the reactivity of the Si-X bond are pointed out, and the properties of the Si-O bond are described. The course of aqueous hydrolysis is then summarized in brief, quoting Andryanov's mechanism (Usp. khim., (1955) 24, 430) and discussing the effects of the amount of H_2O and of pH on the course of reaction. The hydrolysis of $\geq$Si-X with metallic oxides MeO, HO-Si $\leq$, ROR, ROH/R'COOH, RCOO-Si $\leq$, HO-Si $\equiv$, MeO-Si $\leq$, and RCHO is presented schematically, and some silicone structures are illustrated. Depolymerization, linearization and depolymerization of silicones is then treated, focusing the attention on the initial fission of siloxane bonds with Brönsted or Lewis acids, oxides, and other salts, and on the resulting structural changes. A few typical examples are quoted to illustrate these reactions. There are 1 table and 51 references: 8 Soviet-bloc and 43 non-Soviet-bloc.

ASSOCIATION: Katedra Chemii Nieorganicznej Politechniki Gdańskiej (Department of Inorganic Chemistry, Gdańsk Polytechnic Institute)

SUBMITTED: February 2, 1962

Card 2/2

RODZIEWICZ, Wlodzimierz; BENTKOWSKA, Halina

Hydrolysis of dichlorodiethylsilane by use of pentahydrate sulfate of copper. Rocz chemii 36 no.2:285-290 '62.

1. Department of Inorganic Chemistry, Technical University, Gdansk.

K1,2

HOFFMAN, B.;BENTKOWSKI, Z.;POPELIS, R;PROKULEWICZ, S.

Further study on isoantagonists of Escherichia coli and its significance in infantile diarrhea. Pediat. polska 26 no. 10: 1116-1126 Oct. 1951.
(CIML 21:3)

1. Of the First Pediatric Clinic (Head--Prof. H. Hirszfeldowa, M. D.) of Wroclaw Medical Academy and of the National Institute of Hygiene Branch in Wroclaw. (Head--Eng. I.Szczepanski, M. D.).

BENTKOWSKI, ZDZISLAW.

TECHNOLOGY

BENTKOWSKI, ZDZISLAW. Poradnik mechanika lotniczego; platowce. Warszawa, Wydawn. Komunikacyjne, 1957. 262 p.

Monthly List of East European Accessions (EEAI) LC, Vol. 6, No. 2, February 1959, Unclass.

BENTS, R. [Bentz, R.]

Influence of paraffinization of the properties of yarns during looping process. Tekstilna prom 12 no.2:19-22 '62.

1. Nauchnoissledovatelski institut za tekstilna industriia, Reutlingen, Stuttgart, GFR, Institut za tekstilna tekhnologiia.

AP7005587

SOURCE CODE: UR/0020/67/172/002/0371/0374

AUTHOR: Akimov, I. A.; Bontsa, V. M.; Vilesov, F. I.; Terenin, A. N. (Academician)

ORG: none

TITLE: Photoemissive effect from dyes adsorbed on ZnO and mechanism of spectral sensitization

SOURCE: AN SSSR. Doklady, v. 172, no. 2, 1967, 371-374

TOPIC TAGS: photoconductivity, zinc oxide

ABSTRACT: A study of the cyanine dyes 3,3'-diethyl-9,11,15,17-bis(β,β'-dimethyltrimethylene)thiapentacarbocyanine iodide (I) and 3,3'-diethylthiapentacarbocyanine iodide (II), used as spectral sensitizers of silver halide photographic emulsions, was carried out by determining the spectral distribution of the photoconductivity of ZnO containing the dyes and the spectral distribution of the quantum yield of photoelectron emission from ZnO layers before and after introduction of the dyes. The dyes were found to sensitize the photoconductivity of ZnO with a high degree of effectiveness. The results obtained permit one for the first time to compare the position of the electronic energy levels of a semiconductor and a dye in an attempt to provide an explanation for the mechanism of spectral sensitization (Fig. 1). Orig. art. has: 4 figures.

SUB CODE: 07/ SUBM DATE: 21Jun66/ ORIG REF: 004/ OTH REF: 007

Card 1/2

UDC: 535.215

ACC NR: AP7005587

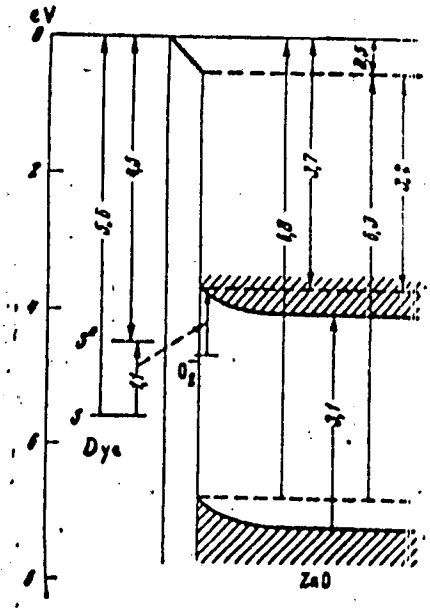


Fig. 1. Diagram of electronic energy levels of zinc oxide and a sensitising dye adsorbed on it

Card 2/2

BERTSE, IMRE, Cand Geog Sci -- (diss) "Manufacturing industry in Budapest." Moscow, 1960. 23 pp; (Moscow Order of Lenin and Order of Labor Red Banner State Univ im M. V. Lomonosov); 150 copies; price not given; (KL, 26-60, 131)

BENTSIANOVA, I.Ya.; VEKSLER, G.M.; MARKOV, L.R.; MELAMED, S.N.; PETRIYENKO, P.M.

Use of hemp tow for the manufacture of particle boards. Der. prom. 11 no.4:9-10 Ap '62. (MIRA 15:4)

1. Ukrgipromebel'.
(Hardboard) (Hemp)

BENTSIANOVA, V. M.

"The Mediastinal Form of Cancer of the Lung. (Clinico-roentenological Observations)." Cand Med Sci, Central Sci-Res Inst of Roentgenology and Radiology, Min Health USSR, Leningrad, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

BENTSIANOVA, V.M.; RUDERMAN, A.I.

Radiation pneumosclerosis; clinical and roentgenological observations. Vest. rent. i rad. no.6:53-58 N-D '55. (MIRA 9:4)

1. Iz rentgenoterapevticheskogo otdela (rukovoditel'-prof. L.D. Podlyashuk) Gosudarstvennogo nauchno-issledovatel'skogo instituta imeni V.M. Molotova (dir. I.G. Lagunova)

(SCLEROSIS,
pulm, caused by radiother)
(RADIOTHERAPY, inj. eff.
pulm. sclerosis)
(LUNGS,dis.
sclerosis, caused by radiother.)

KENTSIANOVA, V.M.; PERESLENI, N.A.

Rotation radiotherapy of malignant tumors of the lungs. Vest.rent. i rad. 31 no.6:16-20 N-D '56. (MLRA 10:2)

1. Iz rengenoterapevticheskogo otdela (zav. - prof. L.D.Podlyashuk) Gosudarstvennogo nauchno-issledovatel'skogo instituta rentgenologii i radiologii imeni V.M.Molotova (dir. - dotsent I.G.Labunova)
(LUNG NEOPLASMS, ther.
radiother., rotated)
(RADIOTHERAPY, in various dis.
cancer of lungs, rotated radiother.)

SHEKHTER, I.A., professor; BENTSIANOVA, V.M., kandidat meditsinskikh nauk

Basic principles and methods of radiotherapy for malignant growths of the maxillofacial region. Stomatologiia 35 no.6:26-33 N-D '56
(MLRA 10:4)

1. Iz kafedry rentgenologii i radiologii (zav.-prof. I.A. Shekhter) Moskovskogo meditsinskogo stomatologicheskogo instituta (dir.-dotsent G.N. Beletskiy)
(JAWS--CANCER) (FACE--CANCER) (RADIOTHERAPY)

BENTSIANOVA, V.M.

[X ray therapy in primary cancer of the lungs] Rentgenoterapiia pervichnogo raka legkogo; metodicheskie ukazaniia. Moskva, Medgiz, 1957. 39 p. (MIRA 11:5)
(X RAYS--THERAPEUTIC USE)
(LUNGS--CANCER)

BENTSIANOVA, V.M.

BENTSIANOVA, V.M. (Moskva, Pyatnitskaya ul., d.28, kv.34)

Methods of radiotherapy in lung cancer. Vop.onk. 3 no.5:600-603 '57.
(MORA 11:2)

1. Iz rentgenoterapevticheskogo otdela (rukov. - prof. L.D.Podlyashchuk) Gosudarstvennogo nauchno-issledovatel'skogo instituta rentgenologii i radiologii (dir. - dots. I.T.Lagunova) i kafedry rentgenologii i radiologii (zav. - prof. I.A.Shekhter) Moskovskogo meditsinskogo stomatologicheskogo instituta (dir. - dots. G.M. Belotskiy)

(LUNG, NEOPLASMS, ther.
radiother.)
(RADIOTHERAPY, in various dis.
lung cancer)

SHEKHTER, Il'ya Aleksandrovich, prof.; PAVLOV, Aleksandr Sergeyevich, dotsent; BENTSIANOVA, V.M., red.; SEMCHILO, K.K., tekhn.red.

[Course in medical roentgenology and radiology] Kurs meditsinskoi rentgenologii i radiologii. Moskva, Gos.izd-vo med.lit-ry, 1959. 349 p. (MIRA 13:6)
(RADIOLOGY, MEDICAL)

BENTSIANOVA, V.M., kand. med. nauk; BERENSHTEYN, R.A.

Combined chemical and X-ray therapy in chronic leukoses.
Trudy TSentr. nauch.-issl. inst. rentg. i rad. 10:308-313
'59. (MIRA 12:9)
(LEUKEMIA)

SOKOLOV, Yu. N., prof.; BENTSIANOVA, V.M., dots.; ROZENSHTRAUKH, L.S., dots.

Seventh All-Union Congress of Roentgenologists and Radiologists.
Vest. rent. i rad. 34 no.1:82-90 Ja-F '59. (MIRA 12:3)
(RADIOLOGY, MEDICAL--CONGRESSES)

BENTSIANOVA, V.M., dotsent (Moskva, Zubovskiy bul'var, d.16/20, kv.87); BAL'SEVICH, S.Ya.

Radiation therapy for giant-cell tumors of the jaws. Vest. rent. i rad. 35 no. 5:44-50 My-Je '60. (MIRA 14:2)

1. Iz kafedry rentgenologii i radiologii (zav. - prof. I.A. Shekhter) Moskovskogo meditsinskogo stomatologicheskogo instituta (direktor - dotsent G.N. Beletskiy) i radiologicheskogo otdeleniya (zav. S.Ya. Bal'sevich) bol'nitsy imeni A.A. Ostroumova (glavnyy vrach P.V. Abashkina).
(JAWS—TUMORS) (RADIOTHERAPY)

ZEDGENIDZE, G.A., prof. otv. red.; BENTSIANOVA, V.M., dotsent, red.; VIKTURINA, V.F., kand. med. nauk, red.; ZUBCHUK, N.V., kand. med. nauk, red.; LAGUNOVA, I.G., prof., red.; POBEDINSKIY, M.N., prof., red.; REYNBERG, S.A., zasluzhennyy deyatel' nauki, prof., red.; ROZENSHTRAUKH, L.S., doktor med. nauk, red.; ROKHLIN, D.G., prof., red.; SOKOLOV, Yu.N., prof., red.; FANARDZHYAN, V.A., red.; SHEKHTER, I.A., prof., red.; SHTERN, B.M., prof., red.; SHTERN, V.N., prof., red.; ZUYEVA, N.K., tekhn. red.

[Transactions of the Seventh All-Union Congress of Roentgenologists and Radiologists] Trudy Vsesoiuznogo s"ezda rentgenologov i radiologov, 7th, Saratov, 1958. Moskva, Gos. izd-vo med. lit-ry Medgiz, 1961. 317 p. (MIRA 14:7)

1. Vsesoyuznyy s"yezd rentgenologov i radiologov, 7th, Saratov, 1958. 2. Deystvitel'nyy chlen AMN SSSR (for Zedgenidze). 3. Chleny-korrespondenty AMN SSSR (for Rokhlin, Fanardzhyan). 4. Akademiya nauk Armyanskoy SSR (for Fanardzhyan)

(RADIOLOGY, MEDICAL)

ROZENSHTRAUKH, L.S., prof.; BELITSIANOVA, V.M., dotsent; ZUBCHUK, N.V., kand. med.nauk

First All-Russian Congress of Roentgenologists and Radiologists. (MIRA 15:2)
Vest. rent. i rad. 36 no.6:74-82 N-D '61.
(RADIOLOGISTS--CONGRESSES)

GINZBURG, Vladimir Gertsevich, prof.; BENTSIANOVA, V.M., red.; KUZ'MINA, N.S., tekhn. red.

[Fundamentals of a roentgenological examination of the skull] Osnovy rentgenologicheskogo issledovaniia cherepa; rukovodstvo dlia vrachei. Moskva, Medgiz, 1962. 178 p. (MIRA 16:4)
(SKULL—RADIOGRAPHY)

LAGUNOVA, Irina Georgiyevna; BENTSIANOVA, V.M., red.; PARAKHINA, N.L., tekhn. red.

[Tumors of the skeleton]Opukholi skeleta. Moskva, Medgiz, 1962. 365 p. (MIRA 15:9)
(BONES—TUMORS)

ROZENSHTRAUKH, Leonid Semenovich, prof.; RYBAKOVA, Nina Illarionovna, kand. med. nauk; BENTSIANOVA, V.M., red.; EL'CHIKOVA, Yu.S., tekhn. red.

[Clinical X-ray diagnosis of paragonimiasis] Klinicheskaia rentgenodiagnostika paragonimoza. Moskva, Medgiz, 1963. 213 p. (MIRA 16:7)

(PARAGONIMIASIS) (LUNGS—RADIOGRAPHY)

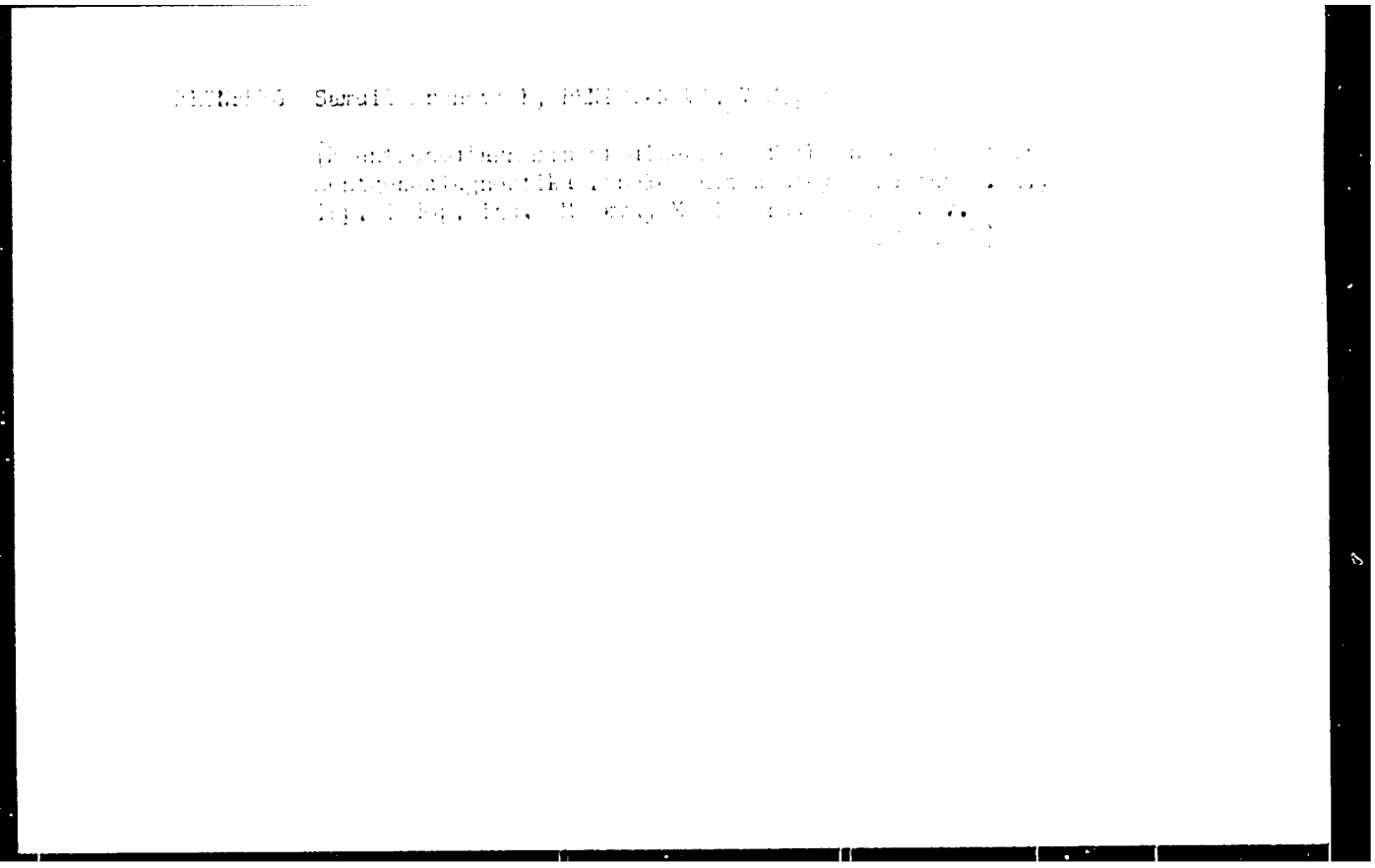
FRIDKIN, Veniamin Yakovlevich; BENTSIANOVA, V.M., red.; KOROLEV, A.V., tekhn. red.

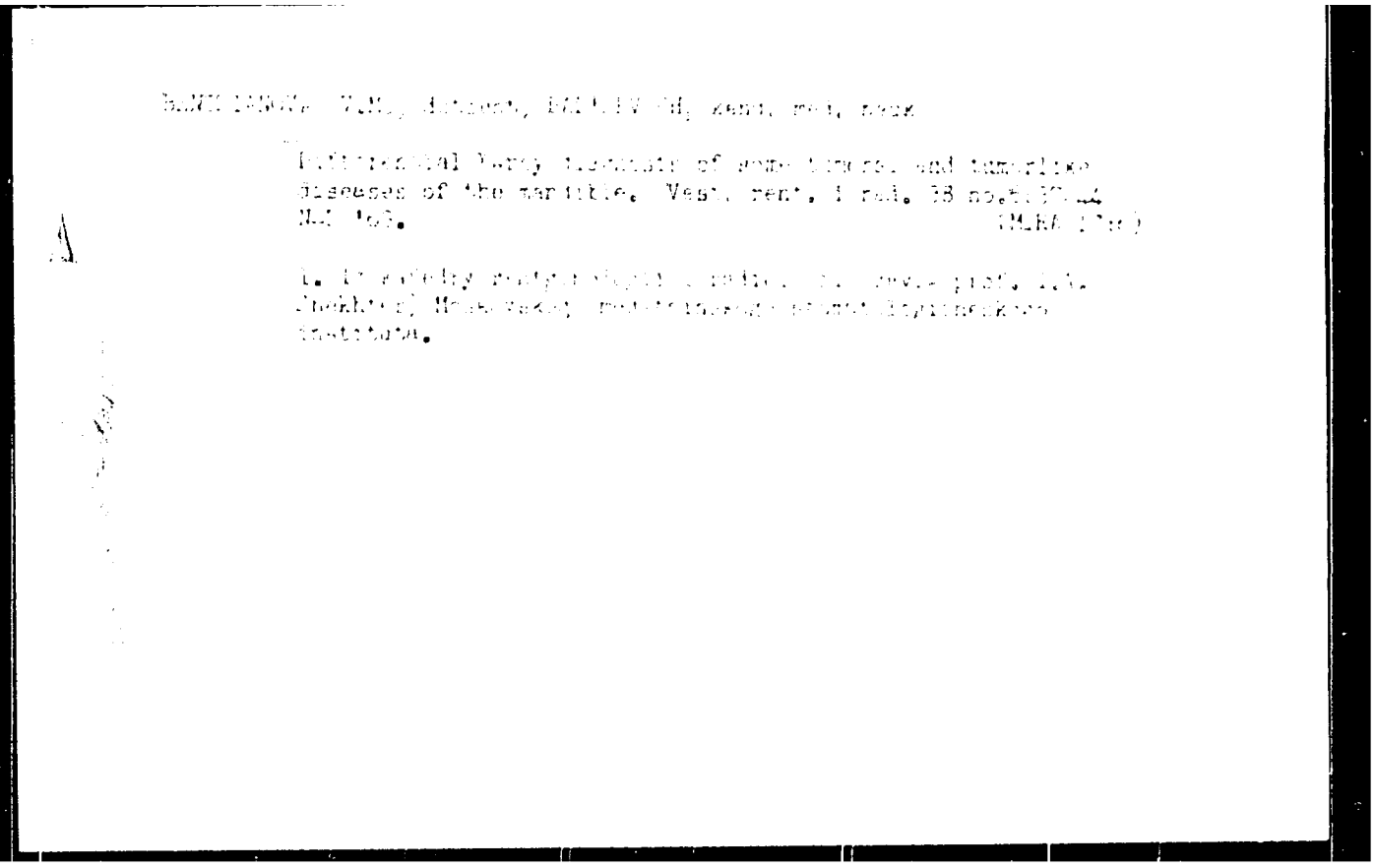
[Anatomicofunctional foundations of the X-ray picture of the lungs] Anatomo-funktsional'nye osnovy rentgenologicheskogo izobrazheniia legkikh. Moskva, Medgiz, 1963. 189 p. (MIRA 16:11)

(LUNGS--RADIOGRAPHY)

BENTSIANOVA, V.M., kand.med.nauk; NIVINSKAYA, M.M., kand.med.nauk.

Eighth International Cancer Research Congress. Vest. rent. i rad. 38 no.1:75-80 Ja-F'63. (MIRA 16:10)





SHEKHTER, I.A., prof.; PAVLOV, A.S., dotsent; BENTSIANOVA, V.M., assistent; VOROB'YEV, Yu.I., assistent

Results of radiotherapy for malignant tumors of the [illegible]. Ter. i prak.stom. no.6:148-155 '63. (MIRA 18:3)

1. Iz kafedry rentgenologii i radiologii ([illegible] - prof. I.A.Shekhter) Moskovskogo meditsinskogo stomatologicheskogo [illegible].

BENTSIANOVA, V.M., dots., red.; VIKTUROVA, V.I., kand. med. nauk, red.; KAGAN, Ye.M., prof., red.; [illegible], L.G., prof., red.; PERESLEGIN, I.A., doktor med. nauk, red.; ROZENSHTRAUKH, L.S., prof., red.

[Materials of the enlarged plenum of the Board of the All-Union Scientific Society of Roentgenologists and Radiologists and of the out-of-town session of the Scientific Council of the State Scientific and Research Institute of X-ray Radiology of the Ministry of Public Health of the R.S.F.S.R., held December 23 - 26, 1963, in Rostov-on-Don] Materialy rasshirennogo plenuma Pravleniia Vsesoiuznogo nauchnogo obshchestva rentgenologov i radiologov i vyezdnoi sessii Uchenogo soveta Gosudarstvennogo nauchno-issledovatel'skogo rentgeno-radiologicheskogo instituta MZ RSFSR 23-26 dekabria 1963. goda, g.Rostov-na Donu, Moskva, 1963. 188 p.
(MIRA 18:1)

MAZENKOV, Nikolay Nikitovich; [illegible], prof.; BENTSIANOVA, V.M., red.

[X-ray and radioisotope diagnosis of diseases of the bone] Rentgenovskaia i radioizotopnaia diagnostika zabolevanii kostei. Moskva, [illegible], [illegible].

GUSEVA, L.P.; BENTSION, A.D.

We are improving the quality of work in processing telegrams. Vest. sviazi 23 no.12:20-21 D '63. (MIRA 17:2)

1. Glavnyy inzh. Sverdlovskogo telegrafa (for Guseva). 2. Nachal'nik apparatnogo tsekha Sverdlovskogo telegrafa (for Bentsion).

BENTSMAN, B. L.

Bentsman, B. L. - "The economic problems of mining natural gases," Trudy Sarat. ekon. in-ta, Vol II, 1949, p. 137-73

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

BENTSMAN, B.L., prof.

Method for studying the economic effectiveness of using natural gas in various branches of industry. Ispol'. gaza v nar. khoz. no.2:239-246 '63. (MIRA 18:9)

1. Saratovskiy ekonomicheskiy institut.

JANCZARSKI, I.; TRZEBSKI, A.; BENTYN, K.

On the presence in brain extracts of choline esters acting upon the myometrium. Acta physiol.polon. 11 no.5/6:732-733 '60.

1. Z Pracowni Fizjopatologii Narzadu Rodnego Instytutu Matki i Dziecka w Warszawie, Kierownik Dzialu Matki: prof.dr J.Lesinski Dyrektor Instytutu: prof.dr F.Groer.
(CHOLINE pharmacol)
(BRAIN extracts)
(UTERUS pharmacol)

TRZEBSKI, A.; CHOROSZEWSKA, A.; JANCZARSKI, I.; HENTYN, K.

Studies on the oxytocic activity and chemical composition of secretions from the rat uterine mucosa after the administration of estrogens. Acta physiol. polon. 13 no.5:577-590 '62.

1. Z Pracowni Fizjopatologii Narzadu Rodnego Kierownik: doc. dr A. Trzebski Z Kliniki Poloznictwa i Chorob Kobiecych Kierownik: prof. dr J. Lesinski Z Instytutu Matki i Dziecka w Warszawie Dyrektor: prof. dr B. Gornicki.
(UTERUS) (OXYTOCICS) (ESTROGENS)

[illegible], Ferenc

Quality of the surface waters in Zala County. Hidrologiai kozlony 44 no. 2:88-92 F '64.

1. Public Health and Medical Clinic for Contagious Diseases, Zalaegerszeg.

[illegible]
([illegible])

Dept. of Anat.-Histol.; [illegible] [illegible] [illegible] in dogs for experimental purposes. Acta [illegible] [illegible]
Description of the operative technique of [illegible] [illegible] to be suitable for the study of the [illegible] functional [illegible] of the [illegible].
[illegible]

SO: [illegible] Vol. 5 No. 7 Sec. [illegible]

PETRI, G.;CSIPAK, J.;KOVACS, A.;BENTZIK, M.

Data on the pathology of pyogenic inflammation. I. The role of histamine in pyogenic inflammation and the effect of antihistaminics on its course. Acta med. hung. 3 no.3:347-368 1952. (CLML 23:4)

1. Of the First Department of Surgery and of the Institute of Pharmacology of Szeged University.

PETRI, G.;CSIPAK, J.;KOVACS, A.;BENTZIK, M.

Data on the pathology of pyogenic inflammation. II. The effect of the antihistamine substance of the leukocytes on pyogenic inflammation. Acta med. hung. 3 no.3:361-368 1952. (CLML 23:4)

1. Of the First Department of Surgery and of the Institute of Pharmacology of Szeged University. 2. Experimental leucocytosis produced by subcutaneous injection of formaline.

PETRI, G.; CISPAK, J.; KOVACS, B.; BENTZIK, M.

The significance of histamin and antihistaminics in simple inflammation. Magy. sebeszet 5 no. 4:241-246 Nov 1952. (CLML 24:1)

1. Doctors. 2. Surgical Clinic (Director -- Prof. Dr. Gyula Jaki) and Pharmacology Institute (Director -- Prof. Dr. Miklos Jancso), Szeged Medical University.

/ . . . . , M.

VARGHA, M.; BENIZIK, M.; KOZMA, H.

Leukotomy in dog for experimental purposes. Acta neurochir. 3 no.3:248-251 1953. (CIML 25:5)

1. Of the Neuro-Psychiatric Clinic (Head--Prof. I. Hurzak, M.D.) and of the Institute of Anatomy (Director--Prof. A. Gellert, M.D.) of Szeged University.

BENTZIK M. dr

BENKO, Sandor, dr.; BENTZIK, Mihaly, dr.; NISNER, Anna, dr.; SOLTESZ, Rozsa, dr.

Studies on the mechanism of action of experimental local bone marrow hypoxia with special reference to the role of the autonomic nervous system. Magy. belorv. arch. 7 no.5: 145-149 Oct. 54.

1. A Szegedi Orvostudomanyi Egyetem I. sz. Belklinikajanak kozlemenye (Igazgato: Hetenyi Geza dr. akademikus egyetemi tanar)

(POLYCYTHEMIA, exper.
prod. by anoxia, eff. of eterasthylaamonium bromide & hemilateral lumbar ganglionectomy)
(TETRAETHYLAMMONIUM, eff.
on exper. anoxia-induced polycythemia)
(GANGLIA, AUTONOMIC, eff. of excis.
on anoxia-induced polycythemia)
(ANOXIA, exper.
causing polycythemia, eff. of tetraethylammonium bromide & hemilateral lumbar ginglionectomy)

BENTZIK, Mihaly, dr.; BERCI, Gyorgy, dr.; NEMETH, Andras, dr.; PETRI, Gabor, dr.

Implantation of the internal mammary artery into the heart muscle for the improvement of its blood supply as based on experimenta research. Magy. sebeszet 8 no.209-272:209-215 Aug 55.

1. A Szegedi Orvostudomanyi Egyetem Sebeszeti Mutettani Intezetenek kozlemenye. (Igazgato: Petri, Gabor, dr. egyeteni tanar).

(HEART, blood supply
ischemia insuff, exper. surg., implantation of internal mammary artery.)
(TRANSPLANTATION
external mammary artery in ischemia of the heart.)

BENUA, F. F.

Author: Benua, F. F.

Title: The <u>welding of cast iron</u> with [illegible]
(Svarka chuguna [illegible] elektrodami [illegible].)

City: Moscow

Date: 1946 19 pages

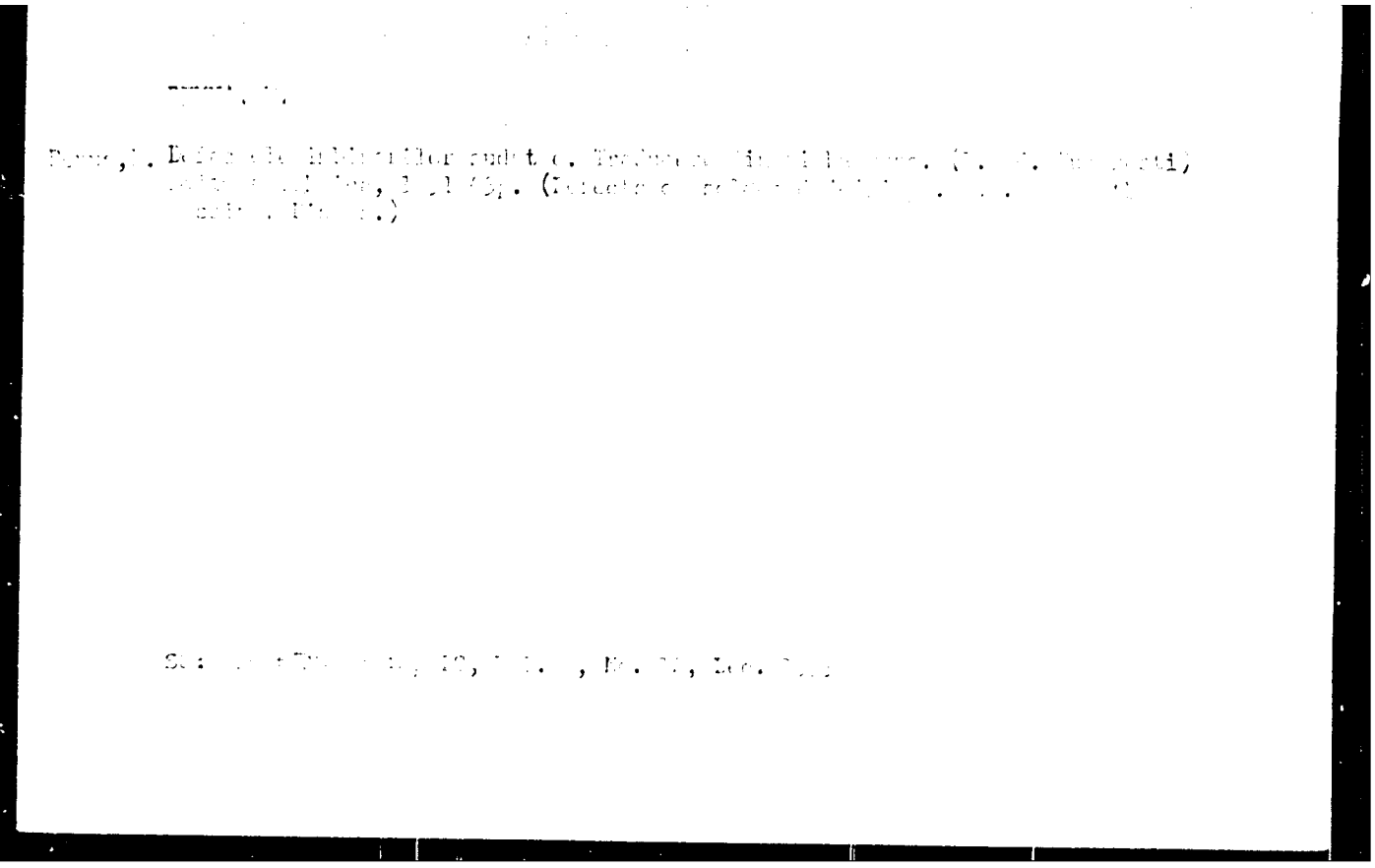
Available: Library of Congress

Source: Monthly List of Russian Accessions, Vol. 3, Jan., '54, p. 102

: Manufacturing & Mechanical Engineering in the Soviet Union, Lib. of Congress, 1953

BENUA, P., inzhener.

Metal electrode arc welding of thin sheet steel. Mor. flot 7 no.2:23-27 '47. (MLRA 9:6)
(Hulls (Naval architecture)--Welding)) (Electric welding)



1. BENUA, Docent F. F.; SHILYAYEV, P. N., Eng.

2. USSR (600)

4. Steam Boilers, Marine

7. Calculation of the strength of cylindrical elements of welded marine steam boilers, Rech. transp., 12, No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

1. BENUA, P; SHILYAYEV, P., Eng.

2. USSR (600)

4. Ships

7. Calculation for strength of ships', brace-free flat bottoms which are subject to inside pressure, Mor. flot, 12, No. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953, Unclassified.

BENUA, F., kandidat tekhnicheskikh nauk, dotsent; SHILYAYEV, P., inzhener.

Strength calculation of cylindrical elements for marine steam-boilers, functioning at a wall temperature exceeding 400° C. Mor. flot 13 no.3:14-16 Jy '53. (MLRA 6:8)
(Steam boilers, Marine)

1. [illegible], F.F.

2. USSR (600)

4. Electric Welding

7. Two-electrode, automatic welding with single phase current, and with the use of cable equipment, Avtog. delo 24 no. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, [illegible] 1953, Uncl.

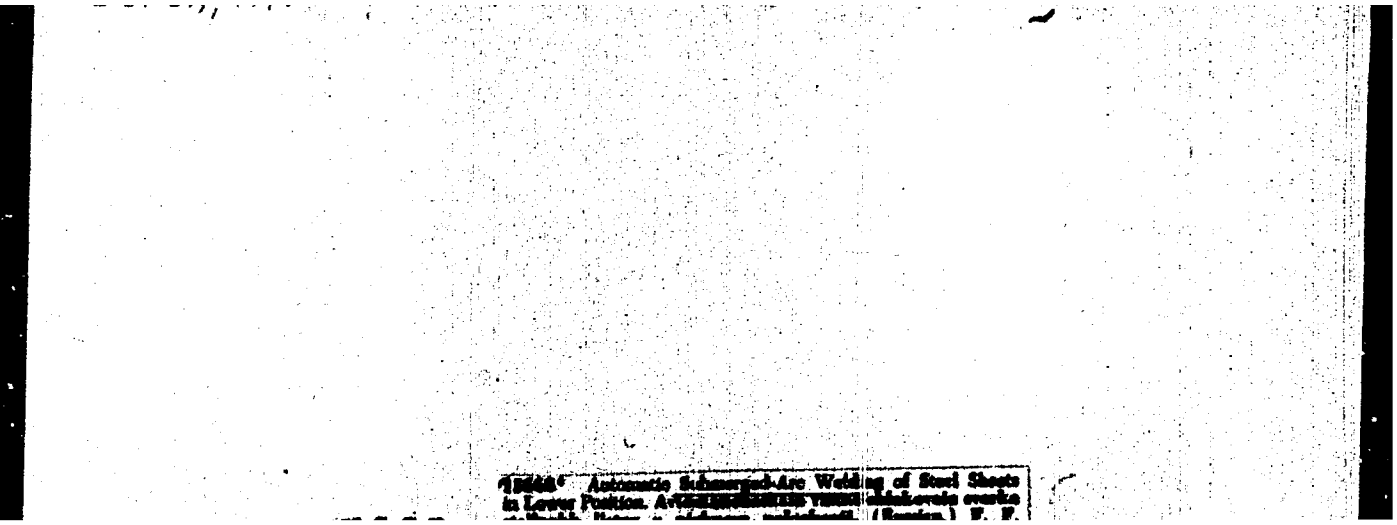
DEMUA, F.F., kandidat tekhnicheskikh nauk, dotsent; Katler, A.I., inzhener.

Automatic, slag-shielded arc welding with high current density for steel parts with large cross sections. Avtog.delo 24 no.5:17-19 My '53. (MLRA 6:5)

1. Laboratoriya svarki Leningradskogo instituta inzhenerov vodnogo transporta. (Electric welding)

BENUA, F.F., kandidat tekhnicheskikh nauk; VOL'PERT, G.D., inzhener,; YEGEL'YANOV, N.P., kandidat tekhnicheskikh nauk; KLEKOVKIN, G.P. inzhener; KUZMAK, Ye.M., doktor tekhnicheskikh nauk, professor; NILOVSKIY, I.A., laureat Stalinskoy premii;PANOV, B.N., inzhener; POKHODNYA, I.K., inzhener; FRUMIN, I.I., kandidat tekhnicheskikh nauk; FRUMIN, S.R., inzhener; ZVEGINTSEVA, K.V., inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor; MATVEYEVA, L.S., redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor.

[Automatic built-up welding with wear-resistant alloys] Avtomaticheskaia naplavka iznosoustoichivymi splavami. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1955. 244 p.(MLRA 8:11)
(Electric welding)



15648 Automatic Submerged-Arc Welding of Steel Sheets in Lower Position. A[illegible] (Russian) V. P.

[redacted]

HENUA, F.F., dotsent; BOGDANOV, A.M., dotsent.

Examining residual stresses in welded shafts of vessels.
Mech. transp. 14 no.2:23-25 F '55. (MLRA 8:5)
(Shafts and shafting)

BENUA,P., dotsent; SHILYAYEV,P., inzhener

Calculating the strength of flat boiler walls reinforced by braces.
Mor.flot 15 no.9:17-20 S'55. (MLRA 8:11)
(Boilers, Marine)

BENUA, F.F., kandidat tekhnicheskikh nauk; SHILYAYEV, P.N., kandidat tekhnicheskikh nauk.

Increasing effective steam pressure in KB-5 boilers. Rech.transp. 15 no.8:22-23 Ag '56. (MLRA 9:11)
(Boilers, Marine)

Бенуа Ф. Ф.

137-58-1-911

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 130 (USSR)

AUTHORS: Benua, F.F., Ozolin, V.Yu.

TITLE: Investigation of the Automatic Arc-weld Surfacing of Brass on Gray Iron (Issledovaniye avtomaticheskoy elektrodugovoy naplavki latuni na seryy chugun)

PERIODICAL: Tr Leningr. korablestroit. in-ta, 1956, Nr 19, pp 91-108

ABSTRACT An investigation was made of the conditions of maximum deoxidation of the molten pool during the brass surfacing of gray iron intended for the build-up of the contact surfaces of valve casings and disks. The surfacing was accomplished by means of a bare electrode with a layer of a special flux and a low current and long arc. It is demonstrated that the maximum decrease of free energy is exhibited by the reduction reaction of the Zn that enters into the composition of the brass rods. Borax and boric acid may be employed as supplementary deoxidizers. Flux ingredients containing F (Na_3AlF_6) are used to forestall the formation of gas pores. NaCl, MgCl, and KCl are added to the flux to avoid slag inclusions in the facing metal. Tests of 10 fluxes and 2

Card 1/2

137-58-1-911

Investigation of the Automatic Arc-weld Surfacing of Brass on Gray Iron

electrode coatings have lead to the following two recommended combinations: 1) borax 50 percent, Na_3AlF_6 20 percent, MgCl 7.5 percent, KCl 22.5 percent; 2) borax 25 percent, boric acid 10 percent, CaF_2 10 percent, NaCl 30 percent, and cuprosilicon 25 percent. In the facing of L-59 and L-62 upon SCh-15-32 iron it is established that the waste of Zn from the rods amounts to 30-40 percent; the percentual waste increases with increasing diameter of the rods. The hardness of the facing and the iron in the fusion zone increases in comparison with the materials in their initial states (H_B = 72-86 along the flux-welded facing). The thin interlayer of refined cast iron (0.05 - 0.1 mm) in the fusion zone has no influence on the mechanical treatment process. Separation tests revealed the strength of the junction to be 15.7 kg/mm^2; the specimens failed along the boundary between the refined and the gray iron. In pressurization tests at 10 atm. both the facing and the fusion zone were found to be gas-tight. A metallographic investigation revealed the absence of any fusion of the parent metal during the fluxed brass-surfacing process and the fusion of the brass with the parent metal through the thin interlayer of refined cast iron. Tables showing the chemical compositions of the cast irons and brasses employed, the materials used in the preparation of the fluxes, and the metal facing are provided, also the procedure and process engineering of the flux facing. Bibliography: 18 references.

V.S.

Card 2/2

1. Arc welding--Automation 2. Arc welding--Electrodes--Applications

BENUA, F F

137-58-5-9747

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 128 (USSR)

AUTHORS Benua, F. F., Demyantsevich, V. P., Kushnarev, L. N.

TITLE Novel Developments in the Automation and Mechanization of Electric Arc and Slag Welding (Novoye v oblasti avtomatizatsii i mekhanizatsii protsessov elektricheskoy dugovoy i shlakovoy svarki)

PERIODICAL V sb.: Svarochnoye proiz-vo. Leningrad, Lenizdat, 1957, pp 17-37

ABSTRACT The results of a number of investigations and production studies of automation and mechanization of welding processes are communicated. 1. An investigation of the effect of electrode diameter (current density) on the melting of the parent and the electrode metal. An increase in current density improves the efficiency of the processes of fusion of the product and the electrode. Thus, for wire of 2-mm diameter, an increase in current from 300 to 600 amps changes the share of the heat expenditure required to melt the parent metal from 15 to 28%, that for the electrode from 12 to 19.8%, that for the flux from 36.8 to 29.2% and that going into heat dissipation from 36.2 to 28.6%.

Card 1/3

Novel Developments in the (cont.)

this results in an increase in the deposition efficiency and the depth of penetration. 2. Development of a procedure of automatic submerged slag welding of parts of large cross section at high current densities by electrodes 1.6-3 mm in diameter. The joint is held in a detachable copper or ceramic form. The tips of the automatic welder go into the gap (20-25 mm) until they are 50-70 mm apart. About 30 or 40 sec after welding starts, the arc process converts to a slag process. Filler metal added to the liquid bath diminishes its temperature, inhibits grain growth and raises the akc from 1.7 to 8.1-12.5 kgm/cm^2 (Sv08A electrode, OSTs-45 flux). The power supply circuit from the 1st to the 4th electrode (E) and technical and cost criteria for the process are presented. 3. Development of a procedure of flat-position automatic slag welding of sheets >20 mm in diameter. The welding is done on a Cu backing with a groove 20 mm wide and 5 deep, the gap between the edges of the sheets being 12-16 mm. 3 E spaced 30 mm apart are used, the first being an 8-mm tungsten tip, and the others consumable 2-mm types. The W E is powered by 32-38-v D-C. The consumable E are powered from 2 STE-34 transformers in open delta network. 4. A search for an efficient method of automatic surfacing. It was found that the highest output was attainable with single-phase, two-electrode, three-arc facing, with 2-mm diameter E fed from a single STE-34 transformer (7.8-19.5 kg metal applied per hour).

Novel Developments in the (cont.)

5. The development, for the processes described, of special 2-electrode automatic and semiautomatic welders of the following model designations: DEShA-L!IVT-5, DEShP-LIIVT-5, DEA-2, and ADSD-500. 6. An investigation of the effect of the schedule in CO_2 welding with small-diameter electrodes, and the development of designs for automatic equipment for this type of welding. 7. Development of equipment for mass production of oil transformer housing of various models and sizes.

1. Arc welding--Control

V.S.

Card 3/3

BENUA, F. F.

SUBJECT: USSR/Welding

135-1-2/14

AUTHOR: Benua, F.F., Candidate of Technical Sciences and Ozolin, V. Yu., Candidate of Technical Sciences

TITLE: "Research of automatic arc fusion welding of brasses L62 and LS59-1 on grey cast iron" (Issledovanie avtomaticheskoi elktro-dugovoi naplavki latunei Л 62 i Л 59-1 na seryi chugun)

PERIODICAL: "Svarochnoe Proisvodstvo", 1957, No. 1, pp 4-8 (USSR)

ABSTRACT: Experiments conducted in automatic and manual arc fusion-welding of copper alloys on steel and cast iron led to the achievement of a fused-on metal that is free of cast iron or slag particles, or pores, and with a sufficient surface hardness, strength of junction in work and absence of hard spots which would prevent finishing by cutting.

It states that no known fusion welding methods result in such properties as obtained in these experiments. Phosphorous copper (13 % P), siliceous copper (24 % Si), manganese copper (30 % Mn), and zinc were used as de-oxidizers, zinc proved to be the most effective de-oxidizer for the copper oxide contained in the brass welding rod. Siliceous copper alloys have

Card 1/3

TITLE: "Research of automatic arc fusion welding of brasses L62 and LS59-1 on grey cast iron" (Issledovanie avtomaticheskoi elktrodugovoi naplavki latunei 62 i 59-1 na seryi chugun)

135-1-2/14

proved to be the most effective de-oxidizing component in the flux. Fluorine and fluorspar in the flux lead to extraction of hydrogen from the fused on metal. Use of sodium chloride, potassium chloride, and chloric salts to take out oxides and non-metallic inclusions, and to obtain effective ionisation of the arc, which is particularly important in fusion welding by long arc.

Composition of the used welding rods was:

ЛС59-1

1. Cu 57.69, Pb 1.12, Fe 0.7, Al none, Ni up to 0.18, Mn none, Si traces;
2. Cu 58.72, Pb 1.32, Fe 0.94, Al none, Ni up to 0.20, Mn none, Si traces;

Л 62

1. Cu 61.20; 2. Cu 62.09

Card 2/3 Only content of copper given.

TITLE: "Research of automatic arc fusion welding of brasses L62 and LS59-1 on grey cast iron" (Issledovanie avtomaticheskoi elktrodugovoi naplavki latunei L-62 i LS-59-1 na seryi chugun)

135-1-2/14

Microstructure of the basic and fused-on metal at the juncture is shown. The article contains 3 figures, 5 tables, 4 photographs and 10 references, all Slavic (Russian).

INSTITUTION: Leningrad Institute of Water Transport Engineers - (Leningradskiy Institut Inzhenerov Vodnogo Transporta)

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress

Card 3/3

Benua, Fedor Frantsevich

BENUA, Fedor Frantsevich; BOGDANOV, Aleksandr Mikhaylovich; SAGALOVICH, D.N., otvetstvennyy red.; OSVENSKAYA, A.A., red.; DVORAKOVSKAYA, A.A., tekhn.red.

[Electric arc and built-up welding of shafts] Elektrodugovaia svarka i naplavka sudovykh valov. [Leningrad] Gos.soiuznoe izd-vo sudostroit. promyshl., 1957. 229 p. (MIRA 11:1)
(Electric welding) (Shafts and shafting)

BENUA, Fedor Frantsevich,; KATLER, Anna Izrailevna,; SAGALOVICH, D.N., otv. red.; KUSKOVA, A.I., red.; SHISHKOVA, L.M., tekhn. red.

[Automatic submerged-arc welding in shipbuilding and ship repair] Avtomaticheskaia vannoshlakovaia svarka v sudostroenii i sudoremonte. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl. 1958. 127 p. (MIRA 11:10)

(Electric welding)
(Shipbuilding)
(Ships--Maintenance and repair)

BENUA, F. F.

AUTHORS: Benua, F.F., Candidate of Technical Sciences, Vologdin, I.V., Engineer and Katler, A.I., Candidate of Technical Sciences. 135-58-5-1/17

TITLE: Study of the Effect of Vibration on the Crystallization and Structure of Metal Welded-on by the Slag-Bath Method (Issledovaniye vliyaniya vibratsii na protsess kristallizatsii i strukturu naplavlennogo metalla pri vanno-shlakovoy svarke)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 5, pp 1-5 (USSR)

ABSTRACT: The problem of preventing hot cracks and obtaining fine-grained equiaxial structures of weld metal in electric slag welding processes is only partially solved. The data provided by different investigators [Ref. 1 - 8] indicates that the effect of vibration on the crystallization process depends on the frequency of vibration. Other investigations [Ref. 9 - 11] confirmed the assumption. In 1956-57, the authors of this article carried out experiments with vibration frequencies of 25 to 50 cycles/sec. The techniques and results are given in detail. The vibration device is described and shown in a schematic drawing. The results of the experiments indicate that vibration in a low-frequency range

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Study of the Effect of Vibration on the Crystallization and Structure of Metal Welded-on by the Slag-Bath Method

135-58-5-1/17

of 1,500 to 2,000 cycles/min, applied to the weld metal during the entire crystallization period, breaks large dendrites into small. Differently directed, it compresses the metal, reduces the size of grains, and essentially increases impact resistance.
There are 5 figures, 2 tables and 12 references, 11 of which are Soviet and 1 English.

ASSOCIATION: Leningradskiy institut inzhenerov vodnogo transporta (Leningrad Water-Transport Engineering Institute)

AVAILABLE: Library of Congress

Card 2/2

BENUA, F.F., kand.tekhn.nauk; VOLOGDIN, I.V., inzh.; KATLER, A.I., kand.tekhn. nauk

Investigating the effect of vibration on the crystallization process and structure of built-up weld metal in the submerged arc process. Svar. process. Svar. proizv. no.5:1-5 My '58. (MIRA 11:6)

1.Leningradskiy institut inzhenerov vodnogo transporta.
(Electric welding) (Solidification) (Vibration)

BENUA, F.F., kand. tekhn. nauk.

Automatic, single-electrode, built-up welding under flux of cylindrical shapes along spiral lines. Svar. proiz. no.2:25-28 F '59. (MIRA 12:1)

1.Leningradskiy institut inzhenerov vodnogo transporta.
(Shafting--Maintenance and repair) (Electric welding)

18(5) SOV/135-59-10 11/23

AUTHOR: Benua, F.F., Candidate of Technical Sciences

TITLE: Submerged Arc Welding of Pipe Branches on Smoke Stacks

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 10, pp 25-26 (USSR)

ABSTRACT: Research is described here on a technology for single-electrode submerged arc welding of straight smoke stacks with an external diameter of 51-89 mm and a wall thickness of 2.5-3.5 mm (GOST 3099-46) for their lengthening by welding on pipe branches of 150-250 mm in length. The table gives the diameter of used electrode wires, with the corresponding speed of wire supply, the welding current, and the arc voltage. As a result of the present research, the following technology was worked out: The ends of the pipes and pipe branches which are to be welded are treated with a bevel angle of 55-60° at the edges. Thus, one can get symmetrical as well as asymmetrical welding trenches. The welding is done with a special device which rotates the pipe during the welding process and forms the weld metal with the inner surface of the pipe (Fig. 1). For the welding a semi-automatic device type PSh-5 or

Card 1/2

Submerged Arc Welding of Pipe Branches on Smoke Stacks

PDShM-500 is used. Electrode wires type Sv-08 or Sv-08A are used together with flux type OST[illegible]-45 or AN 348A, with direct current, according to the conditions shown in the table. The number of revolutions of the pipe during the welding process depends on the thickness of the walls, the external diameter, and the availability of clearance, according to the nomogram in fig.3. This technology is used successfully at the Chistogan' ship repair yard. In this study Engineer A.A. Orlov and Engineer A.K. Perepelkin participated. There are 1 diagram, 9 graphs, 1 table and 3 Soviet references.

ASSOCIATION: Leningradskiy institut vodnogo transporta (Leningrad Institute for Water Transport)

Card 2/2

PHASE I BOOK EXPLOITATION SOV/4005

Benua, Fedor Frantsevich, Candidate of Technical Sciences

Avtomaticheskaya naplavka po vintovoy linii stal'nykh tsilindricheskikh izdeliy (Automatic Deposition of Metal Along a Helix on Cylindrical Steel Parts) Leningrad, 1959. 24 p. (Series: Leningradskiy dom nauchno-tekhnicheskoy propagandy. Obmen peredovym opytom. Seriya: Svarka i payka metallov, vyp. 3) (Series: Bazovaya nauchno-issledovatel'skaya laboratoriya svarki MRF (LIIVT). Seriya 2: Issledovaniya i proizvodstvennyy opyt, vyp. 1) 6,500 copies printed.

Sponsoring Agencies: Obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy RSFSR; Ministerstvo rechnogo flota RSFSR.

Ed.: Z.M. Ryzhik, Engineer; Tech. Ed.: M.M. Kubneva.

PURPOSE: This booklet is intended for welders.

COVERAGE: The author describes the automatic deposition of metal on cylindrical parts under a flux layer by means of arc welding. The

Card 1/3

research work was carried out at the Bazovaya nauchno-issledovatel'skaya laboratoriya svarki MRF (LIIVT) (Base Scientific Research Laboratory for Welding MRF [LIIVT]). A.K. Perepelkin, Engineer, was in charge of the experimental part of this work. There are 8 Soviet references.

TABLE OF CONTENTS:

There is no table of contents; the booklet is divided into the following sections:

Automatic Deposition (Cont.) SOV/4005

5. Installations for Hard-Facing Cylindrical Parts 24

References

AVAILABLE: Library of Congress

Card 3/3

VK/wbc/jb
7-28-60

BENUA, F.F., kand.tekhn.nauk, dotsent

Study of automatic electric arc welding under flux of outlet butts to the fire tubes of steam boilers. Trudy LIVT no.6: 68-79 '60. (MIRA 15:3)
(Boilers, Marine—Welding)

12300

S/125/60/000/010/003/015
A161/A133

AUTHORS: Benua, F.F., Katler, A.I.

TITLE: Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 10, pp. 19-22

TEXT: The automatic slag welding process with plate electrodes is often used for the welding of parts with large cross sections but since the weld metal has a coarse dendritic structure it requires heat treatment. In experiments carried out at the Laboratoriya svarki MPΦ (the MRF Welding Laboratory) in 1954-1958, it was discovered that the metal structure can be improved and the heat treatment after welding eliminated by using an additional filler metal in the pool, or low-frequency vibration. An installation for welding with two plate electrodes (Fig.1) is described. During the operation, the vibrator motor transmits vertical reciprocating movements to head (4) the plate electrodes (5). The material welded in the MRF Welding Laboratory experiments was round rolled CT3 (St.3) steel bar 85 mm in diameter, two 8x35 mm

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S/125/60/000/010/003/015
A161/A133

Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

electrodes and the filler metal. AN- 348A (AN-348A) flux was used for the slag pool; two STE-34 (STE-34) welding transformers were connected into open delta. The electrode plates only were fed into the welding zone in the initial period of the process (0.5-1.5 min), and the electrode and filler plates together during the whole process. A steady 550 amp and 32 volt current was maintained throughout the process. The vibration accelerated the transfer of metal drops 1.5 times. The authors arrive at the following conclusion: 1) Vibration (of 50 cps and 1.8 mm amplitude) of the plate electrodes increased the productivity of the process and the melting rate by 45% and reduced the consumption of electric power by 32%; 2) Vibration reduces the process costs owing to a more frequent transfer of metal drops from the electrodes; 3) An addition of filler metal in proper quantities into the pool during the welding process, doubles the efficiency and cuts the electric power consumption by 50%. There are 3 figures and 3 Soviet-bloc references.

Card 2/5

S/125/60/000/010/003/015
A161/A133

Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

ASSOCIATIONS: Bazovaya nauchno-issledovatel'skaya laboratoriya svarki MRF (The MRF Base Welding Research Laboratory

SUBMITTED: March 16, 1960

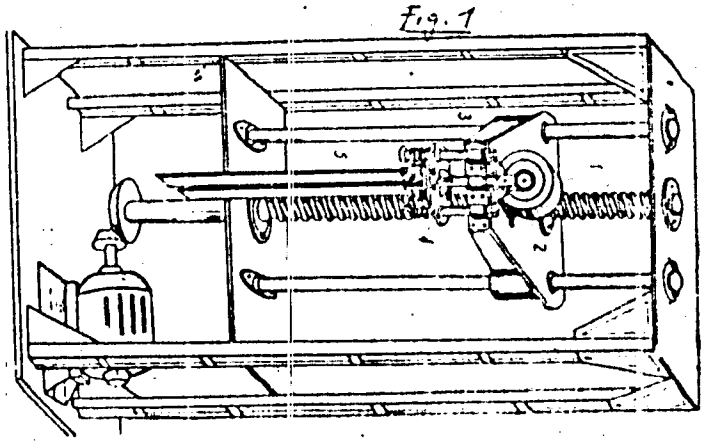
Card 3/5

S/125/60/000/010/003/015
A161/A133

Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

Figure 1:
Automatic welding assembly with two plate electrodes

Fig. 1



Card 4/5

S/125/60/000/010/003/015
A161/A133

Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

Fig. 2

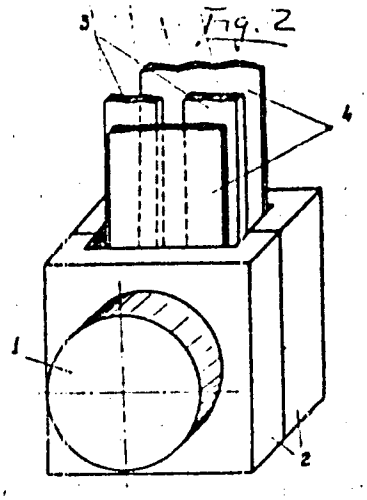


Figure 2:

Layout of the slag welding process with two plate electrodes and filler plates:
1 - Part being welded
2 - Split copper mold
3 - Plate electrodes
4 - Filler metal plates

Card 5/5

BENUA, E.E.; DUKOR, Z.G.; KLYUSHENKOV, I.S.; KONSTANTINOV, V.P.; KATLER, A.I.; MAYKOV, N.K.; PRAYSMAN, A.D.; SERGEYEV, V.I.; TRUFANOV, V.G.; FEDOROV, V.F.; FRUMIN, G.R.; CHERTKOV, Kh.A.; SHIBANOV, B.V.; VATASHKINA, S.A., red.izd-va; CHERNOV, M.I., red.; BELOVA, V.A., tekhn. red.

[Handbook on ship repairs in two volumes] Spravochnik po remontu sudov v dvukh tomakh. Pod obshchei red. M.I.Chernova. Moskva, Izd-vo "Rechnoi transport." Vol.2. 1963. 600 p. (Ships--Maintenance and repair) (MIRA 16:9)

OKERBLOM, Nikolay Oskarovich; DEMYANTSEVICH, Vladimir Petrovich; BAYKOVA, Iraida Petrovna; BENUA, F.F., kand. tekhn.nauk, retsenzent; MATSKEVICH, V.D., kand. tekhn.nauk, retsenzent; SAGALOVICH, D.N., kand. tekhn. nauk, nauchn. red.; SHAKHNOVA, V.M., red.; KOROVENKO, Yu.N., tekhn. red.

[Planning the procedure for the manufacture of welded structures; design methods] Proektirovanie tekhnologii izgotovleniia svarnykh konstruktsii; raschetnye metody. Leningrad, Sudpromgiz, 1963. 602 p. (MIRA 16:9)
(Structural frames--Welding)
(Welding--Tables, calculations, etc.)

[illegible], F.F.; DUKOV, Z.G.; KLYUCHNIKOV, I.S.; KOLSTAMINOV, V.F.; KOTLYAR, D.I.; MAYKOV, N.K.; MAYSTROV, A.D.; SERGEYEV, V.I.; TRUFANOV, V.G.; FEDOROV, V.F.; FRUMIN, S.R.; CHERNYKOV, Kh.A.; SHIBANOV, B.V.; CHERNOV, N.I., red.; VITASHKINA, S.A., red.izd-va; BODROVA, V.A., tekhn. red.

[Handbook on ship repairs in two volumes] Spravochnik po remontu sudov v dvukh tomakh. Pod obshchei red. N.I. Chernova. Moskva, Izd-vo "Rechnoi transport." Vol.1. 1963. 550 p. (MIRA 16:12)

(Ships--Maintenance and repair)
(Marine engineering--Handbooks, manuals, etc.)

BENUA, F.F., prof.

Reconditioning worn-out pistons made of aluminum alloys by argon-arc build-up welding. Trudy LIVT no.80:17-21 '65.
(MIRA 18:10)

..., Konstantin Mikhaylovich.

BEDNA, Konstantin Kikhailovich. Meteorologiia. Izd. 2., ispr. Moskva, Voenmorizdat, 1941. 502 p.
"Spisok dopolnitel'noi leteratury": p. 481.

DLC: QC861.B37 1941

SO: LC, Soviet Geography, Part I, 1951, Uncl.

BENUA, N. N.

"Dynamics of Conditioned Inhibitions of the First, Second, and Third Order in Man and the Effect Luminal Has on Them." Cand Med Sci, Leningrad State Order of Lenin Inst for the Advanced Training of physicians imeni S. M. Kirov, Leningrad, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

USSR / Human and Animal Physiology. Nervous System, Higher Nervous Activity, Behavior. T

Abs Jour : Ref Zhur - Biol., No 15, 1958, No. 70560

Author : Benua, N. N.
Inst : Not given
Title : The Role of the Second Signal System in the Process of Differentiation in the Adult Human

Orig Pub : Zh. Vyssh. Nervn. Deyat-sti, 1957, Vol 7, No 5, 642-650

Abstract : In 83 subjects conditioned wink reflexes (WR) were elaborated, in addition to conditioned inhibition of the first order to light (I1), of the second order to sound (a bell, I2), and of the third order to tactile stimulation of the skin of the cheek (I3). Formation of I2 and I3 was tested by combining them with the metronome in replacement of reinforcement. The WR developed after two to five paired presentations and in 40 percent of cases

Card 1/2

MAGNUS, Rudolf, 1873-1927; BENUA, N.N. [translator]; LEBENTRAU, K.G. [translator]; AYRAPET'YANTS, E.Sh., red.; KISLYAKOV, V.A., red.

[Equilibrium; an experimental physiological study of the individual reflexes governing equilibrium of their correlations, and their disorders] Ustanovka tela; eksperimental'no-fiziologicheskie issledovaniia otdel'nykh opredeliaiushchikh ustanovku tela refleksov, ikh vzaimnykh vliianii i ikh rasstroistv. Leningrad, Izd-vo AN SSSR, 1962. 624 p. Translated from the German. (MIRA 16:9)
(Equilibrium (Physiology)) (Reflexes)

BENUA, N.N.

AID Nr. 980-13 31 May

HEMODYNAMICS OF BRAIN DURING VARIATIONS IN GRAVITATIONAL-FIELD DIRECTION (USSR)

Moskalenko, Yu. Ye., N. N. Benua, and O. V. Graunov. Fiziologicheskiy zhurnal SSSR imeni I. M. Sechenova, v. 49, no. 4, 1963, 405-411.
S/239/63/049/004/001/001

Experiments have been conducted with rats to study changes in intracranial hemodynamics after placing the body in different spatial positions in the vertical plane. EPG made with the head down showed increased resistance in the cranial cavity. The amplitude of pulse oscillations decreased slightly after the position was changed, then rose above the initial level and sometimes remained at the higher level after the body assumed the normal position. The amplitude of respiratory waves also increased. With the head up intracranial electrical resistance decreased, the amplitude of pulse oscillations was usually unchanged, and the amplitude of respiratory waves decreased. The EPG showed marked intensification of waves of the third order. Changes in the electrical resistance of the cranial cavity indicated that the brain was filling with blood. The dynamics of blood filling after changes in the direction of the gravitational field indicated a regulatory action. Fluctuation in the brain's vascular tonus indicated the relative autonomy of homeostasis in the brain. [AB]

Card 1/1

21179

16.9500(1031, 1121, 1132)

S/141/60/003/006/013/023
E192/E382

AUTHOR: Benua, Ye. Yu.

TITLE: Exact Determination of the Existence Condition of the Oscillatory Regimes in an Extremum Control System with an Commutator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol. 3, No. 6, Pp. 1062-1076

TEXT: The system considered can be represented diagrammatically as shown in Fig. 1. The characteristic of the nonlinear element НЭ1 of the controlled object in the vicinity of the extremum is in the form $y = -kx^2$. The characteristic of the relay-type control device НЭ2 is in the form shown in Fig. 2. The switching over of the relay control device occurs at $\sigma = -\varkappa_0$, $\sigma' \lessgtr 0$. The equations of motion of the system are in the form:

Card 1/4

S/141/60/003/006/016/025
E192/E382

Exact Determination ....

$$y = -kx^2;$$

$$\tau_1 = K_1(p)\, e^{-\tau p}\, y;$$

$$x = \frac{1}{p} K_1(p)\, \tau(\tau); \qquad (I)$$

(I) $\tau = p\tau_1$; (II) $\tau = \tau_1 - \tau_{\text{instant}}$

where $K_1(p) = P_1(p)/Q_1(p)$, and $K_2(p) = P_2(p)/Q_2(p)$ which are rational fractional functions without zeros or multiple poles; τ is a constant of the delay circuit and $p = d/dt$. Two cases are considered: 1) the pick-up of the extremum indicator registers the magnitude of the derivative of the output variable of the object (DPR type 1)) and 2) pick-up of the extremum indicator (DPE) registers the difference between the instantaneous value of the output variable of the object and the extremal value of this variable (DPE type 11).

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Exact Determination S/141/60/003/006/011/019
E192/E382

The existence conditions and the conditions of local stability of the oscillations in the vicinity of the extremum for the above systems are determined. It is shown that the oscillatory regime in these extremum systems represents the normal operating regime and, if one of the elements of the system becomes faulty, there exists the possibility of the control parameter assuming an extremum position. In the presence of a commutator, the control parameter begins to oscillate around the position at which it was when the fault occurred. The external perturbations in the extremum systems have a strong effect on the operation of the system but the presence of a commutator does not permit the system to become unstable. The author expresses his deep gratitude to Yu.V. Dolgolenko for directing this work. There are 7 figures and 3 Soviet references.

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Exact Determination ....

Fig. 1: Key - 1 - nonlinear element of the controlled object; 2 - reversing device; 3 - relay control device; 4 - pick-up of the extremum indicator; 5 - commutator.

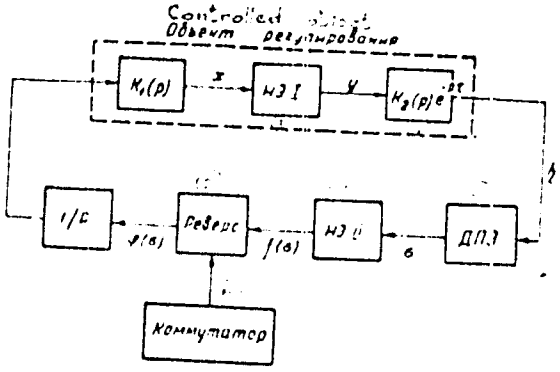

Рис. 1.

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21017
S/573/61/000/005/007/023
D201/D305

16.8000 (1031)

AUTHOR: Benda, Ye.Yu.

TITLE: Periodic states in a system of extremum regulation

SOURCE: Akademiya nauk SSSR. Institut elektromekhaniki. Sbornik rabot po voprosam elektromekhaniki. No. 5, Moscow, 1961. Avtomatizatsiya, telemekhanizatsiya i priborostroyeniye, 69 - 83

TEXT: The author considers the conditions of "local" stability of oscillations around the extremum of a relay extremal system with delay and commutator. The action of the commutator consists of periodic proof reversal of the constant period motor stage. The bloc diagram of the analyzed system is given in Fig. 1. It consists of a delay element, extremum data transmitter (EDT), the relay control element, NE II (non-linear element II), a commutator and output stage (integrating element). The characteristic of the non-linear control element NE 1 has near the extremum the form of $y = - kx^2$. Two cases are analyzed: 1) The extremum data transmitter registers the

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magnitude of the derivative of the output variable of the system (EDT of the first type); 2) It registers the difference between the current value of the variable and its extremum (EDT of the second type). The commutation of NE II occurs at $\sigma = x_0$, $\delta < 0$. The equations of the system motion are then given. Finally the conditions are derived of "local" stability of self-oscillations in a system with the EDT of the first type. The non-periodic regime is considered here differing from the periodic one by a small deviation at initial conditions and conditions determined, at which the non-periodic state tends a periodic one. Because of lack of space the conditions of local stability in a system with EDT of second type are not given. The analysis is applied to a system of extremum regulation with the EDT I, the transfer functions of linear elements having the form:

$$K_1(p) = 1, \quad K_2(p) = \frac{1}{T_1 p + 1}.$$

The symmetrical state analysis of this system has been carried out by the exact method (EM) and Kochenburger approach method (KAM).

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Periodic states in a system of ...

The comparison of results obtained for a system without delay shows that KAM gives somewhat greater value of the self-oscillations period starting at

$$c \frac{\varkappa_0}{k f_0^2 T_1} > 0.2.$$

The discrepancy between the magnitudes of periods as determined by different methods, begins to exceed $0.5\ T/T_1$. The approximate method gives also smaller hunting losses. Such large differences in the results obtained may be explained by the fact that in systems of extremum regulation with a derivative indicator of extremum, the higher harmonics are of fundamental importance. The author acknowledges the supervision of Professor Yu.V. Dolgolenko. There are 7 figures and 3 Soviet-bloc references.

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31018
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16,4000 (1132)

AUTHOR: Benua, Ye.Yu.

TITLE: The exact method of analyzing periodic states in an extremum pulse control system

SOURCE: Akademiya nauk SSSR. Institut elektromekhaniki. Sbornik rabot po voprosam elektromekhaniki, no. 5, Moscow, 1961. Avtmatizatsiya, telemekhanizatsiya i priborostroyeniye, 84 - 94

TEXT: The author derives the conditions for self-oscillations in an extremum control system with a pulse element, assuming that the inputs to the system vary slowly and their effect, therefore, may be neglected. The block diagram of the system is given in Fig. 1. It has a pulse element which transforms the relay output in a series of pulses of constant duration γT_0 and whose amplitude depends on the magnitude of input variable at equally spaced instants. The pulse repetition period is T_r. It is assumed that pulses are produced during a certain period τ_1, after the operation of relay

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The exact method of analyzing ...

which is true in practice. This is the equivalent of introducing an element with delay τ_1. The Laplace transformation is used for the analysis, the system being split into three open-loop systems. It is shown that the state of free oscillations in a system with given parameters τ_0, k, α_0, α_1, γ and the pulse repetition period T_r is possible when the solutions N and C of two inequalities

$$|\tau_0 \Delta\varphi_1[N-1]| \geqslant \kappa_0 \gamma \alpha_1, \tag{11}$$

$$|\Delta\varphi_2[2N-1]| > |\Delta\varphi_1[N-1]|. \tag{12}$$

satisfy the following conditions: inequalities

$$\frac{\Delta\varphi_1[N-1]}{\Delta\mu_1[N-2]} < \frac{\Delta\varphi_1[N-2]}{\Delta\mu_1[N-3]}, \tag{13}$$

$$\frac{\Delta\varphi_2[2N-1]}{\Delta\mu_2[2N-2]} > \frac{\Delta\varphi_2[2N-2]}{\Delta\mu_2[2N-3]}. \tag{14}$$

are satisfied and C is within the limits $-\gamma \div 0$; or if the solutions N and C of the system of inequalities

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