogies)

VITENBERG, I.M.

Certain problems concerning the design of the control networks
of automated electric simulating devices. Vych. tekhn. no.1:
37-47 '60. (MIRA 15:3)

(Electromechanical analogies)
(Electronic calculating machines)

VITENBERG, I. M.

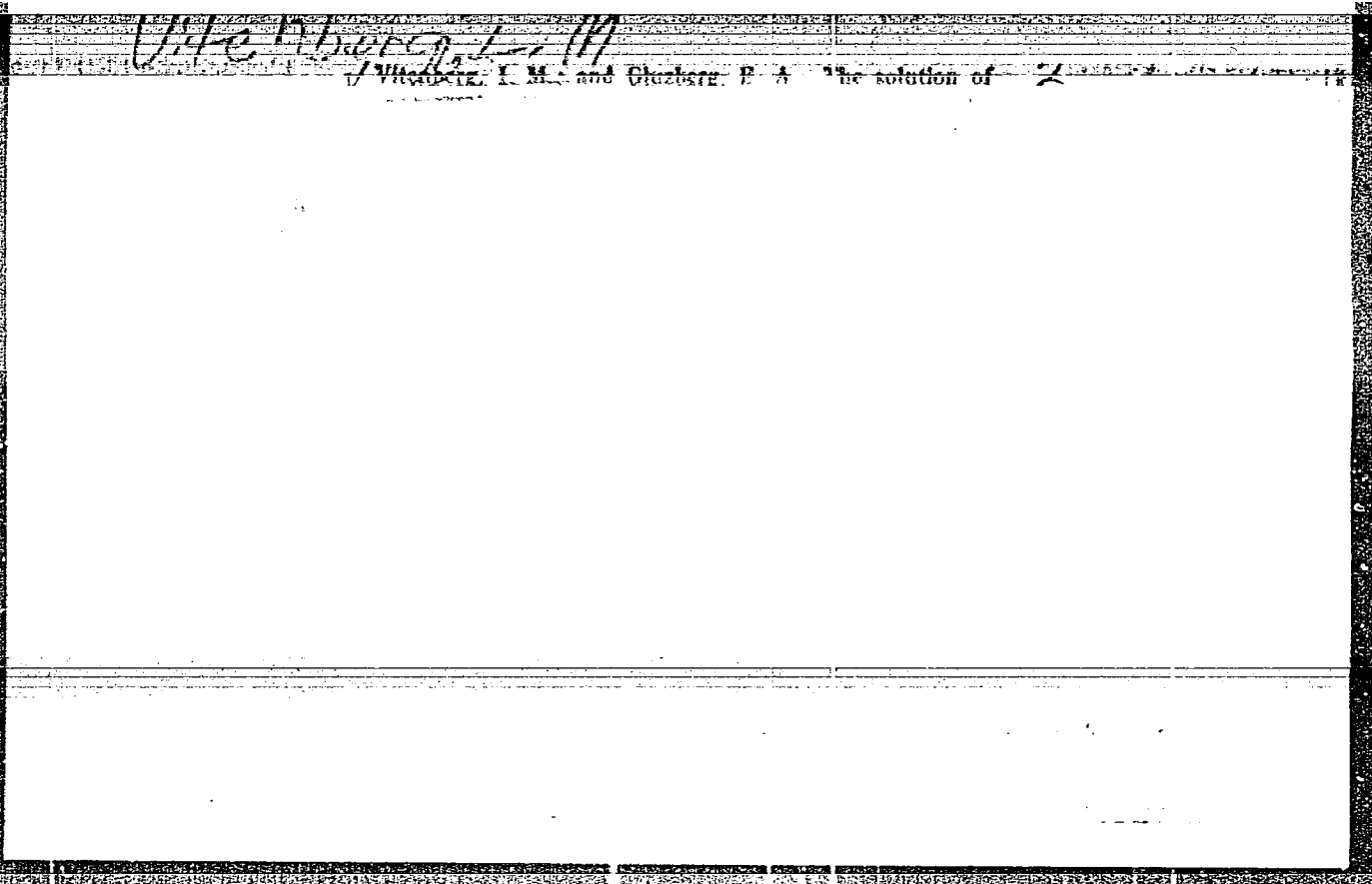
VITENBERG, I. M. -- "Amplifiers for Electric Models and Calculating Instruments."
Sub 14 Mar 52, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov.
(Dissertation for the Degree of Candidate in Technical Sciences.)

SO: VECHERNAYA MOSKVA, January-December 1952

VITTENBERG, I. M., Cand. In Tech. Sci.

"Extending the Possibilities of Electric Simulators Developed at the KB MMIP" a paper presented at the Conference on Methods of Development of Soviet Mathematical Machine-Building and Instrument-Building, 12-17 March 1956.

Translation No. 596, 8 Oct 56



VITENBERG, I. M.

"The Modelling Electronic Apparatus for the Automatic Finding of a Solution for a Problems with a Given System of Equations,"

report presented at the Conference on Automation and Computation Engineering, Moscow, 5-8 March 1957. Organized by AU Sci. Eng. and Tech. Society for Apparatus Building.

VITENBERG, I-M

16(1)

PHASE I BOOK EXPLOITATION 1110

Voprosy teorii matematicheskikh mashin; sbornik pervyy (Problems of the Theory of Mathematical Computing Machines; Collection of Articles, v. 1) Moscow, Fizmatgiz, 1958. 230 p. 10,000 copies printed.

Ed. (Title page): Bazilevskiy, Yuriy Yakovlevich; Ed. (Inside book): Shreyder, Yu.A.; Tech. Ed.: Gavrilov, S.S.

PURPOSE: This book is intended for engineers, scientific workers, and students concerned with mathematical computers and control devices.

COVERAGE: This book, Volume I, consists of 12 articles devoted to the logical structure of mathematical computers, programming problems, and computing methods. Subjects treated include theoretical methods of describing the structure of mathematical computers, principles of constructing certain specialized computers, problems of programming automation, and selection of computing methods which are convenient for computer realization. All contributions in this volume are Soviet.

~~Card 1/6~~

Problems of the Theory (Cont.)

1110

Bazilevskiy, Yu.Ya. and Shreyder, Yu.A. Methods of Evaluating the Capacity of Universal Digital Computers With Program Control 127
This article consists of the following sections: 1) Computing volume and a system of operations; 2) Time for completing transformation operations; 3) Evaluating the time for symbol selection and word formation; 4) Conclusion.

Gluzberg, E.A. Logical Possibilities of Continuously Operating Computers 135
This article consists of the following sections: 1) Introduction; 2) Types of problems solved by analogue computers; 3) Conditional transfer in analog computers; 4) Cycle organization on analog computers; 5) Solution of problems with logical conditions on analog computers.

Vitenberg, I.M. Problems of Constructing High-speed Analog Computers for the Analysis of Dynamic Systems 149
This article consists of the following sections: 1) Introduction; 2) Selection of a search method; 3) Control circuits by logical operations; 4) Problems of design of an analog computer and its elements; 5) Conclusion.

~~Card 4/5~~

ALEKPEROV, V.P., inzh.; ATOVMIAN, I.O., inzh.; ZUYEV, V.I., inzh.; KAVUN, Ye.S., kand.tekhn.nauk; KOGAN, B.Ya., kand.tekhn.nauk; KOPAY-GORA, P.N., kand.tekhn.nauk; KULAKOV, A.A., inzh.; LEBEDEV, A.N., kand.tekhn.nauk; PAPERNOV, A.A., doktor tekhn.nauk; PRL'POR, D.S., doktor tekhn.nauk; PLOTNIKOV, V.N., kand.tekhn.nauk; RUZSKIY, Yu.Ye., kand.tekhn.nauk; SOLODOVNIKOV, V.V., doktor tekhn.nauk; TOPCHYEYEV, Yu.I., kand.tekhn.nauk; ULANOV, G.M., kand.tekhn.nauk; SHRAMKO, L.S., kand.tekhn.nauk; DOBROGUBSKIY, S.O., doktor tekhn.nauk, retsenzent; KAZAKOV, V.A., kand.tekhn.nauk, retsenzent; PETROV, V.V., kand.tekhn.nauk, retsenzent; KHAVKIN, G.A., inzh., retsenzent; SOLODOVNIKOV, V.V., prof., doktor tekhn.nauk, red.; VITENBERG, I.M., kand.tekhn.nauk, nauchnyy red.; MOLDAVER, A.I., kand.tekhn.nauk, nauchnyy red.; KHETAGUEOV, Ya.A., kand.tekhn.nauk, nauchnyy red.; POLYAKOV, G.F., red.isd-va; KONOVALOV, G.M., red.isd-va; SOKOLOVA, T.F., tekhn.red.

[Fundamentals of automatic control] Osnovy avtomaticheskogo regulirovaniya. Vol.2. [Elements of automatic control systems] Elementy sistem avtomaticheskogo regulirovaniya. Pt 2. [Compensating elements and computer components] Korrektiruiushchie elementy i elementy vychislitel'nykh mashin. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit.lit-ry. 1959. 453 p. (MIRA 12:4)
 (Automatic control) (Electronic apparatus and appliances)
 (Electronic calculating machines)

VITENBERG, I. M.

Inst. for Sci. Res. in Computing Machinery, Moscow.

"Some Problems Regarding the Design of Automatic Electronic Analogue Computers for Manufacturing Process Control." (Section IV)

paper submitted for Joint Symposium on Instrumentation and Computation in Process Development and Plant Design, British Computer Society, London, England, 11-12 May 1959.

V. J. E. B. E. R. S. I. M.

26(2)	Moscow. Das nauchno-tekhnicheskoy propagandy in. P. E. Durnashinogo Pynhalitel'nye tekhnika i yeye primeneniye (Computational Technique and Its Application) Moscow, Gosizdatstat, 1959. 391 p. (Series: Osnovnye po rasprostraneniyu politicheskikh i nauchnykh snaryi ESSE) 5,000 copies printed.	
	Mi. (Title page). S. A. Labelev, Akademik; Ed. (Inside book): V. I. Savelyev; Tech. Ed.: G. I. Motovyer.	
	PURPOSE: This collection of articles is intended for scientific, engineering and technical personnel engaged in research, design and operation of digital and analog computers. It may also be used by students of vases specializing in computers.	
	COVERLINE: The authors present fundamentals of digital computers, their elements and units such as arithmetic units, internal and external memory and control devices. They discuss the possibility of constructing computers using semi- conductor elements and consider the fundamentals in the theory of logical circuits. They also discuss problems of programming and explain the operation of analog computers and their elements. Brief discussion of mathematical instruments are also presented. The articles were presented at a computer semi- nar arranged by Gosstatizdat nauchno-tekhnicheskoy propagandy inmi P. E. Durnashinog (Moscow) in 1957. 10 personalities are mentioned. References appear at the end of some articles.	
	Zisner, A. M., Engineer. Construction of High-speed Computers Using Semiconductor Elements The author discusses the possibility of using transistors in computer circuits and describes the operation of the following transistor circuits: amplifiers, pulse forming circuits, triggers and direct-coupled tran- sistors. There are 1 reference; 1 Soviet and 3 English.	185
	Reukhshchik, E. S. Devices of Series Computing Machines. The author discusses computing elements of series computing machines such as dynamic triggers, circuits for transforming adding and sub- tracting circuits and circuits for determining coincidence of two codes. He also describes the operation of a series-type memory unit. There are no references.	201
	Ushakov, V. B. Candidate of Technical Sciences. Electronic Analog Computers for Solving Differential Equations The author presents a general discussion of analog computers and considers fields of their application. He presents a table of Soviet computers, giving specifications, year of manufacture and the designing organiza- tion. There are 11 references, all Soviet (including 1 translation).	209
	Hiltenberg, I. M., Candidate of Technical Sciences. Operational Units of Analog Computers The author discusses the operation of various units in a computer such as adders, integrators, differentiators, operational amplifiers, multiplicators and functional converters and analyzes their circuits. There are 13 references, all Soviet (including 1 translation).	297
	Glaberg, E. A., Engineer. Use of Analog Computers in Engineering and Scientific Analysis The author discusses the use of analog computers for analyzing per- formance of various industrial machinery such as rolling mills, dy- namoelectric amplifiers, hydraulic motors, etc. Use of analog computers for solving hydraulic equations is also discussed. There are 8 references, all Soviet (including 2 translations).	327
	Glaberg, E. A., Engineer. Methods of Setting up Problems for Analog Computers and Checking Accuracy of Solutions The author discusses the procedure of reducing problems to a form suit- able for analog computers and describes methods of connecting various components. He explains methods of determining proper scale factors and transfer coefficients and presents numerical examples. He also discusses methods of solving nonlinear functions and considers computer accuracy. There are no references.	340
	Yessanov, Y. V., Candidate of Technical Sciences. Modern Small Mathe- matical Instruments The author discusses the construction and operation of mathematical instruments such as integrators, integrators and planimeters. He also describes harmonic analyzers developed by Modest G. Gerasimov and explains the operation of instruments for analyzing periodic functions. There are 14 references, 7 Soviet (including 4 translations) and 7 English.	344

BRASLAVSKIY, D.A., kand.tekhn.nauk; GOL'DFARB, L.S., doktor tekhn.nauk;
 GUZENKO, A.I., kand.tekhn.nauk; DMITRIYEV, K.Ye., kand.tekhn.nauk;
 KALASHNIKOV, V.A., inzh.; KLOBUKOV, P.P., kand.tekhn.nauk; KLUB-
 NIKIN, P.F., kand.tekhn.nauk; KRASSOV, I.M., kand.tekhn.nauk;
 PEL'POR, D.S., doktor tekhn.nauk; PETROV, V.V., kand.tekhn.nauk;
 ROZENBLAT, M.A., doktor tekhn.nauk; RUZSKIY, Yu.Ye., kand.tekhn.
 nauk; SADOVSKIY, B.D., kand.tekhn.nauk; SOKOLOV, A.A., kand.tekhn.
 nauk; TITOV, V.K., kand.tekhn.nauk; ULANOV, G.M., kand.tekhn.nauk;
 FILIPOV, Ye.V., kand.tekhn.nauk; KHARYBIN, A.Ye., kand.tekhn.
 nauk; KHOKHLOV, V.A., kand.tekhn.nauk; GALTEYEV, F.F., kand.tekhn.
 nauk, retsenzent; KARASEV, V.A., doktor tekhn.nauk, retsenzent;
 RAGOZIN, Yu.D., kand.tekhn.nauk, retsenzent; REYNGOL'D, Yu.R., inzh.,
 retsenzent; RYABOV, B.A., doktor tekhn.nauk, retsenzent; SAYBEL',
 A.G., kand.tekhn.nauk, retsenzent; SHEVYAKOV, A.A., kand.tekhn.nauk,
 retsenzent; SOLODOVNIKOV, V.V., prof., doktor tekhn.nauk, red.;
 YITENBERG, I.M., kand.tekhn.nauk, nauchnyy red.; MOLDAVER, A.I.,
 kand.tekhn.nauk, nauchnyy red.; POLYAKOV, G.F., red.izd-va; AKIMOVA,
 A.G., red.izd-va; KONOVALOV, G.M., red.izd-va; TIKHONOV, A.Ya., tekhn.
 red.; SOKOLOVA, T.F., tekhn.red.

[Fundamentals of automatic control] Osnovy avtomaticheskogo reguliro-
 vania. Vol.2. [Elements of automatic control systems] Elementy sistem
 avtomaticheskogo regulirovaniia. Pt.1. [Sensing devices, amplifiers,
 and actuators] Chuvstvitel'nye, usilitel'nye i ispolnitel'nye elementy.
 Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. 1959. 722 p.

(Automatic control)

(MIRA 12:4)

(Electronic apparatus and appliances) (Electronic calculating machines)

28 (2)

AUTHORS: ~~Vitenberg, I. H.~~ Candidate of Technical Sciences, Yerokhin, Ye. A., Engineer SOV/119-59-6-1/18

TITLE: Group Systems of Automatic Control and Zero Adjustment in Direct Current Amplifiers of Electric Models (Grupповые системы автоматического контроля и настройки нулей усилителей постоянного тока электрических моделей)

PERIODICAL: Priborostroyeniye, 1959, Nr 6, pp 1 - 4 (USSR)

ABSTRACT: The present paper deals with circuit diagrams for the zero adjustment of multitubular direct current amplifiers which carry out linear mathematical operations by feedback, requiring mean or low accuracy. A distinction is made between manual and automatic zero adjustment. The latter may be a single- or group adjustment. A middle course is the automatic control with subsequent manual zero adjustment. The principle of the zero adjustment control by groups is based on the consecutive measurement of the zero drift voltages by means of a zero element. Since the zero drift voltage in direct current amplifiers varies but slowly, such a method is acceptable for models of mean accuracy. In all known systems the zero adjustment control is carried out with mechanical commutators by means of step for step switch-

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es. Constructions are shown for an exemplification, which were worked out in the electromodel department of the NIIShetMash (Nauchno-issledovatel'skiy institut schetnykh mashin - Scientific Research Institute of Computers). Figure 1 shows the circuit diagram of the electromechanical system of the automatic zero adjustment in the electric models MN-2 and MN-3. The amplifiers are subdivided in groups of 25 each. The zero adjustment is brought about by the motion of the sliding contact of a potentiometer; this motion is released by a relay of the zero element. Figure 2 shows the circuit diagram of an electronic system, as is applied in the model MN-9. A similar system has been applied in the model MN-11. The step for step compensation of the zero drift voltage occurs by a change in potential on the second grid of the tube over a condenser. When using amplifying tubes with a good zero stability, the zero adjustment for the solution of problems which do not require great accuracy, may take place within longer periods of time. The automatic control of the zero adjustment with subsequent manual control is then recommended. Figure 5 shows such a control circuit for electric models with 300 - 400 amplifying tubes. S. V. Petrakov

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Group Systems of Automatic Control and Zero Adjustment SOV/119-59-6-1/18
in Direct Current Amplifiers of Electric Models

and V. M. Gerkhanova development in the elaboration and testing of this system. The system exhibits two zero elements, the first of which controls the zero drift, and the second serves for the zero adjustment. There are 6 figures and 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy institut schetnykh mashin (Scientific Research Institute of Computers)

Card 3/3

VITENBERG, I.M.

PHASE I BOOK EXPLOITATION

SOV/4651

Moscow. Inzhenerno-fizicheskiy institut

Vychislitel'naya tekhnika; sbornik statey (Computer Technique; Collection of Articles) Moscow, Atomizdat, 1960. 54 p. 2,500 copies printed.

Sponsoring Agencies: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR; Moskovskiy inzhenerno-fizicheskiy institut.

Resp. Ed.: Ya.A. Khetagurov, Candidate of Technical Sciences; Tech. Ed.: S.M. Popova.

PURPOSE: This collection of reports is intended for technical personnel working with computers.

COVERAGE: The collection contains reports dealing with some problems of computer technique. The reports of I.O. Atovmyan, V.I. Zuyev, and G.N. Solov'yev discuss various problems concerning a general-purpose discrete-action computer which was designed and is presently under construction at the MIFI, Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute). The reports of Ya.A. Khetagurov, I.M. Vitenberg and Ye.P. Zhidkov examine other technical problems of computer design. There are no references.

~~Card 1/4~~

Computer Technique (Cont.)

SOV/4651

Zuyev, V.I. Problems in the Development of Memory Systems Using a Magnetic Drum With an Accelerated Access

24

The author describes several methods of accelerated accesses from a memory system using a magnetic drum. He considers the following methods as the most important: (1) "rigid" spacing of data on the drum; (2) multiple conversion during one turn of the drum; and (3) reduction of the storage cycle by using several units of magnetic heads.

Vitenberg, I.M. Some Problems in Designing Control Circuits of Automated Electrical Analogs

37

After describing the purpose and functions of modern electrical analog systems, the author discusses the role of automated electrical analogs in solving problems of structural mechanics, automatic regulation, ballistics, linear and non-linear programming, and also in the control of industrial processes. The development of all-purpose and specialized automated electrical analogs and their elements has been conducted under the author's supervision at the Nauchno-issledovatel'skiy institut shchetnykh mashin (Scientific Research Institute of Computers) and in the Moscow Engineering Physics Institute with the help of engineers Ye.A. Yerokhin and V.F. Arkhovskiy and others.

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S/621/61/000/000/010/014

D234/D303

9.7200

AUTHORS: Vitenberg, I.M., and Arkhovskiy, V.F.

TITLE: A specialized electro-simulating installation with automated search of solution

SOURCE: Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti. Primeneniye vychislitel'noy tekhniki dlya avtomatizatsii proizvodstva. Trudy soveshchaniya, provedennogo v oktyabre 1959 g. Ed. by V.V. Solodovnikov. Moscow, Mashgiz, 1961, 427 - 435

TEXT: The authors describe an installation designed at NIIShet-mash with their participation and intended for reproduction of curves described by kinetic equations of the form

$$N = P_0 e^{\pm a_p t^b_p} + M_0 (1 - e^{\pm a_m t^b_m}). \quad (1)$$

The installation can also solve the inverse problem, i.e. that of
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S/621/61/000/000/010/014
D234/D303

A specialized electro-simulating ...

automatic determination of the coefficients if the curve is given experimentally as a series of discrete values. The analysis of three possible methods of constructing the curve is stated to have shown that the most adequate of them is the method of solving the system of determining differential equations. Division is replaced by taking logarithms. The elements of the computer can be used also for plotting expressions of the form ✓

$$a = A_0 e^{\pm \frac{Q_a}{RT}}, \quad (11)$$

$A = A_0 \exp(\pm at)$ and

$$B = B_0 (1 - e^{\pm a_0 t}), \quad (12)$$

and for determining the area of any curve. The variation of the values of the coefficients is carried out by the method of minimizing. If the value of a coefficient is known it can be set by hand and is not searched for by the installation. There are 8 figures.
Card 2/2

ACC NR: AR7004317

SOURCE CODE: UR/0271/66/000/011/B012/B012

AUTHOR: Vitenberg, I. M.; Lamin, Ye. I.; Tankelovich, R. L.

TITLE: Using new technical means for solving partial differential equations on analog computers

SOURCE: Ref. zh. Avtomat. telemekh. i vychisl. tekhn., Abs. 11B83

REF SOURCE: Sb. Vychisl. tekhn. v upr., M., Nauka, 1966, 422-431

TOPIC TAGS: ^{analog}~~digital~~ computer, ^{partial}~~partial~~ differential ^{equation}~~equation~~, differential equation
~~solution~~, ~~magnetic drum~~

ABSTRACT: Two methods of processing partial differential equations for solving on an analog computer are briefly described. The best efficiency of solution can be achieved by combining the new means, solution periodization, information memory devices, and a system of automatic search for boundary-problem solution. The magnetic drum is one of possible forms of information-memory devices. A flowsheet of problem solution with rapid periodization and with a magnetic-drum memory is shown. The solution of a single-dimensional parabolic equation with variable coefficients is given as an example. Six figures. Bibliography of 5 titles. V. A. [Translation of abstract]

SUB CODE: 09,12

Card 1/1

UDC: 681.142.33.001

L 10415-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/T/EWP(k)/EWP(h)/EWP(l)/EWA(h)/ETC(m) IJP(g)
 AM5023898 BB/WH/EM/GG/JAT Monograph UR/ 185
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Vitanberg, I. M.; Petrov, G. M.; Pukhov, G. Ye., eds.

Problems of theory and application of mathematical modeling (Voprosy teorii i primeneniya matematicheskogo modelirovaniya). Moscow, Izd-vo "Sovetskoye radio," 1965. 646 p. illus., biblio. 5800 copies printed.

TOPIC TAGS: analog computer, simulation, mathematical modeling

PURPOSE AND COVERAGE: This book presents the present state and development of Soviet analog computer technology and its significance in various branches of Soviet science and national economy. Problems of the theory of analog computers and mathematical modeling of systems described by partial differential equations and ordinary differential equations are discussed. Readers are familiarized with experience gained in operating modern computers. The book contains articles by several well-known specialists in computer technology which are based on material from the First All-Union Conference on Analog Computer Technology. This book is

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intended for a wide range of specialists engaged in designing and operating analog and digital computers, also teachers and students in engineering institutes and State universities.

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SUB CODE: DP, MA/ SUBM DATE: 19Feb65/ ORIG REF: 355/ OTH REF: 033

Card 9/9

VITENBERG, I.M., doktor tekhn. nauk, red.; PETROV, G.M., kand.
tekhn. nauk, red.; PUKHOV, G.Ye., red.; GUTCHINA, N.Ya., red.

[Problems of the theory and application of mathematical modeling] Voprosy teorii i primeneniia matematicheskogo modelirovaniia. Moskva, Sovetskoe radio, 1965. 646 p.

(MIRA 18:4)

1. Chlen-korrespondent AN Ukr.SSR (for Pukhov).

L 17770-63 EWT(d)/FCC(w)/PDS/T-2 ASD/ESD-3/APGC/TJP(C) Pg-4/Pk-4/Po-4/Pq-4 GG
ACCESSION NR: AT3001887 S/2906/62/000/000/0218/0237

AUTHOR: Vitenberg, I. M. 76

TITLE: Problems of the design of specialized analog computing machines 165
(with employment of the periodization regime and time contraction)

SOURCE: Kombinirovannyye vychislitel'nyye mashiny; trudy II Vsesoyuznoy
konferentsii-seminara po teorii i metodam matematicheskogo modelirovaniya.
Moscow, Izd-vo AN SSSR, 1962, 218-237

TOPIC TAGS: computer, analog, specialized, periodic, solution, time, multi-
plexing, foreshortening, contraction, predictive, simulation, aircraft, flight,
simulator, reactor, nuclear, computation, error, commutation

ABSTRACT: This paper comprises an examination of problems arising in the
selection of circuit elements for specialized analog computers (AC) with multiple
utilization of resolver elements (RE) and periodization of solutions. The author
regards specializations of AC's as indispensable for improved accuracy and speed,
especially for such problems as aircraft flight control and flight simulation,
nuclear-reactor control and reactor-training simulation, the solution of systems
with linear algebraic equations, the solution of linear and nonlinear programming

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ACCESSION NR: AT3001887

problems, and the setting up of and automatic search for solutions required for certain industrial processes by means of predictive analysis. On the selection of amplifiers for specialized AC's. 1. Definition of basic characteristics of a resolving (operational) amplifier: D.C. voltage amplification factor, frequency characteristics (frequency dependence of the amplification factor and the phase error), reduced null-drift voltage, and magnitude of network current. The author urges improvement of each of these characteristics, but not at an excessive cost in complication inconsistent with the purpose of the AC; for example, an aircraft flight simulator can operate satisfactorily even without automatic null-drift compensation. The significance of each of the aforesaid characteristics, means for their reasonable improvement, and interrelationships between the characteristics and the means employed to control them are explained. The limits of the admissible magnitudes of some of the undesirable characteristics are explored for various specific applications. Periodization of solutions, as a rule, leads to a reduction of the time scale, which in turn leads to a direct increase of the error. 2. On some supplementary errors of AC's operating in a periodic-solution regime: In addition to the increase of an error attributable to the use of a periodic solution per se, the dynamic properties of the RE operating at a faster rate leads to the appearance of a systematic error in the solution. An error analysis is performed for this effect and also for errors introduced by nonlinear block component. 3. On the selection

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of electric-simulation circuits with multiplex utilization of RE: The advantages of multiple utilization of RE's and means for their attainment are described and depicted schematically. AC with multiple utilization of RE's are divided into four basic categories: (a) Multiple utilization of RE's that perform some of the most complex operations, for example, multiplication of 2 variables and formation of functional relationships. If the employment of a single RE for such purpose permits its enlargement and refinement, then the improvement in accuracy achieved thereby is worth the additional complication of commutation; the balance of cost and accuracy must be closely watched; (b) multiple utilization of groups of RE's that perform complex computational operations which do not contain integration operations and do not employ the method of implicit functions. Examples: Coordination transformations or aircraft-powerplant thrust computations (references cited); (c) multiple employment of groups of RE's for the performance of iterative computational operations both including a number of external noncommutative elements and with the use of the method of implicit functions within the multiply employed system. Examples: Machines for the solutions of systems of transcendental, algebraic, and integral equations (references); (d) multiple utilization of RE's for the formation of derivatives in the solution of systems of ordinary linear and nonlinear differential equations. Examples: Program control and systems with separate commutated RE's and a fairly well-developed ordinary plugging circuitry.

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ACCESSION NR: AT3001887

Examples and selection criteria are discussed. Recommended volumetric indexes are tabulated, both for separate circuit elements and for the fundamental RE's of AC's, and for the elements of control systems with periodic solutions. The specialization of AC's opens broad horizons for the simplification of the RE's and the application of the periodic-solution regime and the multiple employment of computing systems, all of which, in turn, should broaden appreciably the areas of potential usefulness of analog computing machines. Orig. art. contains 11 figures, 3 tables, and 64 numbered equations.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 11Apr63

ENCL: 00

SUB CODE: CP, MM, CG. AE, NS. NO REF SOV: 010

OTHER: 003

Card 4/4

L 17769-63 EWT(d)/FCC(w)/BDS ASD/ESD-3/APGC/1JP(C) Pg-4/Pk-4/Pq-4/Pq-4 GG
ACCESSION NR: AT3001886 S/2906/62/000/000/0205/0217

AUTHORS: Vitenberg, I.M.; Yerokhin, Ye.A. 75

TITLE: Employment of an averaged estimate in the search by the
minimization method in the MN-11 analog computer. 160

SOURCE: Kombinirovannyye vychislitel'nyye mashiny; trudy II Vsesoyuznoy
konferentsii-seminara po teorii i metodam matematicheskogo modelirovaniya.
Mosco Izd-vo AN SSSR, 1962, 205-217.

TOPIC TAGS: computer, analog, MN-11, search, minimization, estimate, bound,
average, averaged

ABSTRACT: This paper deals with the use of an analog computer (AC) as a model
of the control object in the parallel predictive analysis of technological processes.
Such use of an AC leaves a definite imprint on the methods employed in the design
of circuitry for the search for an optimal solution. In the practice of a search for
a solution for unstable systems a substantial deterioration of the reproducibility of
the solutions is encountered, whereupon it becomes necessary in the design of
searching circuitry to take into account the presence of random factors and spurious
variations of the quantity μ that characterizes the nearness of the j th solution ob-

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ACCESSION NR: AT3001886

tained to the optimal version. The paper proposes to improve the quality of the search and to accelerate it by means of the use of an averaged estimate of the deviations $\Delta\mu$, so that the probability of a spurious signal can be reduced. Difficulties encountered with the use of the averaging method are related. The algorithm employed on the AC MN-11 is explained and graphically illustrated. Several illustrative examples are set forth, and it is concluded that in a search by the minimization method with a constant magnitude of the increment it is advisable to employ the average estimate of the quantity $\Delta\mu$; here the increase of the total number of solutions does not lead to a substantial change of the operational possibilities of the MN-11 machine, which exhibits a sufficiently large frequency of the periodization of solutions. One of the principal qualities of the MN-11 machine stemming from its high speed and the automatization of its search for suitable solutions appears to be its capability to solve unstable problems with great changes at the ends of the solution intervals for small changes of the varied parameters. The application of the averaged estimate of the quantity $\Delta\mu$ increases these capabilities of the MN-11 machine even further and improves its effectiveness in the investigation of its capability for the control of "unstable" technological processes in the predictive analytical regime. Orig. art. contains 10 figs., 1 table, and 14 numbered equas.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 11Apr63

ENCL: 00

SUB CODE: CP, MM

NO REF SOV: 002

OTHER: 001

Card 2/2

L 35423-65 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Pf-4

ACCESSION NR: AT4045206

S/2488/6.1/000/006/0064/0079

AUTHOR: Vitenberg, I. M.

TITLE: The selection of the control effect formation frequency in the control of inertial production processes in the anticipatory analysis mode

SOURCE: Automatichekiye upravleniye i vy chislitel'naya tekhnika, no. 6, 1964, 64-79

TOPIC TAGS: automatic control system, control effect formation frequency, inertial process, production control, anticipatory analysis, mathematical model, system design, automatic search

ABSTRACT: The author notes that the control of production processes in the anticipatory analysis mode postulates a parallel mathematical simulation of the technological process to be controlled, in which a mathematical model of the process is employed for estimating the quality of the process and selecting the values of the control parameters which determine the optimal character of this mathematical simulation. The model is of any type, in which the process receives information with respect to its state in the process, separated out for

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best variant for its continuation, and provides for the proper modification of the settings for the regulating organs which directly influence the process. It is pointed out that, normally, the mathematical description of the technological process to be controlled can be reduced to a system of ordinary nonlinear differential equations, in which the parameters of the process emerge as an independent variable. The system itself, during the steady state, is in a state of equilibrium. A change in the state of the process, determined by the current, has a direct effect on the process, by virtue of the structural features of controllable technological systems, does not result in an instantaneous change in the output characteristics of the system. The author emphasizes that this fact must be taken into account when designing systems for the control of technological processes. A maximum illustration of the control of an inertial process with a delay is presented as an example. The author also makes a number of remarks on the problems of the control of technological systems. In the final section of the article there is a discussion of the selection of the

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of connection in direct automatic search systems, and the point is made that in such systems the determining factors are the character of the change in the uncontrolled variables and the time constants of the controlled process. The problem of choosing the frequency with which the control effects are supplied when controlling an inertial process by means of a system of direct automatic searching involves, according to the author's definition, the maintenance of a process mode such as to ensure a minimal deviation of the output signal from the value corresponding to the optimal character of the process output. The solution to this problem is sought in the book in the form of a numerical search for the point of connection in the system of direct automatic search.

The author also considers the problem of the self-adjustment of the system in adjustment mode. Here the author notes that, although a computer is used in the self-adjustment condition, at which time the values of the input and output factors characterizing the process are used in the machine to determine the constant coefficients of the differential equation system which describes the process to be controlled, the rate of change in the internal parameters of the process, as well as the possible rates of change in the input and output values themselves, must be considered when determining the required frequency of connection. In the

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simplest case, in which the values of the uncontrolled input variables remain constant for a sufficiently extended period of time, the necessary frequency can be determined in a manner similar to that described in the previous section, based on the analysis of the possible rates of change in the internal characteristics. In most practically encountered cases the input values of the controlled process vary by virtue of the simultaneous (or subsequent) change in the uncontrolled input variables and in other parameters, so that when selecting the self-adjustment method it is necessary to take into consideration the interchangeability of these values in the maintenance of stable operation of the entire control system. Orig. art. has: 5 figures and 46 formulas.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: IE

NO REF SOV: 001

OTHER: 000

Card 4/4

NIKOLAYEV, N.S.; KOZLOV, E.S.; POLGORODNIK, N.P.; VITENBERG, I.M.,
kand. tekhn. nauk, retsenzent; VOSKRESENSKIY, N.N., inzh., red.;
SMIRNOVA, G.V., tekhn. red.; GORDEYEVA, L.P., tekhn. red.

[The USM-1 analog computer for solving boundary value problems of
equations in mathematical physics]Analogovaya matematicheskaya ma-
shina USM-1; dlia resheniia kraevykh zadach uravnenii matematiches-
skoi fiziki. Moskva, Mashgiz, 1962. 293 p. (MIRA 15:12)
(Analog computers)

VITENBERG, I.M.

Choice of amplifiers for specialized electrical simulating devices.
Vych. tekhn. no.3:123-146 '62. (MIRA 15:6)
(Amplifiers (Electronics)) (Electronic analog computers)

41196

S/194/62/000/007/010/160
D222/D309

9.7200

AUTHORS: Vitenberg, I.M., and Arkhovskiy, V.F..

TITLE: A special-purpose analog device with automatic search for the solution

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7-1-41 s (In collection: Primeneniye vychisl. tekhn. dlya avtomatiz. proiz-va, M., Mashgiz, 1961, 427 - 435)

TEXT: The special-purpose analog device described has been designed at NIISChETMASH for the reproduction of curves described by kinetic equations of the form

$$N = P_0 e^{a_p t^{B_p}} + M_0 (1 - e^{a_m t^{B_m}})$$
. The device is capable of solving both the direct and the inverse problem, i.e. it reproduces the curves for given values of the constant coefficients, or it determines automatically the coefficients in the equations in order to obtain a curve which is identical to another experimentally obtained curve.

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A special-purpose analog device ...

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ned curve, specified in the form of a series of discrete values. The device consists of the following parts: the analog circuit itself; a computer unit to estimate the proximity of the solution to the curve given by the discrete points; a control system for signaling time intervals to ensure the synchronous operation of all elements at a solution repetition-frequency of 6.25 cps; and a visual display system. The analog circuit uses typical D.C. operational blocks. The computer unit, the search control system and the time-interval control system use pulse techniques. The time-interval system contains: a master oscillator of 1 kcps frequency, ring frequency dividers of 10 (units) and 16 (tens) connected in series; a group of decoders, and also switches for the control of pulses which transmit the values of the curve N at the experimental points to the computer unit, and for the control pulses required for the cathode-ray tube indicator and for integration. 8 figures. [Abstracter's note: Complete translation.]

Card 2/2

VITENBERG, I.M., kand.tekhn.nauk

Use of calculating machines for the control of technological
processes. Zhur.VKHO 6 no.5:493-498 '61. (MIRA 14:10)
(Calculating machines) (Chemical engineering)

38730

S/194/62/000/005/008/157
D222/D309

16.6800

AUTHOR:

Vitenberg, I.M.

TITLE:

On the construction of analogue computers for the automatic determination of coefficients in a system of non-linear differential equations.

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1962, abstract 5-1-94 ya (V sb. Primeneniye vychisl. tekhn. dlya avtomatiz. proiz-va, M., Mashgiz, 1961, 436-444)

TEXT: The problem of industrial process control with advance analysis is formulated. It is shown that the basic reasons for our inability of automate such processes, are the lack of transducers to transmit information about the current characteristics of the processes, the lack of the executive elements which could interpret the signals of a computer working on the advance analysis, and the lack of systems of equations to describe the process. It is shown that the problem of mathematization of the process can be reduced to the selection of constant, and sometimes variable coefficients in a
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On the construction of analogue ...

S/194/62/000/005/008/157
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system of differential equations describing the technological process, in such a way that for all known combinations of the relationships between the input data and time, the output values, obtained by solving the system of differential equations, would correspond to the experimental relationships obtained during the investigation of the process. The search for the coefficients of a system of differential equations by means of an automatic analogue computer is considered. It is shown that the search process can be divided into three stages. The first stage is used for the selection of such coefficient values at which, with specified initial conditions, the output voltages of the units remain within permissible limits. During the second stage coefficients are selected which ensure the normal operation of the units for the whole duration of the integration period. The third stage is the main control stage. 5 figures. 5 references. [Abstractor's note: Complete translation].

Card 2/2

VAL'DNER, O.A.; VITENBERG, I.M.

Electric simulation of a linear accelerator. Prib. i tekhn.
eksp. 6 no.4:25-26 JI-Ag '61. (MIRA 14:9)
(Particle accelerators--Electromechanical analogies)

BELOVA, A.I.; VITENBERG, I.M.; GLUZBERG, E.A.; KOZLOVA, A.I.

Possibility of adding stages to mathematical electrical models.

Vop. rasch. i konstr. elektron. vych. mash. no.1:57-74 '60.

(MIRA 14:1)

(Electronic analog computers)

BELYAKOV, V.G.; VITENBERG, I.M.

Direct current amplifier with an expanded frequency characteristic.
Priborostroenie no.5:14-17 My '60. (MIRA 14:5)
(Amplifiers, Election-tube)

VITENBERG, I.M.; PAVLIKOVA, M.G.; SHCHETININ, T.I.

Electric simulation of the characteristics of a turbojet engine.
Vop. rasch. i konstr. elektron. vych. mash. no.1:84-96 '60.

(MIRA 14:1)

(Aeroplanes—Turbojet engines)
(Electromechanical analogies)

9.7200
24 1160

1132, 1538, 1327, 1013

28200
S/194/61/000/005/017/078
D201/D303

AUTHORS:

Vitenberg, I.M. and Yerokhin, Ye.A.

TITLE:

The use of electrical analogues for solving boundary problems

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1961, 17, abstract 5 B113 (Tr. 1-y Mezhdunarodnoy nauchno-tekhn. Konferentsii po elektr. modelirovaniyu zadach stroit. mekhan., soprotivleniya materialov i teorii uprugosti. B.m. Novocherk. politekhn. in-t 1960, 34-42)

TEXT: The formulation is considered of the boundary problem for a system of ordinary linear and non-linear differential equations and the effectiveness is noted of using electrical analogues, when solving the above problems by the search method. A short description of two methods of searching for a given solution is given: the method of minimization and the method of survey. The main fea-

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The use of electrical analogues...

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tures are given of the electrical analogue ~~MN-11~~ (MN-11) designed at the ~~HMN-11~~ (NIISChETMASH) and having an automatic solution search system. The machine MN-11 can solve boundary problems as described by systems of ordinary differential equations up to the 6-9 order: it determines 6 unknowns with up to 6 boundary conditions, working periodically at frequencies from 1 to 100 kc/s. A model of MN-11 is stated to have solved, with an accuracy of 5-10%, the problem of a beam on an elastic base and the problem of caving-in of a spherical cover. The above problems have been set as boundary and described by systems of linear differential equations of the 4th order. The search for a solution was automatic and lasted 5 and 20 seconds respectively, with a periodicity of 20 c/s. 5 figures. 3 references. [Abstracter's note: Complete translation.]

Card 2/2

VITENBERG, I.M.; KOZLOVA, A.I.

Using d.c.operational amplifiers for the multiplication of variables.
Priborstroenie no.1:6-8 Ja '61. (MIRA 14:1)
(Electronic calculating machines)

88999

9.7000

S/119/61/000/001/003/013
E019/B067

AUTHORS: Vitenberg, I. M., Candidate of Technical Sciences,
Kozlova, A. I., Engineer

TITLE: Circuit for the Use of a D. C. Operational Amplifier for
the Multiplication of Variables

PERIODICAL: Priborostroyeniye, 1961, No. 1, pp. 6 - 8

TEXT: Simulators for the study of nonlinear systems of differential equations contain multiplication circuits, which are now widely used in measuring devices for technological processes. Multiplication circuits of simulators with d. c. operational amplifiers can be used also for multiplying variables. One of the two multiplicands is fed into the amplifier input and the transfer coefficient is varied proportionally to the second multiplicand. Thus, a voltage is generated at the amplifier output which is proportional to the product of the two input voltages. An electronic key is connected to the input resistor of the amplifier (Fig. 1) to change the transfer coefficient. This key is opened and

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