L 28109-66 EWT(m)/T/EWP(t)/ETI LJP(c) JD/JG/GD

ACC NR: AT5027943 SOURCE CODE: UR/0000/65/000/000/0083/0086

AUTHOR: Ivanov, V. Ye. (Corresponding member AN SSSR); Meshiporenko, Ye. P. (Dr. of Technical Sciences); Osipov, A. D.; Matyushenko, N. N.

53
Br1

ORG: none

TITLE: Siliconising of molybdenum in vacuum with a controlled rate of silica delivery

SOURCE: Seminar po zharostoykim pokrytiyam. Leningrad, 1964. Zharostoykiye pokrytiya (Heat-resistant coatings); trudy seminara. Leningrad, Izd-vo Nauka, 1965, 83-86

TOPIC TAGS: vapor plating, silica, molybdenum, crystal structure

ABSTRACT: An experiment was conducted to siliconize Mo under a controlled delivery rate so that the amount of SiO_2 deposited on the sample surface was nearly similar to the amount necessary for the formation of a diffusion layer at a given temperature. This resulted in the formation of the silicide layers at temperatures above the eutectic, with the rate controlled only by diffusion. Siliconising was done

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L 28409-66

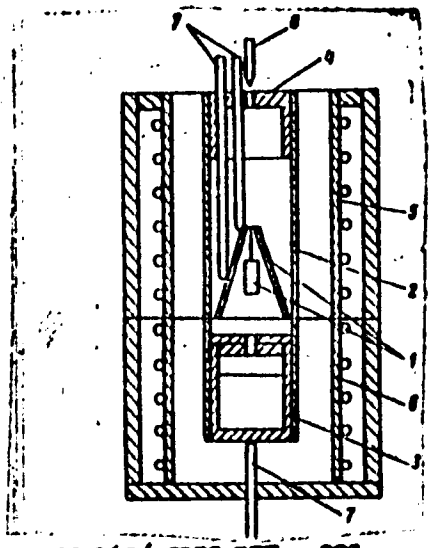
ACC NR: AT5027943

in a special apparatus (see Fig.) where sample 1 was set into container 2 having in its lower part the crucible 3 containing SiO_2. The container was closed by lead 4, charged into vacuum chamber and exposed to a vacuum of 10^{-5} mm Hg. The container was then closed by rod 8 and heated to the required temperature by resistance heaters 5 and 6 controlled by Pt-PtRh thermocouple 7. The rate of silica delivery, commensurable with the diffusion at a given temperature, was regulated by the selection of openings in the crucible and the container and by changing the temperature in the SiO_2. The microphotograph of the layer produced at 1500C showed that it consisted of a single phase which was determined by X-ray diffraction analysis as $MoSi_2$. Therefore, the use of a controlled rate of delivery of SiO_2 during siliconising from the vapor phase permitted the authors to increase the temperature of siliconising above the eutectic and to increase the rate of growth and the thickness of the layer. The changes in temperature of the production of the silicide layer insignificantly affected the temperature of the beginning of cracking in the coating. Orig. art. has: 3 fig. and 1 table.

Card 2/3

L 28409-66

ACC NR: AP5027943



SUB CODE: 14,11/ SUBM DATE : 20Jul65/ ORIG REF: 003

Card 3/3 LC

L 28160-66 EWP(e)/EWT(m)/EWP(t)/ETI IJP(c) JD/WW/JG/GD/WH

ACC NR: AT5027945 SOURCE CODE: UR/0000/65/000/000/0092/0099

61
59

AUTHOR: Nechiporenko, Ye. P. (Dr. of Technical Sciences); Emily, V. I.; Petukhov, V. S.

ORG: none

TITLE: Some problems in the designing of heaters for corrosion-resistant furnaces operating in oxidative media at temperatures up to 2000C

SOURCE: Seminar po zharostoykim pokrytiyam. Leningrad, 1964. Zharostoykiye pokrytiya (Heat-resistant coatings); trudy seminara. Leningrad, Izd-vo Nauka, 1965, 92-99

TOPIC TAGS: furnace, corrosion resistance, oxidation, molybdenum, tungsten, refractory

ABSTRACT: Heaters made of Mo or W and protected by the coatings, become increasingly more resistant to oxidation at high temperatures during operation, because of phase transitions. A diagram on the redistribution of phases in siliconized Mo during its oxidation in air at 1700C is given as an example (see Fig.

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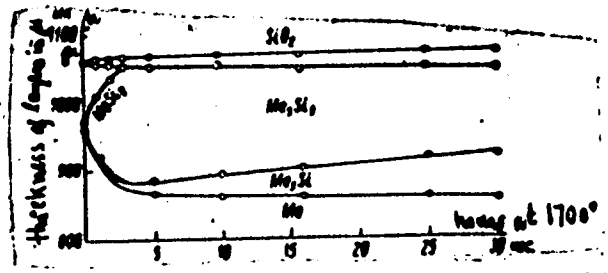
L 26160-66

ACC NR: AT5027945



It shows that the increase in resistance of the coating to oxidation at high temperature was caused by the formation of SiO_2 films and that the silicides are capable of providing protection for the refractory materials only up to the temperature range of 1800 - 1900C. A layer of refractory enamel can be applied on the silicide coating to increase operational temperature and to improve the anticorrosive properties of the coating. The refractory enamel should consist of a combination of high-enthalpy oxides (e.g. BeO, ThO_2, MgO, HfO_2, ZrO_2, CaO, etc.). A preleminary heat treatment of the silicide coating, providing for the transition $MoSi_2 \rightarrow Mo_5Si_3 \rightarrow Mo_3Si$, and an additional ceramic protection permitted the authors to increase the working temperature to 2200 - 2300C. These facts, proven

Card 2/3

L 28460-66

ACC NR: AT5027945

experimentally, were considered during the development of a production technique for the Mo heaters in the form of rods and spirals coated with a layer of Mo silicides and an additional layer of refractory enamel. The silicide layer was produced in vacuum according to the method described previously by the authors (FMM, 13, 6, 1962 and FMM, 17, 1, 1964). The enamels were prepared on the basis of refractory oxides [Abstracter's note: compositions are not given] and were applied by an immersion in slip or by the pulverizing method. A brief description and general diagrams are given of two types of furnaces (with rod, and spiral heaters) now in operation for laboratory experiments. Orig. art. has: 5 fig.

SUB CODE: 11,13/SUBM DATE: 20Jul65/ ORIG REF: 005/ OTH REF: 004

Card 3/3 LC

L 5321-66 EWT(m)/EWP(i)/ETC/EPF(n)-2/EWG(m)/EWP(t)/EWP(b) LJP(c) JD/JG

ACC NR: AP5026274 UR/0226/65/000/010/0067/0070

AUTHOR: Nechiporenko, Ye. P.; Krivoruchko, V. M.; Mitrofanov, A. S.

TITLE: Siliconizing of refractory metals under nonequilibrium conditions

SOURCE: Poroshkovaya metallurgiya, no. 10, 1965, 67-70

TOPIC TAGS: siliconizing, refractory metal, silicide, molybdenum compound, aluminum containing silicon, chemical bonding

ABSTRACT: The kinetics of the formation and growth of the silicides of refractory metals is a complex physicochemical process. In such cases, chemosorption is followed by growth of the layers of the products of the chemical reaction, with eventual rise of an equilibrium at the phase interfaces, i.e, constancy of the concentrations of the chemically bound components. This picture is markedly complicated when an insignificant amount of a third element takes part in the reaction or when the system of the layers that form is a multiphase system. In this connection the authors describe the results of an investigation of the kinetics of the vacuum siliconizing of molybdenum in the presence of a small amount (1.0-1.2 wt.%) of aluminum dispersed in the silicon. It is shown that in the absence of an equilibrium concentration of Si at the phase interfaces during the initial stage of siliconizing, the growth of the silicide layer in time obeys a rectilinear law, because Al, which

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L 5321-66

ACC NR: AP5026274

3

has a higher vapor pressure than Si, interferes with the supply of Si to the reacting surface. This happens only in the initial stage of the process, since equilibrium conditions begin to set in as the layer thickness increases, and the Al is gradually eliminated under the conditions of vacuum siliconizing. It is further shown that this rectilinear law of growth prevails not only in the case of compact and sufficiently thick single-phase layers but also for multi-phase layers, also because of the absence of an equilibrium at the phase interfaces (i.e. because of the variability of the concentrations of reacting substances). In this case, too, as the thickness of each phase and of the entire layer increases, an equilibrium sets in and the rectilinear law of layer growth is superseded by the parabolic law. Orig. art. has: 4 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physico-Technical Institute of the AN UkrSSR)

SUBMITTED: 22Nov64 ENCL: 00 SUB CODE: MM, GC

NO REF SOV: 002 OTHER: 003

Card 2/2 hd

L 27562-66 EWT(m)/EWP(t) IJP(c) JD/JG/WB

ACC NR: AP6017688 SOURCE CODE: UR/0363/65/001/008/1360/1363

AUTHOR: Ivanov, V. Ye.; Neshporenko, Ya. P.; Krivoruchko, V. M.; Zmiy, V. I.; Matrofanov, A. S.; Aleksandrov, O. M.

ORG: Physicotechnical Institute AN UkrSSR (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: Oxidation of tungsten disilicide at 1500-1800°C temperatures

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 8, 1965, 1360-1363

TOPIC TAGS: tungsten compound, silicide, oxidation kinetics, silicon, molybdenum compound

ABSTRACT: The authors carried out an investigation of the oxidation kinetics of tungsten disilicide over the temperature range 1500-1800°C. Tungsten of 99.95% purity and 99.999% pure silicon were used for the investigation. The oxidation kinetics curves are parabolas. The effects of preparation temperature and homogenization time of tungsten disilicide specimens on their oxidation rate was studied. It was shown that the oxidation rate of WSi_2 at 1500-1700°C is approximately the same as that for $MoSi_2$. It is even somewhat lower than that for $MoSi_2$ at 1800°C. Orig. art. has: 2 figures and 2 formulas. [JPRS]

SUB CODE: 07 / SUBM DATE: 24May65 / ORIG REF: 003 / OTH REF: 005

UDC: 546.78'281

Card 1/1

L 27458-66 EWT(m)/EWP(t) IJP(c) JD/JG/WB

ACC NR: AP6017689 SOURCE CODE: UR/0363/65/001/008/1364/1367

AUTHOR: Ivanov, V. Ye.; Nechiporenko, Ye. P.; Krivoruchko, V. M.; Zmiy, V. I.; Mitrofanov, A. S.; Aleksandrov, O. M. 36 B

ORG: Physicotechnical Institute AN UkrSSR (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: Oxidation of tantalum disilicide at 1400-1600°C temperatures

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 8, 1965, 1364-1367

TOPIC TAGS: tantalum compound, silicide, oxidation kinetics, silicon

ABSTRACT: Up to the present day there are no systematic investigations on the oxidation kinetics of tantalum disilicide at high temperatures. The purpose of the present study was an examination of the oxidation kinetics of tantalum disilicide at 1400-1600°C temperatures. Tantalum of 99.95% purity and 99.99% pure silicon were used for the investigation. The effects of specimen preparation temperature and extent of their homogenization on the oxidation rate were established. The oxidation of $TaSi_2$ specimens in the initial stage conforms to a straight-line relationship. After some specific period of time a sharp rise in the specimen oxidation rate sets in, which leads to their failure. The fundamental feasibility of raising the tantalum disilicide's heat resistance up to 1600°C was demonstrated. Orig. art. has: 3 figures. [JPRS]

SUB CODE: 07 / SUBM DATE: 24May65 / ORIG REF: 002 / OTH REF: 003

Card 1/1 UDC: 546.883'281

L 9447-66 EWP(e)/EWT(m)/ETC/EPF(n)-2/EWG(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c)
ACC NR: AP6001239 JD/JG/WB SOURCE CODE: UR/0363/65/001/012/2212/2218

AUTHOR: Ivanov, V. Ye.; Nechiporenko, Ye. P.; Krivoruchko, V. M.; Verkhorobin, L. F.; Mitrofanov, A. S.; Poltavtsev, N. S.

ORG: Physicotechnical Institute, Academy of Sciences UkrSSR, Kharkov (Fiziko-tekhnicheskiy institut Akademii nauk UkrSSR)

TITLE: Effect of additives on the kinetics of the siliciding of molybdenum in vacuum

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 12, 1965, 2212-2218

TOPIC TAGS: refractory metal, refractory coating, molybdenum, silicon, molybdenum disilicide, oxidation resistance

ABSTRACT: Inasmuch as the coating of refractory metals with molybdenum disilicide is known as a prospective method for preventing high-temperature oxidation, the effect of some additives on the growth rate and the structure of the silicide layer on molybdenum was studied. It was noted that properties of the disilicide coating (including brittleness and an inadequate thermal stability) may depend on the preparative method and on the purity of the initial materials. In this study the silicide layer was produced on molybdenum sheet and wire 0.1 and 0.5 mm thick, respectively, in vacuum by heating at 1250C. Molybdenum of 99.95% purity, 99.999%-pure silicon and commer-

Card 1/2 UDC: 546.281

L 9447-66

ACC NR: AP6001239

9

cial silicons KR-0 and KR-1, 99.0 and 98.0% pure, respectively, were used as initial materials for silicoiding cells. The growth rate, structure and phase composition of the coatings obtained were studied by gravimetric, metallographic and x-ray methods. The effect of Al, Fe, Cu, Ti, and B used as additives, and of the residual gas pressure was studied. It was found that the presence of small amounts of Al(1—3%) in powdered silicon causes the formation of a ternary compound $Mo(Si, Al)_2$ with a hexagonal structure, the growth of which is expressed as a linear dependence on time. The presence of the other additives studied, with the exception of Ti, results in a decrease in the growth rate of the $MoSi_2$ layer and does not affect its structure. The residual gas pressure does not affect the silicide layer growth, if it is within 1.10^{-6}—1.10^{-4} mm Hg; at 1.10^{-3} mm Hg, the rate slows down 3—4 times; at 1.10^{-2} mm Hg, disilicide is not formed at all, and only the Mo_3Si phase is formed. Transition of the dark and opaque hexagonal disilicide into the silvery tetragonal form on prolonged heating was observed. Orig. art. has: 4 figures and 3 tables. [BM]

SUB CODE: 07, 11/ SUBM DATE: 10Apr65/ ORIG REF: 007/ OTH REF: 006/ ATD PRESS: 4156

Card 2/2

L 9441-66 EWT(m)/EWP(k)/EWP(z)/EWP(b)/EWP(e)/EWP(t) IJP(c) JD/JG/WB

ACC NR: AP5027137 SOURCE CODE: UR/0126/65/020/004/0531/0534

AUTHOR: Nechiporenko, Ye. P.; Yefimenko, L. N.; Matyushenko, N. N.; Verkhorobin, L. F.

ORG: Physicotechnical Institute, AN UkrSSR (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: On disintegration of tungsten disilicide with oxidation in air

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 4, 1965, 531-534

TOPIC TAGS: tungsten, tungsten disilicide, metal oxidation

ABSTRACT: Specimens of tungsten disilicide prepared from 99.9%-pure tungsten and silicon powders either by hot compacting at 1700C, by cold compacting and sintering in an argon atmosphere at 1000C for 1 hr, or by siliconizing of tungsten in a vacuum of 10^{-5} mm Hg at 1250C had a porosity of 3, 40, or 0%, respectively. All specimens were tested for oxidation behavior in air at 600—1100C. Hot compacted, and cold compacted and sintered specimens gradually disintegrated into yellow powder at 700—1000C. On specimens obtained by vacuum-siliconizing, an oxide layer was formed which prevented the disintegration of the specimens. These results showed that the oxidation failure of homogeneous WSi_2 was not a specific property of the material but was caused by macrodefects (pores). In all cases, disintegration occurred in the temperature range where the oxidation products are not volatile. The oxidation behavior of poreless WSi_2 indicated that disintegration of porous WSi_2 specimens is as-

Card 1/2 UDC: 669.15.018.85

L 9441-66

ACC NR: AP5027137 C

sociated with the accumulation of oxidation products and the accompanying increase in volume. Orig. art. has: 3 figures. [MS]

SUB CODE: 11/ SUBM DATE: 20Oct64/ ORIG REF: 003/ OTH REF: 007/ ATD PRESS: 4154

jw
Card 2/2

L 12058-66 EWT(m)/EWP(t)/EWP(b) LJP(c) JD/JG/WB

ACC NR: AP6001302 SOURCE CODE: UR/0363/65/001/008/1354/1359

AUTHOR: Ivanov, V. Ye.; Nechiporenko, Ye. P.; Zmiy, V. I.; Krivoruchko, V. M.; Verkhorobin, L. F.; Aleksandrov, O. M.; Mitrofanov, A. S.; Poltavtsev, N. S.

ORG: Physicotechnical Institute, Academy of Sciences UkrSSR (Fiziko-tekhnicheskiy institut Akademii nauk UkrSSR)

TITLE: Study of the oxidation kinetics of molybdenum disilicide at 1500 — 1800C

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 8, 1965, 1354-1359

TOPIC TAGS: molybdenum compound, silicide, oxidation kinetics, silicon dioxide

ABSTRACT: Molybdenum disilicide samples (prepared by siliciding molybdenum at 1250, 1300, and 1360C) were oxidized for 10 hr at 1500 and 1600C and for 1 hr at 1700 — 1800C. The oxidation is represented as follows: (1) $5MoSi_2 + 7O_2 \rightarrow Mo_5Si_3 + 7SiO_2$, (2) $2MoSi_2 + 7O_2 \rightarrow 2MoO_3 + 4SiO_2$. X-ray analysis shows that reaction (1) predominates over (2); the latter is of decisive importance at the start, when the SiO_2 film is formed. The increase in the oxidation rate is related to the orientation of the crystals. The structure of $MoSi_2$ may be considered to consist of layers of silicon and molybdenum atoms alternating in the direction of axis c; if it is kept in mind that the bonding forces between like atoms in a layer are weaker than the forces between the layers, the layer orientation parallel to the surface ($MoSi_2$

UDC: 546.77'281

Card 1/2

L 12058-66

ACC NR: AP6001302

samples obtained at 1250 and 1300C) will cause a lower oxidation rate than in samples where the layer orientation is perpendicular to the surface (silicides obtained at 1350C). It is concluded that the oxidation rate of $MoSi_2$ is affected by many factors, but it has not been possible to determine which is the most important one. Orig. art. has: 2 figures.

SUB CODE: 07, 11 / SUBM DATE: 24May65 / ORIG REF: 006 / OTH REF: 007

Card 2/2

NECHIPORENKO, Ye.P., KRIVORUCHKO, V.M., MITROFANOV, A.

Siliconizing high-melting metals in conditions of [illegible]
Poroshk. met. 5 no.10:67-70 O '65. (MIRA 18:11)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

MECHIPORENKO, Yu. D.

"Effect of Tissue Transplantation on the Formation of Antibodies and Immunity in Swine." Cand Vet Sci, Kiev Veterinary Inst, 1954. (RZhBiol, No 5, Mar 55)

SO: Sum. No. 470, 29 Sep 55—Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

NECHIPORENKO, Yu.D.; KULAZHKO, V.A.

Increased phagocytic activity of the leucocytes in carp under the influence of levomycetin. Antibiotiki 7 no.1:50-52 Ja '62. (MIRA 15:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut rybnogo khozyaystva Ukrainskoy akademii sel'skokhozyaystvennykh nauk
(LEVOMYCETIN) (PHAGOCITOSIS)

NECHIPORENKO, Yu.D., kand.veterin.nauk

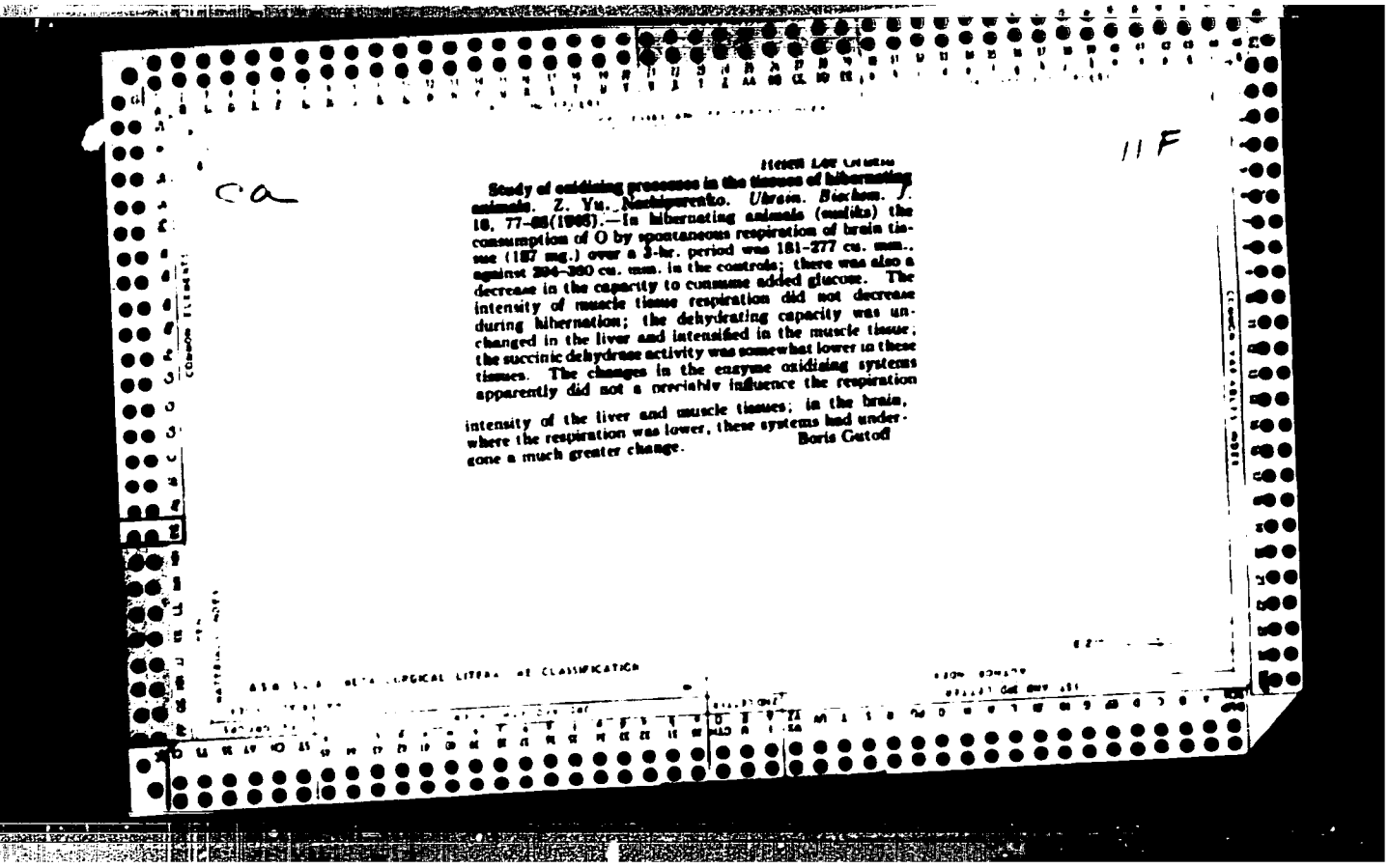
Use of levomycetin and biomycin against hemorrhagic septicemia in carp. Veterinariia 40 no.7:46 Jl '63. (MIRA 16:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut rybnogo khozyaystva.
(Antibiotics) (Hemorrhagic septicemia)
(Carp—Diseases and pests)

NECHIPORENKO, Yu.I.

BEZBORODOVA, G.B.; GOLOVCHENKO, B.A.; KOVAL'SKIY, P.F.; NECHIPO[redacted]
RUDNITSKIY, A., redaktor; GOLOVCHENKO, G., tekhnicheskiy redaktor.

[Dump trucks] Avtomobili-samosvaly. Kiev, Gos. izd-vo tekhn. lit-ry USSR, 1953. 129 p. (MLRA 8:2)
(Dump trucks)



Study of oxidizing processes in the tissues of hibernating animals. Z. Yu. Nashiperenko. *Ukrain. Biochem. J.* 18, 77–88(1946).—In hibernating animals (suslik) the consumption of O by spontaneous respiration of brain tissue (187 mg.) over a 3-hr. period was 181–277 cu. mm., against 294–380 cu. mm. in the controls; there was also a decrease in the capacity to consume added glucose. The intensity of muscle tissue respiration did not decrease during hibernation; the dehydrating capacity was unchanged in the liver and intensified in the muscle tissue; the succinic dehydrase activity was somewhat lower in these tissues. The changes in the enzyme oxidizing systems apparently did not a precisely influence the respiration intensity of the liver and muscle tissues; in the brain, where the respiration was lower, these systems had undergone a much greater change.

Boris Gutoff

PROCESSES AND PROPERTIES INDEX

CA

11 A

Adenylic acid deamination by muscle. D. L. Ferdman and Z. Yu. Neshunenko. *Ukrain. Biokhem. Zhur.* 18, 116-11(1946).—To find the protein fraction contg. Schmidt's deaminase (2% $NaHCO_3$ ext. of protein) an investigation was made on the deamination of adenylic acid with the myosin fractions obtained from the shoulder muscles of rabbits. The cooled and finely divided muscle (20 g.) was extd. for 1 hr. with 4.5% KCl soln. in $NaHCO_3$ buffer (0.84 g. $NaHCO_3$ and 0.27 g. Na_2CO_3/1. H_2O), the myosin fraction was pptd. directly from the filtrate by dilg. with 20 vols. of ice water, or dialyzing, and finally centrifuging. The fraction was indicated as M_1, the subsequent repptns. as M_2, M_3, etc.; the centrifugates, as C_1, C_2, etc. The myosin gel, with 0.1 *M* acetate buffer (pH 5.9) and 1 ml. of a neutralized soln. of adenylic acid, made up to a total vol. of 5 ml., was incubated for 30 min. at 37° and the protein pptd. with a 6% soln. of CCl_3CO_2H. To 0.5 and 0.5; 1.0 and 2.0; 1.0 and 1.0; 1.0 and 2.0 ml. of M_1 and M_2, resp., analyzing 0.55 and 0.30, 3.10 and 1.0, 1.40 and , 2.07 and 1.70 mg. of N, adenylic acid (65, 135, 120, and 85 γ amino N, resp.) was added, resulting in deamination of 62% and 75%, 94 and 71, 100 and 100, and 93-100. The fractions M_1-M_4 and C_1-C_3, but not C_4 and C_5, possessed the deaminizing property; the amt. of chlorides in the *C* fractions was low enough (0.005-0.006 *M*) to insure complete sepn. of the myosin. B. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

Biological Chemistry - A
General - 11

Study of the enzyme system of adenosinetriphosphoric acid deamination. D. L. Ferdman and Z. Ya. Sopina. *Ukrain. Biokhim. Zhur.* 20, 124-35(in Russian, 135-7)(1948); cf. *C.A.* 42, 8847g.—The loss of deamination properties of repptd. myosin (M_4) was investigated. Muscle tissue ext. was added to M_4 (0.7-0.8 mg. N), adenosinetriphosphoric acid (ATP) (48-84 γ amino N), 0.1 *M* glycine buffer 0.5-1 ml. (pH 8.9), total vol. 2.8-4.0 ml., with incubation 30 min. at 37°. The added ext. increased deamination from 0 (control) to 70 γ amino N; 72-hr. dialysis lowered this activity somewhat, but not 18-hr. Heating the ext. for 5 min. at 100° intensified the dialysis effect, almost completely inactivating it after 18 hrs. The fraction of heated ext. obtained by pptn. with $(NH_4)_2SO_4$ (80% satn.) had little activity; greater activity was shown by that from 80 to 100% satn. A similar effect was observed with acetone and CCl_3CO_2H. Treating the ext. with pepsin (and HCl) for 20 hrs. at 37° inactivated it. Since the active component can be obtained by protein precipitants, and is destroyed by pepsin, then it must be a protein; the loss of activity on dialysis of the heated ext., and the loss of activity on dialysis of the CCl_3CO_2H ppt., indicates that it also contains a low mol. wt. compd., which is destroyed at 100°.
Boris Gutoff

NECHIPORENKO, Z. YU.

Spectrophotometric investigation of heart- and skeletal-muscle myosin. D. L. Ferdman and Z. Yu. Nechiporenko (Inst. Biochem. Acad. Sci. Ukr. S.S.R., Kiev). *Ukrain.*

Biokhim. Zhur. 21, 374–81(in Russian, 381–3)(1949); cf. *C.A.* 48, 4078f.—The ultraviolet absorption spectrum of heart-muscle myosin was studied to det. whether or not the spectrum is accompanied by changes when myosin acquires new enzymic properties, the spectrum being detd. by qual. photography at various H-ion concns. (pH 5.6–11.7). It was found that the absorption spectrum of dog heart-muscle myosin at pH 5.6 is similar to that for dog skeletal-muscle myosin. At pH 11.7 the over-all curve shifts toward the long wave lengths, the absorption max. at 270–80 mμ remaining almost unchanged. Treatment of heart-muscle myosin by a deaminase prepn. from adenylic acid (dialyzed by an aq. ext. from skeletal muscle or by a deaminase prepn. obtained according to Kalckar) to give new enzymic properties—the ability to deaminate adenylic acid—is accompanied by a change in the absorption spectrum, shown by the fact that in addn. to the absorption max. at 270–80 mμ at pH 11.7 there appears a 2nd max. at 240 mμ. At pH 5.6 the spectrum for myosin, treated and untreated with deaminase, shows only one max., at 270–80 mμ. Appearance of the 2nd max. at 240 mμ for the heart-myosin spectrum after treatment with deaminase is evidently due to displacement of an intramol. bond caused by addn. of the deaminase, the appearance or display of the tyrosine chromophoric group which is possible at the increased alky.

Clayton F. Holoway

MECHIPORENKO, Z.Yu.

Complex of myosin and adenylic acid deaminase. Ukrain. Biokhim. Zhur. 25. No.1, 62-76 '53. (MLRA 6:5)
(CA 47 no.22:12439 '53)

1. Biochem. Inst., Kiev.

[illegible], Z. Yu.

The properties of adenosine deaminase in the muscle of the heart Z. Yu. Nechiporenko and E. N. Medovar (Inst. Biochem., Acad. Sci. Ukr.S.S.R., Kiev). *Ukrain. Biokhim. Zhur.* 25, 184-91(in Russian), 191-2(1953).— The protein fractions of the heart muscle, myosin A and B, had no deaminase; the water-sol. protein fraction of the ox heart was acidified with AcOH to pH 4.7, the ppt. centrifuged after 2 hrs., mixed with M AcONa, shaken for 2 hrs. and the clear filtrate had a deaminase activity 5-10 times that of the initial soln. The prepn. was further purified by adding $(NH_4)_2SO_4$ to 0.6-0.8 satn., dissolving the ppt. in 0.02M AcONa at pH 8, and dialyzing against the same salt soln. to remove all of the $(NH_4)_2SO_4$ (all this was done in the cold); this prepn. was only twice as active as the concentrate. The deaminase activity showed an increase with diln., indicating the possible presence of some retarding substance, which effect, however, was not proportional to the concn. of the deaminase. The activity was not affected by heating to [illegible] heating to 80° for 1[illegible] mins. [illegible] of EtOH for the [illegible] did not appreciably [illegible] Ca or Mg [illegible] B. Gutoff

Chemical Abstracts
May 25, 1954
Biological Chemistry

(3)

Complex of adenylic acid deaminase with myosin. Z. Yu. Nechipurenko and D. L. Ferdman. *Doklady Akad. Nauk S.S.S.R.* 92, 803–6(1953); cf. *Ukrain. Biokhim. Zhur.* 21, 180(1949); *C.A.* 42, 8847g.—It was shown that in atrophy of skeletal muscle caused by inactivity the quantity of water-sol. adenylic acid deaminase present as a complex with myosin declines, while the quantity of myosin-free enzyme rises. Heart myosin is free of deaminating activity, but acquires it on treatment with the enzyme followed by 1–2 pptns. Myosin increases thermal stability of the deaminase and the increase parallels the amounts of added myosin. Stability to ultraviolet is affected similarly. The enzyme activity is not specific for the complex with myosin alone, for egg albumin also tends to increase the activity of the deaminase.

G. M. Kosolapoff

NECHIPORENKO, Z. Ya.

The effect of tenotomy on the renewal of muscle proteins. Z. Ya. Nechiporenko (Inst. Biochem., Acad. Sci. Ukr. S.S.R., Kiev). Ukrain. Biokhim. Zhur. 27, 146-66 (Russian summary, 166-60)(1955).--Male and female rabbits weighing 2000-2300 g. were used. The tendon of *musculus gastrocnemius* was severed on the right hind leg, leaving the one on the left leg intact for control purposes; 30-45 days after the operation a marked muscular atrophy became manifest on the operated side, evidenced by a 42-62% loss in wt. A soln. of labeled methionine (S^{*}) was injected subcutaneously at the rate of 600-1600 impulses/min./g. of body wt.; 24 hrs. later animals were beheaded, operated, and control muscles removed and detns. made for myosin (I), actin (II), H_2O-sol. proteins (III), and total or general proteins (IV). The developed muscular atrophy resulted in an increased metabolic intensity of S-contg. amino acids in all the proteins studied. This was especially true of I. The nonprotein S-value was the same in the test muscle as in the control as judged by the S^{*} content. On the basis of this it is concluded that the increase in the inclusion rate of the S-type of amino acids into the muscle proteins could not be occasioned by the increase within the tissues of the concn. of S^{*}-contg. amino acids. In muscular atrophy due to tenotomy a decrease occurs in the content of IV, III, I, and II, being of greatest extent in the case of I. The difference in the rates of reduction in I and II in atrophied muscles points to a change in the constitution of the actomyosin complex in the development of the atrophy. The higher the rate of protein loss in the atrophied muscle, the more intensive is the changeability of S-contg. amino acids.

B. S. Levine

NECHIPORENKO, Z. Yu.

The activity of the deaminase of adenylic acid in the muscles after tenotomy and denervation. Z. Yu. Nechiporenko (Inst. Biochem. Acad. Sci. Ukr. S.S.R., Kiev). *Ukrain. Biokhim. Zhur.* 28, 433–40(Russian summary, 440–41)(1956).—In some expts. the Achilles tendon of rabbits was severed unilaterally, in others the sciatic nerve was cut, also unilaterally, with the intact side serving as the control. Thirty to 40 days after the operations atrophy of the gastrocnemius muscle developed. Myosin and the H_2O sol. protein fraction were then extd. from the control and from the atrophied muscles. Myosin was pptd. and freed from actin. The presence of myosin in the H_2O sol. protein fraction was judged by the negative reaction given with adenosinetriphosphate and actin. The deamination activity of the prepns. was estimated from the micrograms of NH_3-N which was hydrolyzed from the adenylic acid during incubation at 37° for 5 min./mg. of protein. The data indicated that the deamination activity of myosin of the tenotomized muscle is below the level of similar activity in the intact muscle, but the deamination activity of the H_2O sol. fraction is higher than in the control. A study of the rate of deamination of adenylic acid by similar concns. of myosin of the control and denervated muscles indicated that the difference in the deamination activity of the two prepns. is manifest through the entire period of incubation. The same was true of the rate of deamination of adenylic acid in the presence of the H_2O sol. protein fraction. It is concluded that the difference in the deamination activity of the two types of proteins studied is not the consequence of the difference in their resistance to temp. increase, but is due to changes which occurred in these proteins. Authors infer that under the conditions of the expts. a part of the deaminase, in breaking away from the myosin, becomes transposed to the H_2O sol. protein fractio[illegible] B. S. Levine

NECHIPORENKO, Z.Yu.; MEDOVAR, Ye.N.

Incorporation of sulfur-bearing amino acids into proteins during muscular work [with summary in English]. Ukr.biokhim.zhur. 29 no.1: 65-70 '57. (MIRA 10:5)

1. Institut biokhimii Akademii nauk Ukrainskoi RSR, Kiiv.
(METHIONINE) (PROTEIN METABOLISM) (WORK)

NECHIPORENKO, Z.Yu. [Nechyporenko, Z.IU.]

Application of distributive paper chromatography to the determination of adenosinetriphosphoric acid and its decomposition products. Ukr. biokhim.zhur. 30 no.3:402-415 '58. (MIRA 13:3)

1. Institut of Biochemistry of the Academy of Sciences of the Ukrainian S.S.R., Kiyev.
(ADENOSINETRIPHOSPHORIC ACID) (CHROMATOGRAPHIC ANALYSIS)

NECHIPORENKO, Z.Yu.

First Int. Symp. of Soviet Biochemists. Ref. [illegible]
476-47[illegible].

NECHIPORENKO, Z.Yu. [Nechyporenko, Z.IU.]

Concentration of adenosinetriphosphoric acid and its decomposition products in working and resting muscles. Ukr. biokhim. zhur. 32 no.6:877-889 '60. (MIRA 14:1)

1. Institute of Biochemistry of the Academy of Sciences of the Ukrainian S.S.R., Kiyev.
(ADENOSINETRIPHOSPHORIC ACID) (MUSCLE)
(EXERCISE)

NECHIPORENKO, Z.Yu. [Nechyporenko, Z.IU.]; GIMMEL'REYKH, N.G. [Himmel'reikh N.H.]

Restoration of adenine nucleotide concentration in muscles after work. Ukr. biokhim. zhur. 33 no.6:811-822 '61. (MIRA 14:12)

1. Institute of Biochemistry of the Academy of Sciences of the Ukrainian S.S.R., Kiyev.
(ADENINE) (EXERCISE) (MUSCLE)

NECHIPORENKO, Z.Yu. [Nechyporenko, Z.IU.]; KACHALA, G.M. [Kachala, H.M.]

Content of ATP and products of its conversion in gopher muscles. Ukr. biokhim. zhur. 36 no.2:243-252 '64. (MIRA 17:11)

1. Institute of Biochemistry of the Academy of Sciences of the Ukrainian S.S.R., Kiyev.

NECHIPORENKO, Z.Yu. [Nechyporenko, Z.IU.]; GIMMEL'REYKH, N.G.; GOLOBOROD'KO, O.P. [Holoborod'ko, O.P.], studentka

Content of adenylic system components and glycogen in the myocardium in circulatory disturbance. Ukr. biokhim. zhur. 37 no.3: 352-359 '65. (MIRA 18:7)

1. Institut biokhimii AN UkrSSR, Kiyev.

1. IVANOVA, A. D. - NECHIPORCVA, P. S.

2. USSR (600)

4. Windmills - Moldavia

7. Using windmills on Moldavian collective farms. Sots.zhiv. 14 no. 11, 1952

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

L 28408-66 EWT(m)/EPF(n)-2/EWP(t)/ETI IJP(c) JD/WW/JG/GD

ACC NR: AT5027942 SOURCE CODE: UR/0000/65/000/000/0077/0082

AUTHOR: Ivanov, V. Ye.; Nechiporenko, Ye. P. (Dr. of Technical Sciences); Osipov, A. D.; Vasyutinskiy, B. M.; Kartmasov, G. N. 71 B+1

ORG: none

TITLE: Thermal stresses in chromium coatings on molybdenum 27 16 27

SOURCE: Seminar po sharostoykim pokrytiyam. Leningrad, 1964. Zharostoykiye pokrytiya (Heat-resistant coatings); trudy seminara. Leningrad, Izd-vo Nauka. 1965, 77-82

TOPIC TAGS: chromium plating, vapor plating, molybdenum, heat effect, internal stress, adhesion, thermal stress

ABSTRACT: Previous studies (FMM, IX, 4, 558, 1960) showed that coatings obtained by the condensation in vacuum of Cr vapors on the surface of Mo samples had good protective properties, but that their service life decreased considerably when they were subjected to temperature fluctuations. A study was made on the effect of temperature on internal stresses in chromium coatings on molybdenum produced

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ACC NR: AT5027942

in various vacuum conditions and having various strengths of adhesion of the coating to the substrate. The value of stress (σ) was determined from changes in the deflection (d) of the plated samples (100 x 5 x 2mm) by using the formula $\sigma = 4 E h_2^2 d / 3l^2 h_1 (h_1 + h_2)$, where E is the Young modulus, l is the length of the coated part of the sample, and h_1 and h_2 are the thicknesses of the coating and the base metal, respectively. The curves of deflection (in mm) vs temperature were plotted during the experiments. The changes in the slope of the curves (inflections), corresponding to the conversion of elastic into nonelastic deformations, were observed during heating and cooling of the samples. Nonelastic deformations in the low-temperature range ($\leq 400°$) were formed at the critical stress $\sigma = 8$ kg / mm^2. The value of the critical stress could be controlled either by the deformation of the coating itself or by the strength of adhesion of the coating to the substrate. Experiments with the coatings of various degrees of adhesion strength (strength of adhesion was changed by applying the coatings to the surface of Mo oxidized to various degrees, or by increasing the roughness of the Mo surface) proved that the value of the critical stress did not depend on the adhesion strength and was controlled by the deformation of the coating itself. The adhesion strength of coatings applied to the surfaces of oxidized

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ACC NR: AT5027942

and nonoxidized Mo were about the same and were similar to the strength of the coating. The curves plotted for the temperature range of 100 - 1000C for the coatings applied under various values of vacuum (10^{-3} - 10^{-5} mm Hg) showed that the samples produced in 10^{-3} vacuum failed at smaller σ than the samples coated in the higher vacuum. Orig. art. has: 4 fig.

SUB CODE: 20/ SUBM DATE: 20Jul65/ ORIG REF: 003

Card 3/3 LC

NES'IPORUK, A. M., (Veterinary Surgeon, Chervonoarmeisk Raion, Zhitomir Oblast')

Bicillyn-1 for prophylaxis and treatment of mastitis in cows.

Veterinariya vol. 38, no. 10, October 1961, pp. 81-82.

AUTHOR: Nechiporuk, E I

SOV/20-123-4-8/53

TITLE: Scheme Synthesis by Linear Transformations of Variables (O sinteze sknem s pomoshch'yu lineynykh preobrazovaniy peremennykh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 4, pp 610-612 (USSR)

ABSTRACT: The author considers the synthesis of a scheme realizing the Boolean function $f(x_1,\ldots,x_n)$. Let $x = \{x_1,\ldots,x_n\}$, $y = \{y_1,\ldots,y_n\}$ and $L = \{l_i\}$ be a set of not degenerated transformations $x = l_i y$. The operators l_i are given by the functions $g_1^{(i)},\ldots,g_n^{(i)}$, where $x_k = g_k^{(i)}(y)$, $k=1,2,\ldots,n$. The desired scheme can be obtained from the scheme for $h(x)$ if $f(x) = f(l_i y) = h_y$. Here $f(x)$ and $h(x)$ are denoted to be equivalent with respect to L. The author gives necessary and sufficient conditions for this equivalence. Furthermore it is shown that [illegible] tube circuit $\mu(4) \leq 5{,}8$ where $\mu(n)$ is the mean complexity of a scheme for the minimum representation by all Boolean functions of n variables.
There are [illegible] references, 3 of which are Soviet, 4 American, 1 Swedish, and 1 Canadian.

Card 1/2

16(1), 16(2)

AUTHOR: Nechiporuk, E.I.

TITLE: On the Transformation of the [illegible]

PERIODICAL: Vestnik Leningradskogo universiteta, [illegible] mekhaniki i astronomii, 195[illegible], [illegible], p [illegible]

ABSTRACT: Let the contact scheme A [illegible] the conduct[illegible] from the pole [illegible] to the pole Q: $f_A(\overrightarrow{PQ}) = g(x_1,...x_n)$ [illegible] $f_A(\overrightarrow{...})$ $= h(x_1,...x_n)$, where g and h [illegible] functions. [illegible] A be plane, all constants of A [illegible] perpendicular to eachother. The [illegible] have either [illegible] valve or have the conductance "1". By [illegible] duality principle the author constructs the graph of the inverse scheme B: the contacts $\tilde{x}_i$ are replaced by $\overline{\tilde{x}}_i$, [illegible] with the conductance "1" there correspond [illegible], all valves of B are turned by 90° against the corresponding valves of A, to the poles P and Q of A there correspond poles P', Q' of B, where $\overrightarrow{P'Q'}$ is twisted against $\overrightarrow{PQ}$ in [illegible] direction opposite to the direction of the valve [illegible].

Card 1/2

On the Transformations of the Contact-Valve Schemes [illegible]

Theorem: If B is inverse to A, then

$$f_B(\overrightarrow{P'Q'}) = \neg f_A(\overrightarrow{PQ}),\ f_B(\overrightarrow{Q'P'}) = \neg f_A(\overrightarrow{QP}).$$

Let B arise from A by switching of every valve in the inverse direction. Then:

Theorem: $f_B(\overrightarrow{PQ}) = f_A(\overrightarrow{QP}),\ f_B(\overrightarrow{PQ}) = f_A(\overrightarrow{PQ})$.

There are 4 Soviet references.

SUBMITTED: November 26, 1958

Card 2/2

30377

9,7000

AUTHOR: Nechiporuk, E. I. (Leningrad)

TITLE: On a two-valued realizing functions of multivalued logic

SOURCE: Problemy kibernetiki, no. 7, Moscow, 1962, 123-160

TEXT: This paper introduces two generalizations of the concept of a switching circuit: Circuits over a distributive structure ($\mathcal{L}$-circuits), and circuits over a commutative ring with identity ($\mathcal{R}$-circuits), in particular, circuits over a Galois field ($\mathcal{F}$-circuits). For $\mathcal{L}$-circuits the results are generalizations of results by A. G. Lunts (Ref. 2: Izv. AN SSSR, ser. matem. 16, 5, 1952, 405-424), O. B. Lupanov (Refs 3-6: Dokl. AN SSSR, 111, 6, 1956, 1171-1174; ibid. 119, 1, 1958, 23-26; Tr. Matem. in-ta AN SSSR, 51, 1958, 158-173; Radiofizika, 1, 1958, 120-140), and G. N. Purdy (Ref. 7: Dokl. AN SSSR, 94, 6, 1954, 1075-1078) to the multivalued case. There are no corresponding known circuits for $\mathcal{R}$-circuits in the two-valued case. In general, $\mathcal{L}$-circuits are realized by amplitude and phase discriminators, while $\mathcal{R}$-circuits by multiphase [illegible]

Card 1/3

30377

On networks realizing ...

Cont / 3

S/[illegible]
D222/D304

On networks realizing ...

universal multiterminal network which realizes all functions of $P(m, n)$ between m^{m^n} inputs and one output. The minimal number of segments in a circuit equivalent to an $\mathcal{L}$-tree with m^n outputs approaches m^n when $n \to \infty$ and m is fixed. Synthesis methods are listed next, giving estimates for the maximum number of segments, and for the maximum number of informational segments (the segments which have other than constant conductance), in networks realizing a function of $P(m, n)$. The author thanks O. B. Lupanov and S. V. Yablonskiy for discussion of the results. There are 4 figures and 22 references: 12 Soviet-bloc and 10 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: C. Y. Lee and W. H. Chen, Communication and Electronics, [illegible], 1958, 278-284; O. Lowenschuss, IRE National Convention Record, 4, 1958, 305-317; J. P. Roth, Trans. Amer. Math. Soc. 88, 2, 1958, 301-326; D. H. Shaefer, Communication and Electronics, [illegible], 1958, 679-682.

SUBMITTED: June 17, 1959
Card 3/3

89724

S/020/61/136/003/007/027
B019/B056

16.0200

AUTHORS: Nechiporuk, E. I

TITLE: The Complexity of Superposition in Bases Containing Non-trivial Linear Formulas With Zero Weights

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 3. pp. 560 - 563

TEXT: E. Post (Ref. 1) showed that in algebraic logic there exist five classes of linear functions which are closed with respect to the superposition, and which contain functions with more than one argument. These classes are denoted by L_i (i - 1,2,3,4,5). If algebraic logic is realized by formulas which had been found by the superposition of formulas from a certain basis, the following lemma can be proved. For any n, it is possible to arrange the entire set of the length n, which consists of zeros and units and differs from the zero set in such a manner that for any n the sequences of sets are linearly independent. This lemma is proved, and the conclusion is drawn that for any n a

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B019/B056

The Complexity of Superposition in Bases Containing Non-trivial Linear Formulas With Zero Weights

decomposition of certain $n\left\{\frac{2^n-1}{n}\right\}$ sets of zeros and units of the length n into $\left\{\frac{2^n-1}{n}\right\}$ groups according to n sets is possible in such a manner that the set within any group is linearly independent. Further, the following lemma is proved: Supposing that $\chi(\tilde{x})$ is the characteristic function of a system of linearly independent sets $\tilde{\sigma}_1,\ldots\ldots,\tilde{\sigma}_n$ of the length n, there exists a linear function (without an absolute term) $l_i(\tilde{x})$ for any conjunction $K_{\tilde{\sigma}i}(\tilde{x})$ in such a manner that $\chi(\tilde{x})l_i(\tilde{x})$ $K_{\tilde{\sigma}i}(\tilde{x})$, where $\chi(\tilde{x})l_i(\tilde{x})l_j(\tilde{x}) = 0$ for $i \neq j$. Referring to a paper by R.Ye. Krichevskiy (Ref. 3) it is shown that $L_i(n) \sim 2^{n-1}/n$ $(i = 1,2,..,5)$. This is done by estimating the relation $L_1(n) \leq L_i(n) \leq L_4(n)$. There are 5 references: 4 Soviet.

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89724

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The Complexity of Superposition in Bases Containing Non-trivial Linear Formulas With Zero Weights

PRESENTED: August 10, 1960, by A. I. Berg, Academician

SUBMITTED: August 5, 1960

Card 3/3

21967

16.0600

AUTHOR: Nechiporuk, E. ..

TITLE: Synthesis of R schemes

PERIODICAL: Doklady Akademii nauk SSSR, v. 1??, ..., ...

TEXT: The analogy between the Boolean structure on the one hand and the Boolean rings on the other permit a scheme to be constructed which is similar to the contact valve scheme. In this scheme the conductivity of the circuit is calculated exactly as in the contact valve scheme, the conductivity of the scheme itself, however, is calculated by an addition modulo 2 instead of the Boolean addition. For the correct definition it is necessary that all the edges of the scheme be oriented and the scheme contain no loops with zero conductivity. Objects of this kind are known as R schemes. In the present paper, a synthetic method for R schemes is investigated which gives the best possible contact . H denotes an unoriented graph without loops of which each pair of edges contains more than two nodes. There are P ... , ..., m nodes and N edges,

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21967

Synthesis of ... schemes ... 1 4, 214

(a_1, a_2) is the ratio of the occurrence of ... With ..., $\beta = 1, \dots, N$ are denoted pairwise orthogonal Boolean functions. ... edges (P_{a_1}, P_{a_2}) are in a one-to-one correspondence to the functions $h_{\beta_{a_1 a_2}}$ $(1 \leq \beta_{a_1 a_2} \leq N)$, and the relation $g = V$, ... is obtained. The function g_a is then denoted as coupled with the edge ... The lemma ... is then formulated and proved:

$g_{a_1 a_2}$ ... if $(a_1, a_2) = 0$; $h_{\beta_{a_1 a_2}}$ if $(a_1, a_2) \neq 0$ ... lemma ... gives

$2^{n/2} \leq \tilde{L}(n) \leq 2 \cdot ...^{n/2}$. ... the lemmas are proved by upper and lower estimates. $\tilde{L}(n)$ denotes that minimum number in an ... scheme which does not have more than L(n) contacts and valves and which can be realized by a general function of an algebraic logic with n arguments. ...

Card 2/4

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R00113(

Synthesis of $\mathcal{R}$ schemes

function

$$f(\tilde{x}) = \bigvee_{\gamma_1, \gamma_2, \tilde{\sigma}_1, \tilde{\sigma}_2} g_{\gamma_1 \cdot 1}(\tilde{x}_3) K_{\tilde{\sigma}_1}(\tilde{x}_1) g_{\gamma_2 \cdot 2}(\tilde{x}_3) K_{\tilde{\sigma}_2}(\tilde{x}_2) f(\tilde{\sigma}_1, \tilde{\sigma}_2, \tilde{\sigma}_3(\gamma_1, \gamma_2)). \quad (2)$$

is derived. Here $\tilde{x}_1$, $\tilde{x}_2$, and $\tilde{x}_3$ are the groups into which the arguments are divided, $\tilde{x} = (\tilde{x}_1, \tilde{x}_2, \tilde{x}_3)$, $K_{\tilde{\sigma}_3}(\tilde{x}_3)$ is the amount of all nodes, and $\tilde{\sigma}_3(\gamma_1, \gamma_2)$ is that assembly for which $K_{\tilde{\sigma}_3(\gamma_1, \gamma_2)} = g_{\gamma_1} g_{\gamma_2}$. The scheme shown in Fig. 2 was constructed from the contact schemes S^1 and S^2 and a valve scheme which connects the output S^1 with the input S^2, in agreement with (2). Next, the theorem: $\tilde{L}_{\mathcal{R}}(n) \sim \sqrt{2} \cdot 2^{n/2}$ is proved. Here again, $\tilde{L}_{\mathcal{R}}(n)$ is the minimum number so that the $\mathcal{R}$ scheme which does not have more than $\tilde{L}_{\mathcal{R}}(n)$ contacts can be realized by an arbitrary function of the algebraic logic with n arguments. The extensive proof is agin

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Synthesis of $\mathcal{R}$ schemes

given by an upper and a lower estimate. There are 4 figures and 5 Soviet-bloc references.

PRESENTED: August 31, 1960, by M. V. Keldysh, Academician

SUBMITTED: August 26, 1960

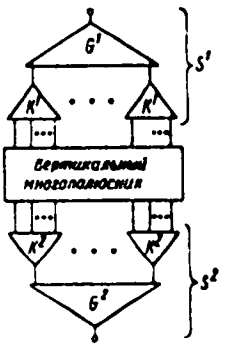


Рис. 2

28636
S/020/61/139/006/001/022
C111/C333

16,6700

AUTHOR: Nechiporuk, E. I.

TITLE: Complexity of schemes in certain bases containing non-trivial elements with zero weights

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 6, 1961, 1302-1304

TEXT: Let the Boolean functions be realized by schemes (see O. B. Lupanov (Ref. 1: Radiofizika, 1, 120, 1958)) of a certain type over a base which consists of the set $\mathfrak{Z}$ of elements with zero weights realizing the set of functions Z, and of the set $\mathfrak{E}$ of elements with positive weights realizing the set of functions E. The author considers cases where arbitrary schemes are admitted and where the schemes are superpositions of the base elements (see R. Ye. Krichevskiy (Ref. 2: DAN, 126, No. 6, 1959)).

Let the weight of the scheme and the Shannon functions L(f), L(n) be defined as usual.

Let $\mathfrak{A}$ be a base with $E = \{\neg x\}$, $Z = \{x_1 \& x_2, x_1 \vee x_2, 0, 1\}$, let Card $\mathfrak{Z}$

the weight of the inversion be 1.

A set $\{\tilde{\sigma}^j\}$, $j = 0,1,\ldots,n$ of n-dimensional Boolean vectors with the property $\tilde{\sigma}^{j'} < \tilde{\sigma}^{j'+1}$, $0 \leq j' \leq n-1$ is called a chain. Let all chains be numbered for fixed n; let $\omega_k = \{\tilde{\sigma}^0_k, \ldots, \tilde{\sigma}^n_k\}$ be the k-th chain. Let $\xi(\tilde{x}) = \xi(x^1, \ldots, x^n)$ be an arbitrary Boolean function. The vector $\tilde{\sigma}$ is called negative inversion knot of the pair (ξ, ω_k) if $\tilde{\sigma} = \tilde{\sigma}^{j'}_k$ and $\xi(\tilde{\sigma}^{j'}_k) = \ldots, \xi(\tilde{\sigma}^{j'+1}_k) = 0$. Let $M^-_k[\xi]$ be the number of the negative inversion knots of the pair (ξ, ω_k). Let $M^-[\xi] = \max_k M^-_k[\xi]$.

Theorem 1: For superpositions in the base $\mathfrak{A}$ it holds

$$L(f) = M^-[f] .$$

Corollary: $L(n) = \left]\frac{n}{2}\right[$.

Card 2/3

Complexity of schemes in certain ...

Let σ be a base with $E = \{\neg x\}$, $Z = \{x_1 \vee x_2\}$; the inversion weight be 1.

Theorem 2: For superpositions in the base σ it holds:

$$L(n) \sim \frac{2^n}{n} .$$

Theorem 3: For schemes in the base σ it holds

$$L(n) \sim \sqrt{2}\, 2^{n/2}.$$

Theorem 4: For schemes in the base Λ_i, i = 1-5 (see the author (Ref. 3: DAN, 136, No. 3, 1961)) it holds

$$L(n) \sim 2^{n/2}.$$

The author thanks O.B.Lupanov for posing the problem.
There are 5 Soviet-bloc references.

PRESENTED: April 16, 1961, by P.S. Novikov, Academician

SUBMITTED: March 25, 1961
Card 3/3

E. I. NECHIPORUK

"On diode circuits."

report submitted for the Intl. Symposium on Relay Systems and Finite Automata Theory (IFAC), Moscow, 24 Sep 2 Oct 1962

1004 1204

AUTHOR Nechiporuk, E. I. (Leningrad)

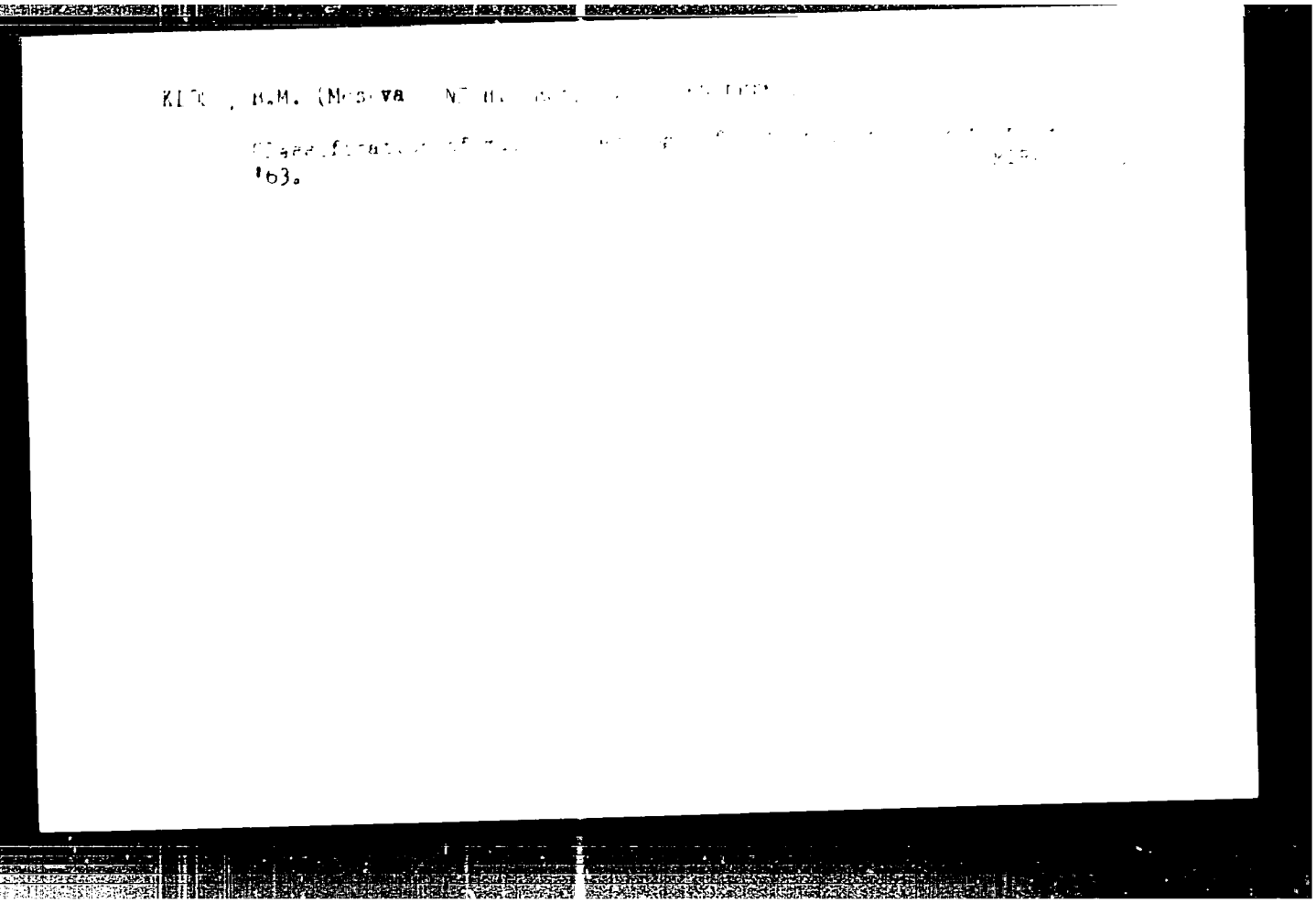
TITLE Boolean functions with inversion of arguments

PERIODICAL Problemy kibernetiki, no. 7, 1962, 115-126

TEXT In the theory of nets studied are net realizations of logic algebra functions which belong to given classes. The problem studied most comprehensively was the case when the class of realizable functions coincides with that of all functions. Studying in detail some specific realizable functions it is often possible to establish special features, leading to narrower classes for which more economical synthesis methods may be found. In connection with this possibility there arises a problem of synthesis of a net for a given class which is still far from being solved. The author determines some class of functions which allows much simpler realization than the class of all functions i.e. functions invariant with respect to some inversions of arguments. The importance of ambiguous functions is stressed because of their technical importance, namely, when the ensemble of unused states of the net is equal to the ensemble of the ambiguity points of the realized function. The aim of the work is to find the methods of synthesis of functions invariant with respect to transformation of the given subensemble D of ensemble G_{2^n}.

SUBMITTED June 13, 1960

Card 1/1



'63.

NECHIPORUK, E.I. (Leningrad)

Synthesis of valve circuits. [illegible]

M.P.

L 760-64
ACCESSION NR: AT3002329

S/2582/63/000/009/0037/0044

AUTHOR: Nechiporuk, E. I. (Leningrad)

TITLE: Synthesis of valve circuits

SOURCE: Problemy kibernetiki, no. 9, 1963, 37-44

TOPIC TAGS: control, control system, valve, valve circuit, Shannon function, pole, single, two, double, code, coding, binary, cybernetics

ABSTRACT: This theoretical paper explores certain problems of the evaluation of the complexity of various types of control systems by reducing them to corresponding problems for valve systems as defined by O. B. Lupanov (AN SSSR, Dokl., v. 111, no. 6, 1956, 1171-1174). Use is made of the function $H(z) = -z \log_2 z - (1-z) \log_2 (1-z)$. The properties of this function are explored. It is postulated and proved (Lemma 1) that, if the following conditions are satisfied:

(a) $0 < \alpha < \frac{1}{2}$, $0 < d < \infty$;

(b) $0 < \beta_i < 1$, $i = 1, \ldots, N$;

(c) $\sum_{i=1}^{N} \frac{1}{H(\beta_i)} < d$;

(d) $\sum_{i=1}^{N} \frac{\beta_i}{H(\beta_i)} < \alpha d$.

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L 760-64
ACCESSION NR: AT3002329

then $N < H(\alpha)d$. It is also proved (Lemma 2) that, if $\mathfrak{M}'$ is a binary set, then, with $\mathfrak{M} \subseteq \mathfrak{M}'$, $H(\mathfrak{M}) \times (\mathfrak{M}) < H(\mathfrak{M}') \times (\mathfrak{M}')$. The "depth" of a valve system is defined as the maximum (within all circuits connecting the input and output poles) of the number of valves in the circuit. Upon introduction of the Shannon function, B(A), it is proved (Theorem) that if the series $\{(p_1, q_1, \alpha_1), \ldots, (p_n, q_n, \alpha_n), \ldots\}$ is such that the conditions

$$q_n < p_n,$$
$$q_n \to \infty,$$
$$H(\alpha_n)\frac{q_n}{\lg_2 p_n} \to \infty,$$
$$\frac{\lg_2 p_n}{\lg_2 \frac{1}{d_n^2}} \to \infty.$$

are satisfied, then, for $\mathfrak{B}(p_n, q_n, \alpha_n)$, $B_3(p_n, q_n) \sim H(\alpha_n)\frac{p_n q_n}{\lg_2 p_n}$.
Both the lower and the upper bounds are developed in the course of the proof.
Orig. art. has 13 numbered equations, 2 lemmas, and 1 theorem.

ASSOCIATION: 00

SUBMITTED:	20Mar62	DATE ACQ:	06Jun63	ENCL:	00
SUB CODE:	CD, CO, IE, CG	NO REF SOV:	003	OTHER:	000

Card 2/2

Rectifier circuits

S/020/63/148/001/008/032
B112/B180

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

PRESENTED: July 4, 1962, by M. V. Keldysh, Academician

SUBMITTED: July 3, 1962

Card 2/2

44556
S/020/63/148/001/008/032
B112/B180

AUTHOR: Nechiporuk, E. I.

TITLE: Rectifier circuits

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 1, 1963, 50-53

TEXT: The representation of Boolean matrices by rectifier circuits is investigated. $B_m(p,q)$ denotes the Shannon function for representing a (p,q)-matrix by circuits the depth of which does not exceed m. $\mathcal{L}(p_n,q_n,\alpha_n)$ is the class of all the Boolean (p,q)-matrices A containing $\alpha_n p_n q_n$ unities $(0 \leq \alpha_n \leq 1)$. The following two theorems are derived: (1) If $q_n \leq p_n$, $\alpha_n q_n \to \infty$, $\lg_2 p_n / \lg_2 \alpha_n^{-1} \to \varrho$, ϱ being a positive integer, $p_n \alpha_n^{\varrho} \to \infty$, then $B_2(p_n,q_n) \sim \alpha_n p_n q_n / \varrho$ for $\mathcal{L}(p_n,q_n,\alpha_n)$. (2) If $q_n \leq p_n$, $q_n \to \infty$, $\lim_{n\to\infty} (\lg_2 q_n / \lg_2 p_n) = \mu/(\mu(\varrho-1)+\varrho)$, μ and ϱ being positive integers, then $B(p_n,q_n) \sim B_3(p_n,q_n) \sim p_n q_n / \lg_2(p_n q_n)$.

Card 1/2

ACCESSION NR: AP4012960 S/0020/64/154/004/0763/0766

AUTHOR: Nechiporuk, E. I.

TITLE: Synthesis of schemes composed of threshold elements

SOURCE: AN SSSR. Doklady*, v. 154, no. 4, 1964, 763-766

TOPIC TAGS: information theory, Shannon function, threshold element, Boolean function, Sterling formula

ABSTRACT: The realization of Boolean functions by base schemes consisting of all possible elements, each of which has a weight equal to unity assigned to it, was examined. The Shannan function L(n) for this base is the minimum number of threshold elements with which any Boolean function of n arguments can be realized. The theorem

$$2\left(\frac{2^n}{n}\right)^{1/2} \leq L(n) \leq 2\sqrt{2}\left(\frac{2^n}{n}\right)^{1/2}.$$

was proved. It was assumed that each element in the schemes has n inputs, onto which the arguments $x_1, \ldots, x_n$ fall, among the other inputs. It was also assumed that the outputs of all preceding elements are connected to the inputs of each element. With such

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connections, the possible schemes with a given number of element can be obtained by varying only the coefficients of the threshol elements because the relationship of the threshold element outpu to the corresponding inputs is excluded for the null coeff cients in linear form which describe the threshold function. The number of functions of the arguments $x_1, \ldots, x_n$, which can be realized by the schemes of h_n threshold elements are denoted by $S(n_1 h_n)$. Let us suppose that $^1/_2 L(n) < h_n < L(n)$.

On the strength of $N(m, h) < 2 + 2^h C^h_{2^m+1}$,

$$S(n, h_n) < \prod_{1<j<h_n} N(n, n+j-1) < \prod_{1<j<h_n} (2 + [2(2^{n+1} + 2(n+j-1))]^{n+j-1}),$$

and, at $n \to \infty$, on the strength of (2) and $L(n) \leq 2\frac{n}{2}$, we find that $\lg_2 S(n, h_n) \leq nh_n(n + h_n)$.

By virtue of the fact that $\lg_2 S(n, L(n)) = 2^n$, we have

$$\left(\frac{2^n}{n}\right)^{1/2} \leq L(n).$$

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ACCESSION NR: AP4012960

Settling $h_n^* = \left[\frac{2\ n/2}{n}\right]$, the final form is then

$$\lg_2 S(n, h_n) < \sum_{1<l<h_n^*} \lg_2 N(n, n+l-1) + \sum_{h_n^*+1<l<h_n} \lg_2 N(n, n+l-1) \leqslant$$

$$\leqslant nh_n^*(n+h_n^*) + \sum_{h_n^*+1<l<h_n} l\frac{n}{2} \leqslant \frac{nh_n^2}{4}$$

Orig. art. has: 3 equations

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet im. A. A. Zhdanova (Leningrad State University)

SUBMITTED: 21Sep63 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: MM NR REF SOV: 005 OTHER: 001

Card 3/3

ACCESSION NR: AT4041983 S/2582/64/000/011/0049/0062

AUTHOR: Nechiporuk, E.I. (Leningrad)

TITLE: The synthesis of circuits consisting of threshold elements

SOURCE: Problemy* kibernetiki, no. 11, 1964, 49-62

TOPIC TAGS: Boolean function, Boolean function realization, threshold element, threshold function, threshold function realization, Boolean function coding, transposition coding, circuit design

ABSTRACT: The paper investigates the realization of arbitrary Boolean functions having a basis consisting of all the threshold elements to each of which a weight of unity is ascribed; a threshold element is defined as an element realizing a threshold function which, in turn, is defined as a Boolean function $P(y_1, \ldots, y_h)$ when such real numbers $\xi_0, \xi_1, \ldots, \xi_h$ exist that

$$(P(y_1, \ldots, y_h) = 1) \Longleftrightarrow \left(\sum_{i=1}^{h} \xi_i y_i > \xi_0\right) \quad (1)$$

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ACCESSION NR: AT4041983

where the symbol⇐ ⇒ denotes the equivalence of the assertions. An example of the synthesis of a circuit on the above basis shows a number of peculiarities which are characteristic for any infinite basis. In the synthesis, some ideas are used which the author used earlier in the case of zero-weight bases ("Problemy kibernetiki" No. 8, Moscow, Fizmatgiz, 1962, 123-160). Coding of Boolean functions by transposition is also examined as well as some properties of threshold functions. In the basis employed, Shannon's function L(n) constitutes the minimum number of threshold elements which is sufficient for the realization of any Boolean function of n arguments. The present paper proves and discusses the following theorem

$$2\left(\frac{2^n}{n}\right)^{1/2} < L(n) < 2\sqrt{2}\left(\frac{2^n}{n}\right)^{1/2}. \quad (2)$$

In the course of the discussion, 13 lemmas are proven. Orig. art. has: 68 formulas and 1 figure.

ASSOCIATION: none

SUBMITTED: 14Mar63 ENCL: 00 SUB CODE: EC, MA

NO REF SOV: 008 OTHER: 001

Card 2/2

S/0020/64/155/002/0299/0301

ACCESSION NR: AP4022709

AUTHOR: Nechiporuk, E. I.

TITLE: Synthesis of logic circuits in incomplete and degenerated bases

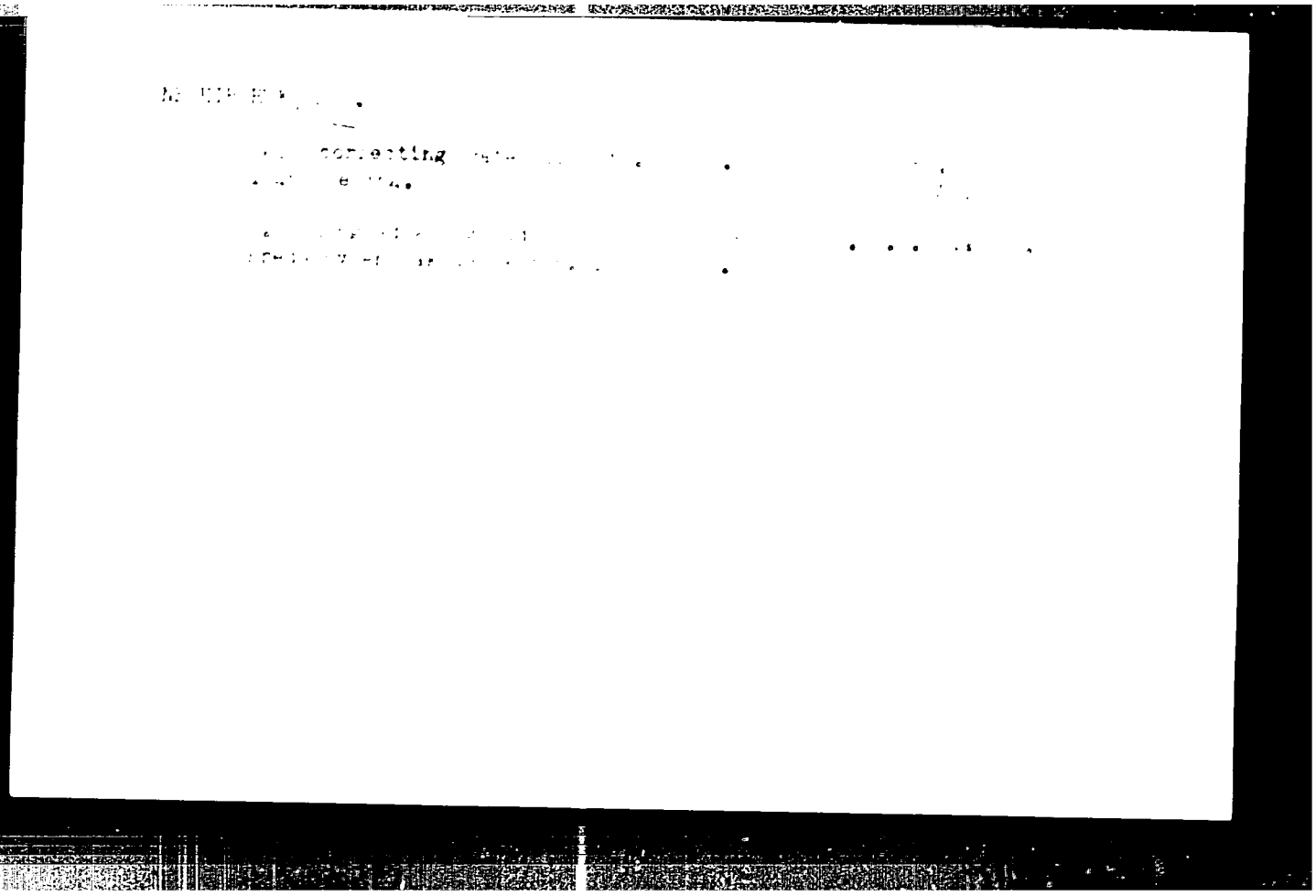
SOURCE: AN SSSR. Doklady*, v. 155, no.2, 1964, 299-301

TOPIC TAGS: cybernetics, control theory, Shannon function, Boolean function, logic system, logic circuit synthesis, automatic control theory, computer

ABSTRACT: The paper deals with the special problem of cybernetics, and the presentation of Boolean functions by means of logical systems. Two types of the latter are considered: the schemes of fundamental elements, and the superpositions. Definitions are given for the finite and infinite, complete and incomplete, degenerated and nongenerated bases. O. B. Lupanov (Coll. Problems of Cybernetics v. 3, 61, 1960) has found the asymptotic estimates of the Shannon functions, i.e., the sum of the weights of the basic elements, for arbitrary complete, finite, and nondegenerate bases. The author solves a similar problem for the incomplete and degenerated bases. Orig. art. has: 00

Leningrad State U.

Card 1/2



L 60064-65 EWT(d) IJP(c) UR/0020/65/163/001/0040/0042

ACCESSION NR: AP5018068

AUTHOR: Nechiporuk, E.I.

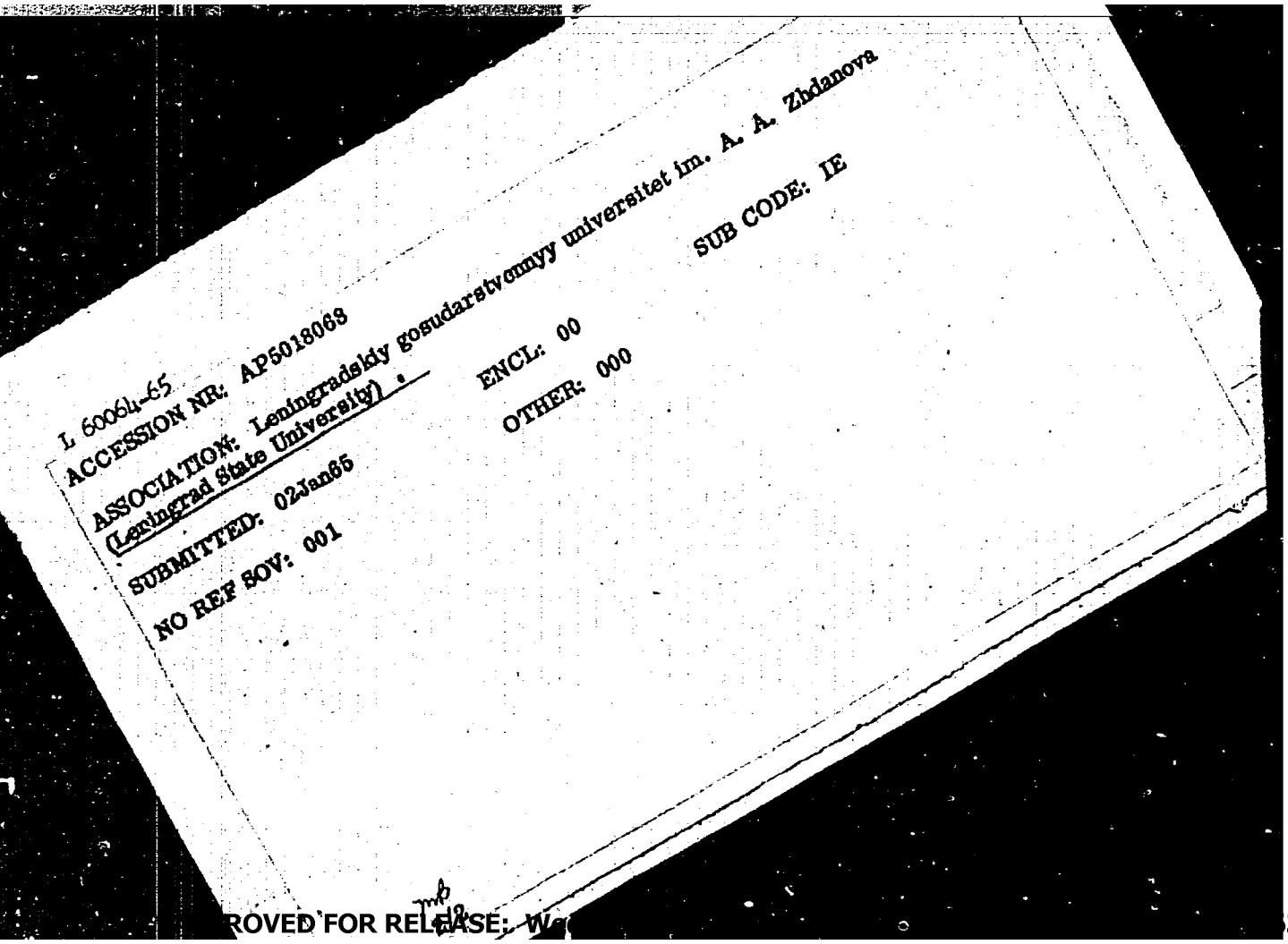
TITLE: The complexity of valve schemes realizing Boolean matrices with unspecified elements

SOURCE: AN SSSR. Doklady, v. 163, no. 1, 1965, 40-42

TOPIC TAGS: forbidden input, valve scheme, scheme complexity, Boolean matrix, unspecified element, control theory

ABSTRACT: During the practical design of control systems, one often encounters the problem of the synthesis of control systems with incomplete sets of input values, i.e., systems in which certain combinations of input values are "forbidden." The functioning of systems with "forbidden" input combinations is not fully determined and may be arbitrary. This, in turn, opens up possibilities for the minimization of schemes. The present paper investigates valve schemes from this point of view. It presents a method for the synthesis of such schemes and shows that their complexity is determined asymptotically only by the number of boxes occupied by the conductivity matrix and does not depend on their arrangement. Proofs are carried out on Boolean sets whose list of elements {0, 1} is enlarged by the unspecified element 1/2. Orig. art. has: 14 formulas and 1 figure.

Card 1/2



L 60064-65
ACCESSION NR: AP5018068
ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University)
SUBMITTED: 02Jan65
NO REF SOV: 001
ENCL: 00
OTHER: 000
SUB CODE: IE

L 60064-65

ACCESSION NR: AP5018068

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University)

SUBMITTED: 02Jan65 ENCL: 00 SUB CODE: IE

NO REF SOV: 001 OTHER: 000

Card 2/2

L 63345-65

ACCESSION NR: AP5017612 UR/2582/65/000/014/0111/0160

AUTHOR: Nechiporuk, E. I. (Leningrad)

TITLE: The synthesis of logical circuits on incomplete or degenerate bases

SOURCE: Problemy kibernetiki, no. 14, 1965, 111-160

TOPIC TAGS: logical circuit synthesis, incomplete-base logical circuit, degenerate-base logical circuit, linear function, monotonic function

ABSTRACT: The methods for the synthesis of logical circuits are discussed for the cases when the base is incomplete or contains nontrivial elements with zero weight. The basic results of the work are the asymptotic estimates of the complexity of the logical circuits for arbitrary bases with a zeroth part consisting of linear or monotonic functions (they were reported earlier by the author in DAN SSSR, 155, 2, 1964, 299-301). They are a generalization of previous results dealing with particular bases (Problemy kibernetiki, no. 8, 1962, 123-160). The present comprehensive article formulates basic concepts, discusses certain properties of bases with an associative zeroth part, investigates triangular Boolean functions, studies the superposition and circuit synthesis in (L, C) bases (L-associative

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L 63345-65

ACCESSION NR: AP5017612

class), and concludes with a discussion of the (A, C) bases (A = monotonic functions; all notations are according to E. Post, Two-valued iterative systems, 1941. Orig. art. has: 244 formulas, 3 figures, and 1 table.

ASSOCIATION: None

SUBMITTED: 28Oct63 ENCL: 00 SUB CODE: DP

NO REF SOV: 010 OTHER: 001

Card KC 2/2

Card 1/2

USSR/Farm Animals - Small Horned Stock. Q-4

Abs Jour : Ref Zhur - Biol., No 1, 1958, 2598

It was determined that hay-flour is easier digested than the similar hay dried according to standard procedures (according to literary data). The nutritive value of the fodder was determined.

Card 2/2

TOMME, M.F.; NOVIKOV, Ye.A.; NECHIPORUK, L.P., red.; KOBYAKOVA, G.N., tekhn. red.

[General zootechny] Obshchaia zootekhniia. Izd.3., perer. i dop. Moskva, Sel'khozizdat, 1963. 534 p. (MIRA 17:4)

LAZARENKO, A.S.; KHOMENKO, A.D. [Khomenko, O.D.]; PROSKURA, Z.V.; DUDNIK, V.N. [Dudnyk, V.M.]; NECHIPORUK, P Ye. [Nechyporuk, M.Ye.]

Effect of menilite shales on growth and certain physiological processes in farm crops during their initial stages of development according to the data obtained in plant culture experiments in 1951. Pratsi Inst. agrobiol. AN URSR 2 [pt. 2]:33-53 '53. (MIRA 11:2)
(Shale)
(Field crops)

KHOMENKO, O.D. [Khomenko, O.D.]; MECHIPORUK, M.Ye. [Mechyporuk, M. .]

Effectiveness of organomineral fertilizers given before seeding to winter grain and intertilled crops. Pratsi Inst. agrobiol. AN URSR 7:12-22 '57. (MIRA 11:7)
(Fertilizers and manures) (Field crops)

NECHIPORUK, N.N. (Vinnitsa); FIBR, A.K. (Vinnitsa); MELAKISHIN, V.A. (Vinnitsa); YURCHAK, Yu.I. (Vinnitsa)

Home-made thermistor. Fiz. v shkole 21 no.1:66-67 Ja-F '61. (MIRA 14:9)

(Thermistors)

NECHIPORUK, N.N. (Vinnitsa)

Homemade timer and experiments with it. Fiz.v shkole 21 no.3:60-62 My-Je '61. (MIRA 14:8)
(Automatic timers)

L 11219-66 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l) DIAAP
ACC NR: AP6005535 SOURCE CODE: UR/0089/66/020/001/0063/0065

AUTHOR: Klimentov, V. D.; Nechiporuk, V. A.; Kopchinskiy, G. A.; Yaroshevich, V. F.; Strutsinskiy, V. A.; Popov, V. D.; Nikolaev, A. V.

ORG: none

TITLE: Test stand at the Institute of Physics AN UkrSSR

SOURCE: Atomnaya energiya, v. 20, no. 1, 1966, 63-65

TOPIC TAGS: nuclear engineering, nuclear reactor, reactor fuel element, test stand

ABSTRACT: A test stand for critical assemblies was put into operation at the Institute of Physics AN UkrSSR at the end of 1964. The installation uses assemblies of fuel elements of the VVR-M research reactor; the moderator is ordinary water; the side reflector is made from the beryllium reflectors of the VVR-M reactor. The stand is located in a separate building. The radioactive zone is separated from the control panel by one meter of concrete shielding. The installation is equipped with sensitive monitoring and measuring systems as well as with systems for automatic and remote control. All precautions have been taken to assure reliable nuclear

Card 1/3 UDC: 621.039.572

safety and automatic control of the critical assemblies. A dc amplifier is connected to a galvanometer for monitoring currents in the ionization chamber down to 10^{-12} amp. Two recording potentiometers and a pulse rate counter are used for monitoring the power level. The instruments give reliable readings below the subcritical power level. Automatic control of the process is possible during operation at a power of more than 0.03 w which corresponds to an average thermal neutron flux of about $0.4 \cdot 10^6$ neutrons/$cm^2 \cdot sec$. The automatic regulator consists of two KNK-56 ionization chambers connected in parallel, a potentiometric power controller with a high impedance input and a steel absorber, an electronic amplifier and an amplidyne. This automatic regulator is extremely convenient for operation with critical assemblies. It may be used for rapid compensation of a chain reaction at "zero" power levels and for calibration of control rods. The unit increases work safety and accuracy of holding a constant power level when detectors are activated. In addition to the steel absorber in the automatic regulator, chain reaction may be controlled by two or three boron remote control rods. An emergency signal automatically brings these rods together with three emergency safety rods into the radioactive zone of the assembly. All control and safety rods are moved by servo drives which are connected to selsyns and position indicators. Operational experience at

L 14219-66
ACC NR: AP6005535

the Institute of Physics has shown that the test stand is a versatile tool which may be conveniently used for experimental research in physics and nuclear engineering. Orig. art. has: 4 figures. [14]

SUB CODE: 18/ SUBM DATE: 29Jul65/ ATD PRESS: 4195

TS
Card 3/3

MECHIPORUK, V.M., ternopol'

Gastric ulcer penetrating into the heart. Khirurgiia no.8:76 Ag. '55.
(MLRA 9:2)

(PEPTIC ULCER) (HEART--ULCERS)

MECHIPORUK, V.M.

Practice in the treatment of gastric and duodenal ulcer. Nov.khir. arkh. no.6:135 N-D '58. (MIRA 12:3)

1. Khirurgicheskoye otdeleniya Ternopol'skoy oblastnoy bol'nitsy.
(PEPTIC ULCER)

MECHIPORUK, V.M.

Two cases of gastrocolic fistula. Mov.khir.arkh. no.4:78-79 Jl-Ag '57. (MIRA 10:11)

1. Ternopol'skaya oblastnaya bol'nitsa
(FISTULA)

MECHIPORUK, V.M. (Ternopol')

Perforation of gastric and duodenal ulcer in connection with roentgenoscopy. Klin.med. 36 no.11:122-123 N'58 (MIRA 11:12)

1. Iz kliniki obshchey khirurgii (zav. dots. Yu.T. Konorovskiy) Ternopol'skogo meditsinskogo instituta (dir. - dots. P.Ye. Ogiy) na baze Ternopol'skoy oblastnoy bol'nitsy (glavnyy vrach N.A. Alkhimov)
(PEPTIC ULCER, perf.
after roentgenoscopy (Rus))

NECHIPORUK, V.M. (Ternopol', ul.Lenina, d.29, kv.1)

Successful homoplasty with cadaver skin in extensive burns.
Nov.khir.arkh. no.4:103-104 Jl-Ag '59. (MIRA 12:11)

1. Kafedra obshchey khirurgii (zav. - dotsent Yu.T.Komorovskiy) Ternopol'skogo meditsinskogo instituta na baze Ternopol'skoy oblastnoy bol'nitsy.
(BURNS AND SCALDS) (SKIN GRAFTING)

NECHIPORUK, V. M., Cand Med Sci -- "Substitution of defects of the esophagus by loose cutaneous transplantation (experimental study)." L'vov, 1961. (L'vov State Med Inst)

(KL, 3-61, 263)

NECHIPORUK, V.M.

Plastic surgery of the cervical section of the esophagus with a free skin flap (experimental study). Khirurgiia no.6:19-22 Je '61. (MIRA 14:11)

1. Iz kafedry obshchey khirurgii (zav. - dotsent Yu.T. Komorovskiy) i kafedry patologicheskoy anatomii (zav. - dotsent N.I. Val'chuk) Ternopol'skogo meditsinskogo instituta.
(ESOPHAGUS--SURGERY) (SKIN--TRANSPLANTATION)

NECHIPORUK, V.M. (Ternopol')

Diagnostic errors in typhoid fever peritonitis. Klin.med. 40 no.10:121-123 O '62. (MIRA 15:12)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. A.G.Martynyuk) Ternopol'skogo meditsinskogo instituta na baze oblastnoy klinicheskoy bol'nitsy (glavnyy vrach K.V.Belikov).
(TYPHOID FEVER) (PERITONITIS)

NECHIPORUK, V.M., kand. med. nauk (Ternopol', ul. Lenina, d.[illegible],kv.1)

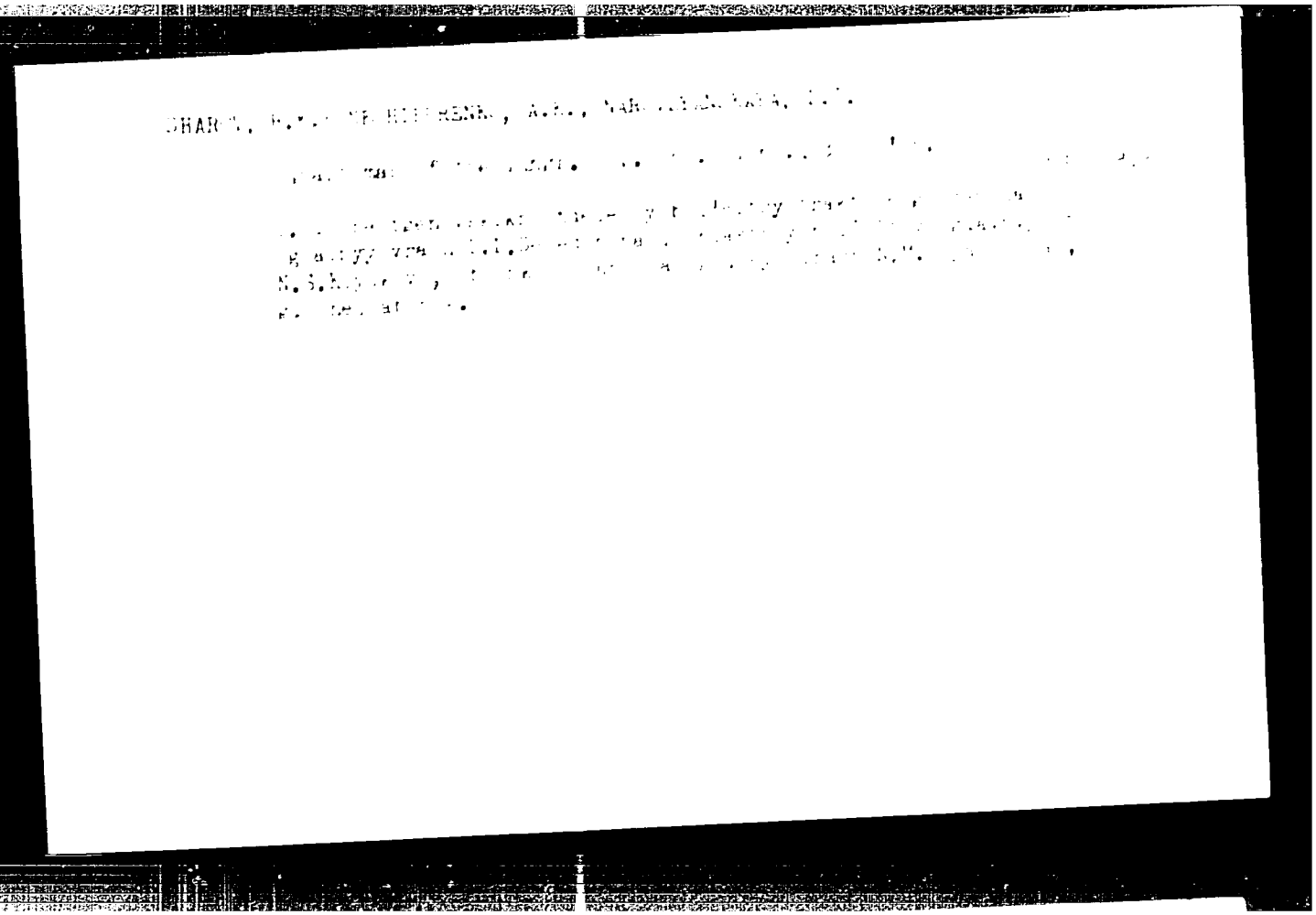
Open dislocation of the humerus. Ortop., travm. i protez. 24 no.3:53-54 Mr '63. (MIRA 17:2)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. A.G. Martynyuk) Ternopol'skogo meditsinskogo instituta na baze oblastnoy bol'nitsy.

NECHIPORUK, V.M. (Ternopol', [illegible], 29, kv.1)

Primary cancer of [illegible]; a case report. Vop. [illegible] no.6: 117-118 '64. (MIRA 18:3)

[illegible] kafedry gospital'noy [illegible]rgii (zav. - dotsent L.P.Shulyak) Ternopol'skogo meditsinskogo instituta na baze oblastnoy klinicheskoy bol'nitsy (glavnyy vrach - F.V.Belikov)



NECHIPURENKO, V., kand.istoricheskikh nauk

The 22d Congress of the CPSU on the defense of our socialist country. Trudy MTIPP no.20:161-181 '63. (MIRA 17:4

NECHIPURENKO, V.G., kand. tekhn. nauk; KOKHANOVA, O.A., inzh.

Nitriding large parts of worm-driven machinery. Mashinostroenie (MIRA 18:6)
no.2:73-74 Mr-Ap '65.