

USSR

UDC: 621-019

TIMCHENKO, A. S., KADZHAYA, D. V., NARIKASHVILI, S. P., Corresponding Member of the Academy of Sciences of the Georgian SSR, Institute of Physiology of the Academy of Sciences of the Georgian SSR

"Interaction of Induced and Spontaneous Spindles in the Cerebral Cortex"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 67, No 2, Aug 72, pp 433-435

Translation: It is known that under certain conditions an isolated peripheral stimulus in the appropriate sensory region of the cortex induces both a primary response and an aftereffect in the form of rhythmic slow waves (see ref. 1-3). The slow cortical aftereffect (SCA) shows up best on a specimen whose background activity is characterized by infrequent spontaneous spindles or a tendency toward synchronized activity (see ref. 4).

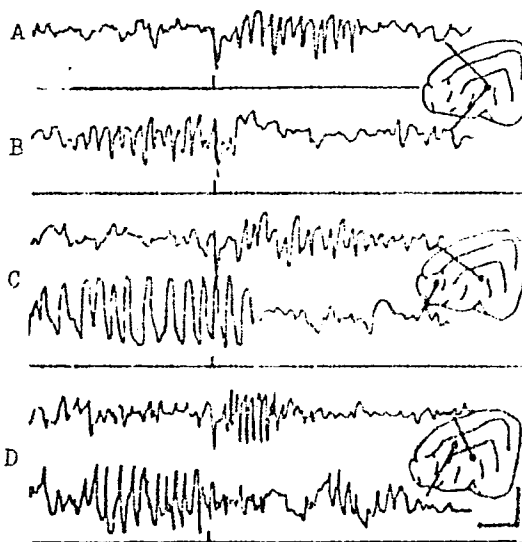
It has been shown (ref. 4) that increasing Nembutal narcosis reduces the frequency, amplitude and number of waves in the SCA arising in response to audible clicks in parallel with (and corresponding to) a drop in the frequency, amplitude and number of the waves in spontaneous spindles in the auditory cortex. These common features in spindles and the SCA suggest a

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TIMCHENKO, A. S. et al., *Scobshcheniya Akademii Nauk Gruzinskoy SSR*, Vol 67, No 2, Aug 72, pp 433-435

Fig. 1. Interaction between the SCA of the auditory cortex and preceding localized spontaneous spindles of the auditory (B), somatosensory (C), and associative (D) cortex. The calibration here and in Fig. 2 is 0.5 mV and 0.5 s.



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TIMCHENKO, A. S. et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 67, No 2, Aug 72, pp 433-435

common generating mechanism. In such a case, the aftereffect ought to be a spindle evoked by the peripheral stimulus.

Settling once and for all the question of the identity between the mechanisms which generate the spontaneous spindle and the SCA necessitated clarifying the nature of the interaction between the SCA and spontaneous spindles arising both in the same region of the cortex and in other regions.

Experiments were done on cats under mild Nembutal narcosis (25-30 mg/kg). The SCA was induced by infrequent audible clicks acting on both ears. The induced and spontaneous activity were registered by monopolar recording (an indifferent electrode in the bone of the frontal sinus) from the surface of the cortex on the Al'var electroencephalograph.

According to data in the literature (5-7), each thalamocortical system or even parts of such a system independently of one another induce a spontaneous spindle in the corresponding projection region of the cortex. If the SCA is a spindle induced by a peripheral stimulus (which can also be generated spontaneously and periodically), then an audible stimulus supplied during or immediately following a spontaneous spindle in the auditory cortex

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1/2 025 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--RESPONSES IN DIFFERENT REGIONS OF ASSOCIATIVE CORTEX OF CAT -U-
 AUTHOR--(03)-NARIKASHVILI, S.P., TIMCHENKO, A.S., KADZHAYA, D.V.
 COUNTRY OF INFO--USSR
 SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 2, PP 126-139
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--CAT, ANESTHESIA, BRAIN, SENSORY PHYSIOLOGY
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REF/FRAME--1986/1387
 CIRC ACCESSION NO--AP0103237
 STEP NO--UR/0660/70/002/002/0126/0139
 UNCLASSIFIED

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PROCESSING DATE--02JCT7C

UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0103237

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. RESPONSES FROM DIFFERENT REGIONS OF ASSOCIATIVE CORTEX (AC) (MOTOR CORTEX, PROPEAL, ORBITAL ANTERIOR MARGINAL AND MIDDLE SUPRASYLVIAN GYRI) TO DIFFERENT PERIPHERAL STIMULATIONS (SKIN OF CONTRA AND IPSILATERAL FOREPAW, LIGHT FLASHES AND CLICKS) WERE RECORDED SIMULTANEOUSLY IN CHLORALASED CATS (70-80 MG-KG). IN ALL REGIONS OF AC RESPONSES WERE OF ALMOST EQUAL CONFIGURATION TO ALL STIMULI USED. THE RESPONSES IN ORBITOFRONTAL AND MOTOR CORTEX HAD SHORTER LATENCY AND WERE MORE STABLE. IN EACH ASSOCIATIVE REGION THERE WAS ONE AND THE SAME POINT FOR RESPONSES OF MAXIMAL AMPLITUDE TO ALL STIMULI. TESTING ASSOCIATIVE RESPONSES APPEARED TO BE MORE STABLE AGAINST THE BLOCKING ACTION OF CONDITIONING RESPONSES IN ORBITOFRONTAL REGION ARISING TO SKIN STIMULATION AND RESPONSES TO THE LIGHT FLASHES IN SUPRASYLVIAN GYRUS. IT IS SUGGESTED THAT ORBITOFRONTAL CORTEX IS PROBABLY THE SITE WHERE INTEGRATION OF SENSORY IMPULSES OF DIFFERENT MODALITIES WITH EFFERENT DISCHARGE TAKES PLACE, WHILE IN SUPRASYLVIAN GYRUS THE SENSORY IMPULSES ARE INTEGRATED INDEPENDENTLY FROM EFFERENT DISCHARGE. SOME QUESTIONS OF SENSORY CONVERGENCE ARE DISCUSSED.

UNCLASSIFIED

Acc. Nr:

AP0044214

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskii Zhurnal, 1970, Vol 56,
Nr 1, pp 3-12

MODALITY-SPECIFIC ACTION OF PRIMARY SENSORY AREA ON ASSOCIATION
RESPONSES

Narikashvili, S. P.; Kadzhava, D. V.; Timchenko, A. S.

From the Institute of Physiology, Georg. Ac. Sci., Tbilisi

In the chloralised cats the association responses (ARs) in the middle suprasylvian gyrus evoked by paired single stimuli of the same or different modalities (electrical skin stimulation and light flashes) were studied before and after bilateral aspiration of the first somatosensory or visual areas. After aspiration definite changes were observed only in the ARs of that modality the first sensory cortical area of which had been removed. The changes were especially pronounced when peripheral stimulations of different modalities were used. So, after aspiration of the first somatosensory area the testing ARs to skin stimulation were blocked easier by conditioning light flashes (at a longer interval of time between stimuli) than before aspiration, and under the influence of conditioning skin stimulation the testing ARs to light flashes were blocked at a significantly shorter interval than before aspiration. The same was found after aspiration of the first visual area but in the reverse direction.

From the above mentioned it follows that the first sensory area plays important role part in the origin of the ARs and gives them a modality-specific character.

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UDC 612.85:62-50

KHECHINASHVILI, S. N., KEVANISHVILI, Z. Sh., and KADZHAYA, O. A., Tbilisi
Institute for the Advanced Training of Physicians

"Investigation of Induced Auditory Potentials in Human Cerebral Cortex by
Means of an Electronic Computer"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 63, No 3, 1971, pp
689-691

Abstract: Cerebral cortical potentials, induced by sound stimuli, were re-
corded by monopolar electrodes, amplified and averaged by an electronic com-
puter, and analyzed. A single sound induces two deflections, with a negative
peak in 100 msec and a positive peak in 185 msec. The amplitude is greatest
at a stimulation rate of one sound per 5 sec. With increasing stimulation
rate, the amplitude decreases, to become indiscernible at a stimulation rate
of three sounds per sec. The contralateral response is greater than the
ipsilateral. A threshold stimulus produces only the contralateral response.
Upon delivery of paired stimuli to one ear, the second response is weaker.
However, when the first stimulus is delivered to the other ear, no reduction
occurs in the second response. In individuals with impaired hearing, all
induced action potentials are weaker.

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1/2 040 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CHANGES IN POLYCHLOROPRENE CRYSTALLIZATION UNDER THE INFLUENCE OF
UV IRRADIATION STUDIED BY IR SPECTROSCOPY -U-
AUTHOR--(03)-ASLANYAN, K.A., BAGDASARYAN, R.V., KAFADAROVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 60-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCHLOROPRENE, CRYSTALLIZATION, UV RADIATION, RADIATION
EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0967

STEP NO--UR/0431/70/005/001/0060/0066

CIRC ACCESSION NO--AP0136397

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136397

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CRYST. POLYCHLOROPRENE (I) CONTAINS FLAT POLYMER CHAINS IN WHICH THE MONOMER UNITS HAVE TRANS CONFIGURATIONS. SUCH CONFIGURATIONS GIVE IR BANDS AT 1450 CM PRIME NEGATIVE. THE IRRADN. OF I SAMPLES WITH UV LIGHT DECREASES THE IR BAND INTENSITY OF I AT 1450 CM PRIME NEGATIVE AND CAUSES OTHER SPECTRUM CHANGES. THE DECREASE OF I ORIENTATION DUE TO UV IRRADN. IS CAUSED BY CROSSLINKING. STABILIZERS, SUCH AS P 23 OR 2246, SCREEN OUT THE RADIATION BY ABSORBING THE UV LIGHT ENERGY AND DISTRIBUTE IT AMONG THE AROMATIC RINGS.

UNCLASSIFIED

1/2 047 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MOLECULAR MECHANISMS OF THE EFFECT OF UV IRRADIATION ON THE
STRUCTURE OF POLYCHLOROPRENE -U-
AUTHOR-(03)-ASLANYAN, K.A., BAGDASARYAN, R.V., KAFADAROVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 67-73.

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--UV RADIATION, POLYMER CROSSLINKING, CONJUGATE BOND SYSTEM,
POLYCHLOROPRENE, OXIDATIVE DEGRADATION, MOLECULAR STRUCTURE, RADIATION
EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0969

STEP NO--UR/0431/70/005/001/0067/0073

CIRC ACCESSION NO--A20134392

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PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136399

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UV IRRADN. OF POLYCHLOROPRENE (I)
IN THE PRESENCE OF O BROUGHT ABOUT RANDOM OXIDATIVE DEGRADATION AND
CROSSLINKING. ADDN. OF P 23(2,4,6, TRI,TERT,BUTYLPHENOL) IMPROVED THE
RADIATIVE STABILITY OF I, PRESUMABLY DUE TO A CONJUGATED PI ELECTRON
RING SYSTEM WHICH DISSIPATED THE ENERGY ABSORBED BY THE POLYMERS.

1/2 044 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EFFECT OF ULTRAVIOLET IRRADIATION ON THE STRUCTURE OF CHLOROPRENE
RUBBERS -U-
AUTHOR-(03)-ASLANYAN, K.A., BAGDASARVAN, R.V., KAFADAROVA, E.A.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 434-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--POLYCHLOROPRENE, UV RADIATION, EMULSION POLYMERIZATION,
POLYMER CROSSLINKING, RUBBER, MATERIAL DEGRADATION, RADIATION EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0247 STEP NO--UR/0459/70/012/002/0434/0437
CIRC ACCESSION NO--AP0106903
UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--A0106903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYCHLOROPRENE (I) RUBBERS PREPD. BY EMULSION POLYMN. IN THE PRESENCE OF K SUB2 S SUB2 J SUB8, TERT DODECYL MERCAPTAN, AND NA ALKYL SULFONATE, WERE AGED BY UV IRRADN. THE IRRADN. CAUSES CROSSLINKING, WHICH PROCEEDS THROUGHOUT THE I VOL. AND IS MORE EXTENSIVE FOR HIGHER MOL. WT. I, AND DEGRADATION, WHICH IS ESSENTIALLY A SURFACE PHENOMENON. THE CROSSLINKING DECREASES THE CRYSTALLINITY; BOTH PROCESSES CHANGE THE POLYDISPERSITY, SDLY., AND OPTICAL PROPERTIES OF I.

UNCLASSIFIED

USSR

UDC 621.9.048

KABANOV, A.N., KAFANOV, A.A., YUDAYEV, V.N.

"Guns For Electron-Beam Microprocessing Of Material"

Tr.Mosk.in-ta elektron.mashinostr. (Works Of The Moscow Institute Of Electrical Machine Construction), 1970, No 9, pp 32-55 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A442)

Translation: The optical, energetical, and operational characteristics are discussed of triode electron guns which are used in electron beam units for microprocessing of materials. Particular attention is paid to the properties of electron guns with a tungsten directly-heated cathode operating in a regime of heavy currents on the order of 10-20 ma at accelerating voltages of 10-100 kv. M.V.

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UDC 612.013.1.014.43.014.461

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POKROVSKIY, V. I., BULYCHEV, V. V., LISYKOV, T. Ye., MALEYEV, V. V.,
UTEKHIN, V. A., CHERNAYEVA, T. Ye., MAYOROV, Yu. M., MILOVIDOVA, S. S., and
KAFAROV, K. A., Central Department of Infectious Pathology, Scientific Research
Imeni N. N. Pirogova, Institute of Epidemiology, Ministry of Health USSR,
and chair of Hospital Therapy, Evening Faculty, Second Moscow Medical Institute,
and Chair of Hygiene, State Central Institute for Physical Culture

"Effect of Dehydration and Hyperthermia on Homeostasis in Healthy Persons"

Moscow, Sovetskaya Meditsina, No 2, 1973, pp 27-31

Abstract: Blood chemistry and cardiovascular changes were studied in 20
healthy males aged 18 to 32 before and after staying various lengths of time
in a sauna bath (15 to 30 and 35 to 55 minutes of exposure to temperatures of
80 to 100° and humidity of 8%). In those who remained in the sauna 15 to 30
minutes, hyperthermia resulted in hyperfunction of the heart, slowing of the
blood flow, elevation of the pH and pressure of venous blood, increase in
serum proteins and in the specific gravity and viscosity of blood, decrease in
clotting time, loss of chlorine and potassium. In the group that remained in
the sauna over 35 minutes, dehydration caused a loss of electrolytes (chiefly
chlorine and potassium) with urine, cardiac hypofunction, slowing of the blood
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POKROVSKIY, V. I., et al., Sovetskaya Meditsina, No 2, 1973, pp 27-31

flow, decrease in venous and arterial blood pressure, shortening of clotting time, and increase in blood proteins, specific gravity, viscosity, and pH. The biochemical changes in both groups were within physiological limits and had no lasting effects. These findings can be used to determine disruptions of homeostasis, evaluate alterations in water-salt metabolism, acid-base equilibrium, etc. in infectious patients, and assess the efficacy of therapy, particularly in gastrointestinal diseases.

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KAFAROV, V. V., VETOKHIN, V. N., BOYARINOV, A. I.

"Programming and Computer Methods in Chemistry and Chemical Technology"

Programmirovaniye i Vychislitel'nyye Metody v Khimii i Khimicheskoy Tekhnologii [English Version Above], Moscow, Nauka Press, 1972, 487 pages (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V709K).

Translation: This book studies problems of the application of computer equipment for the solution of problems in chemistry and chemical technology. The principles of programming and elements of computer mathematics are presented in readable form, as well as certain general problems of the preparation of chemical and technological problems for computer solution.

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UDC 62-50:66-93.012-52

KAFAROV, V. V., Member Correspondent of the USSR Academy of Sciences, LAZAREV, G. B., and AVDEYEV, V. I., Moscow Chemico-Technological Institute imeni D. M. Mendeleev and The Experimental Design Office of Automation in Severodonetsk

"Operational-Production Planning and Control of a Composite Chemicotechnological System"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 303-306

Abstract: A composite chemicotechnological system (CTS) is defined as a chemical enterprise with technological branches constructed on a raw-material and power-production base; it is concerned with the composite processing of raw materials and intermediate products and involves the utilization of raw material and power wastes.

This paper treats the CTS not only as a dynamic component but also as heuristic and logical components. Three variations of the problem are posed: (1) The position of point M, into which the object from the initial state (t_0, M_0) is transformed for the time T, is given; (2) the position of point M requires determination based on a certain criterion
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KAFAROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 303-306

or set of criteria; and (3) the position of point M is a random function of time and must be determined by prediction.

The authors present and solve the problem mathematically, giving the appropriate equations and one table.

The investigations show the possibility of expanding formulation of the problem with fixed ends for a new class of objects of control and solution to the problem for a composite CTS with continuous production processes.

The article contains 1 table, 9 equations, and a bibliography of 2 titles.

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USSR

UDC 62-50:66-93.012-52

KAFAROV, V. V., Corresponding Member USSR Academy of Sciences, LAZAREV, G. B.,
and AVDEYEV, V. I., Moscow Chemico-Technological Institute imeni D. I.
Mendeleyev, Northern Donets Branch of the Experimental Design Office of
Automation

"A Method for Solving Multicriterial Problems of Control in a Composite
Chemicotechnological System"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 1, 1 May 71, pp 62-63

Abstract: Control of composite chemicotechnological systems, when a number
of goals are involved, is often an intuitive process based on experience.
This article seeks ways to solve this problem mathematically and lists
several factors which illustrate the diversity of the basic problem:
maximal output of production (in conditional units), maximal gain, maximal
volume output, and maximal productivity.

The authors divide the multicriterial problems into four categories:

1. Solution on the basis of ranking the criteria of optimality, including
summation with weight factors.

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KAFAROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 198, No 1, 1 May 71, pp 62-63

2. Solution involving choice of one main criterion and limitation of the other goals.
3. Solution based on certain intuitive arguments prompted by the nature of the problem itself for constructing a generalized criterion, depending on the investigator.
4. This category, which is most amenable to mathematical treatment, involves the use of normalized criterial space to seek a solution that will ensure minimal distance of the specific function (F_1) from the individual optima.

It is this latter category which the authors use in the experiment, although it has wider application than just that discussed in the article.

Rosen's method of projectible gradients was used in solving the problems, and testing was done at the Northern Donets Chemical Complex using a Minsk-22 computer. The program used permits solving multicriterial problems containing up to 40 variables.

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USSR

KAFAROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 198, No 1, 1 May 71,
pp 62-63

The article contains three equations and a bibliography of four titles.

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Acc. Nr: **AP0052447** Abstracting Service: **CHEMICAL ABST. 5/70** Ref. Code: **UR0455**

104477p Calculating the vapor-liquid equilibrium for multi-component systems. Kafarov, V. M.; Bovarnov, A. I.; Lutsenko, V. A.; Vetokhin, V. N. (Mosk. Khim.-Technol. Inst. im. Mendeleeva, Moscow, USSR). *Teor. Osn. Khim. Tekhnol.* 1970, 4(1), 63-72 (Russ). A program for computing the vapor-liq. equil. in multicomponent systems is described. The 1st part of the algorithm is aimed at establishing the parameters Λ of the Wilson equations. Expressions are given for the activity coeff. of an arbitrary component of a multicomponent system and for detg. the parameters Λ from exptl. binary equil. data of all pairs of components participating in the vapor phase of the multicomponent system. The soln. is obtained by the method of successive approxns. and checked by the sum of the squares of deviations of the equil. systems from the data obtained exptl. for several control points. The functional dependence of the vapor pressure of the pure components on the temp. is approxed. either by using $P_i^0(t) = a_0 + a_1t + a_2t^2 + a_3t^3 + \dots$, or by the Antoine equation. The trend of calcd. unknown parameters is checked by use of a minimizing function. The systems studied were: $\text{Me}_2\text{CO-CHCl}_2\text{-EtOH}$; EtOH-methylcyclopentane (I)-benzene, and hexane-I-EtOH-benzene. Complete ALGOL programs are given for calcg. the parameters Λ and the compns. of the vapor phase of a binary system at const. pressure and of the vapor phase of a multicomponent mixt. at a given temp. Exptl. and calcd. data are tabulated. M. Selucky

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1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--MATHEMATICAL MODELING OF THE NONISOTHERMAL ABSORPTION OF
FORMALDEHYDE IN PACKED COLUMNS WITH RECYCLE -U-
AUTHOR-(04)-KAFAROV, V.V., PEROV, V.L., LUCHINA, YE.T., IVANOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 212-15
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MATHEMATIC MODEL, FORMALDEHYDE, GAS ABSORPTION, WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0139 STEP NO--UR/0054/70/046/003/0212/0215
CIRC ACCESSION NO--AP0125955
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125955

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EQUATIONS DESCRIBING THE NONISOTHERMAL ABSORPTION OF HCHO IN H SUB2 O, WHEN THE GASEOUS PHASE TEMP. IS HIGHER THAN THE TEMP. OF THE H SUB2 O AND THE LIQ. IS RECIRCULATED THROUGH A HEAT EXCHANGER, ARE DERIVED; CALCNS. WITH A DIGITAL COMPUTER SHOW THAT WHEN THE RATE OF RECIRCULATION IS INCREASED (UP TO A CERTAIN LIMIT) THE HCHO CONC. IN THE GAS PASSING FROM ONE ABSORBER TO ANOTHER (AS WELL AS IN THE SPENT GASES) DECREASES, AND TO MINIMIZE THE LOSS OF HCHO WITH THE SPENT GASES THE PROCESS SHOULD BE CARRIED OUT AT LOW TEMPS. (8-10DEGREES). THE USE OF A DROPLET COLLECTOR AFTER THE ABSORBERS SHOULD ALSO REDUCE THE LOSSES OF HCHO.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--METHOD FOR CALCULATING MATERIAL AND ENERGY BALANCES OF COMPLEX
CHEMICAL ENGINEERING SYSTEMS -U-
AUTHOR-(03)-KAFAROV, V.V., PEROV, V.L., MESHALKIN, V.P.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 192(3), 598-601 (CHEM TECHNOL)
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CALCULATION, ENERGY THEORY, FLOW RATE, CHEMICAL ENGINEERING,
MATHEMATIC MATRIX
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1218 STEP NO--UR/0020/70/192/003/0598/0601
CIRC ACCESSION NO--AT0134802
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0134892

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LOOP FLOW MODELS OF COMPLEX CHEM. ENGINEERING SYSTEMS ARE DESCRIBED AND A MATH. NONITERATIVE MATRIX APPROACH TO SOLVING MATERIAL AND ENERGY FLOWS OF SYSTEMS IS DEVELOPED AND DISCUSSED. FACILITY: MOSK. KHIM.-TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr:

AP0049769

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

UR 0191



101292p Effect of synthesis conditions on the molecular weight of polyurethane ureas. Strakhov, V. V.; Kafengauz, A.

P.; Pchel'nikova, G. V. (USSR). *Plast. Massy* 1970, (1), 8-9 (Russ). The title polymers (I) were prepd. in CH₂Cl₂-H₂O by a procedure of V. V. Strakhov (1969). The isocyanate prepolymers were prepd. from polypropylene glycol of mol. wt. 1000 and 2,4-tolylene diisocyanate at a 2:1 NCO-OH molar ratio. The yield and the mol. wt. of I increased with agitation. Thus, when the mixt. was stirred for 5 and 30 sec. the yield and sp. viscosity increased from 79.5% and 0.78 to 84.0% and 1.43, resp. The mol. wt. of I was also affected by the order of mixing of the reagents. The effects of a change in the pH of the aq. phase on the mol. wt. of I were less significant.

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1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SELECTION OF AN EFFICIENT SCHEME FOR DRYING SYNTHETIC DETERGENTS
-U-
AUTHOR--(04)-PARCNYAN, V.KH., KAFIYEV, N.M., SHMIDT, A.A., ANTON, A.G.
COUNTRY OF INFO--USSR
SOURCE--MALSU-ZHIR. PRGM. 1970, 36(1), 25-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--DETERGENT, DRYING OVEN, BOND ENERGY, WATER, SULFATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0450 STEP NO--UR/9085/70/036/001/0025/0028
CIRC ACCESSION NO--AP0128020
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128020

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. H SUB2 O, DETERGENT BOND ENERGY WAS
DETD. FOR 2 DETERGENTS CONTG. 25PERCENT ALKYL SULFATE (I) AND
TETRAPROPYLENEBENZENESULFONATE (II) RESP. HIGHER VALUES OF BOND ENERGY
WERE FOUND FOR I THAN FOR II. THE ADDN. OF 15PERCENT NA SUB2 CO SUB3 TO
I AND II INCREASED THE BOND ENERGY IN THE ENTIRE REGION STUDIED. AS THE
BOND ENERGY PER UNIT AMT. OF H SUB2 O INCREASES WITH DECREASING H SUB2 O
CONTENT, IT IS RECOMMENDED THAT ADDNL. HEAT ENERGY BE SUPPLIED TO THE
DRYING AIR 3.5-4.0 M FROM THE CONCIAL PART OF THE DRYING CHAMBER.
FACILITY: MOSK. FILIAL VNIITZHA, MOSCOW, USSR.

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UDC: 659.0:621.311.6

KAPITANENKO, B. I. and POLIVANOV, V. V.

"Glow Discharge Gas Stabilitrons as Reference Voltage Sources"

Moscow, Izmeritel'naya Tekhnika, No. 7, 1970, pp 50-51

Abstract: Modern electron microscopes with a resolution of 5 \AA and less require stabilized current and voltage supplies. Consequently, a stable reference voltage on which these stabilized values can depend is required. This requirement can be satisfied by glow discharge stabilitrons which are highly reliable in operation for periods of as much as hundreds and thousands of hours, have small dimensions and low mass, are simple in operation, and have a firing voltage of from 30 to 150 volts. The authors assert that there is little literature known to them on short-term stability of gas stabilitrons. They investigated SG1P, SG15P, and SG201S types from the point of view of short-term voltage stability in a parametric stabilizer, and the instability of the stabilitron output voltage as a function of the amplitude of the current flowing through the device and as a function of the input voltage instability. The experimental data showed that the instability of the parametric stabilizer output voltage for any instability of the input voltage varied with changes in the current through the device. A table of the three types of stabilitron and their characteristics is given.

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USSR

UDC: 519.2

KAGAN, A. M., LINNIK, Yu. V., RAO, S. R.

"Characterization Problems of Mathematical Statistics"

Kharakterizatsionnyye zadachi matematicheskoy statistiki (cf. English above), Moscow, "Nauka", 1971, 656 pp, III. 2 r. 50 k. (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V224 K)

[No abstract]

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USSR

UDC: 519.281

KAGAN, A. M., LINNIK, Yu. V., Academician, ROMANOVSKIY, I. V., and RUKHIN, A. L.

"Sets With 'Self-Control'"

Moscow, Doklady Akademii Nauk SSSR, vol. 199, No. 4, 1971, pp 766-769

Abstract: In this investigation of the "self-control" of sets in the problem of successive evaluation of shift parameters in arbitrary loss functions, the parameter $\theta \in R^1$ in a standard system of direct measurements $x_i = \theta + \xi_i$, $i = 1, 2, \dots$, is considered, where the measurement errors ξ_i are assumed to be random quantities with fully known distribution functions $F(x)$. The purpose of this article is thus to study successive estimation of the shift parameter θ in specified independent observations x_1, x_2, \dots , distributed in accordance with the law $F(x - \theta)$. A formula is derived for the optimal invariant evaluate $\hat{\theta}$ of the parameter θ , and a theorem involving the errors ξ_i subjected to hypernormal distribution and the derived formula is stated and proved. The authors are connected with the Leningrad Division of the V. A. Steklov Mathematical Institute.

1/1

USSR

UDC 539.3

KAGAN, A. Ya.

"Study of Edge Effects in the Bending of Plates on a Stochastic Elastic Base"

V sb. Probl. nadezhnosti v stroit. proyektir. (Problems of Reliability in Structural Design -- Collection of Works), Sverdlovsk, 1972, pp 71-75 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V183)

Translation: The problem of the effect of edge conditions on the stress-deformation state of a thin plate on a stochastic Winkler base is discussed. A solution for a semi-infinite plate is sought by the static test method and the small parameter method. A plate with a supported edge on an isotropic elastic base is discussed as a numerical example. L. N. Nagornov.

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1/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--INTERNAL GRAVITATIONAL WAVES IN A REALLY STRATIFIED OCEAN -U-

AUTHOR--(02)--MARCHUK, G.I., KAGAN, B.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA,
VOL VI, NO 4, 1970, PP 412-422

DATE PUBLISHED--70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEAN, GRAVITATION WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0123

STEP NO--UR/0362/70/005/004/0412/0422

CIRC ACCESSION NO--AP0125939

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--300070

CIRC ACCESSION NO--AP0125939

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXTENSIVE LITERATURE HAS BEEN DEVOTED TO INTERNAL GRAVITATIONAL WAVES IN THE OCEAN. THIS PROBLEM (WITH AN ARBITRARY DENSITY DISTRIBUTION) WAS SOLVED FOR THE FIRST TIME BY FJELDSTAD, BUT AS POINTED OUT BY GRUEN, THAT SOLUTION IS APPLICABLE ONLY TO THE CASE OF VERY LONG WAVES, SO THAT AT PRESENT DIFFERENT PARTS OF THE SPECTRUM OF INTERNAL GRAVITATIONAL WAVES IN THE OCEAN HAVE BEEN STUDIED NONUNIFORMLY. THIS PAPER GIVES THE DERIVATION OF CHARACTERISTIC CURVES AND CHARACTERISTIC SOLUTIONS CORRESPONDING TO INTERNAL GRAVITATIONAL WAVES FOR A REALLY STRATIFIED OCEAN. IT IS SHOWN THAT HIGH FREQUENCY OSCILLATIONS ARE CONCENTRATED IN A RELATIVELY THIN LAYER OF MAXIMUM VALUES OF THE VAISALA FREQUENCY.

FACILITY:
 COMPUTATION CENTER, SIBERIAN DEPARTMENT ACADEMY OF SCIENCES USSR.
 FACILITY: INSTITUTE OF OCEANOLOGY.

UNCLASSIFIED

USSR

UDC 613.6:612.766.1-08

VOL'KHINA, T. P., ~~KAGAN, B. I.~~, and MYASNIKOVA, G. P., Sverdlovsk Scientific Research Institute of Labor Hygiene and Occupational Diseases"

"Physiological Evaluation of the Difficulty of Work"

Moscow, Gigiyean 1 Sanitariya, No 4, 1971, pp 100-102

Abstract: Various physiological indexes (pulse rate, muscular strength, coordination of movement, reactions to sound and light, attention, and so forth) were investigated as a means of grading the difficulty of the jobs of several categories of workers - lathe operator, machinist, milling machine operator, engineer/programmer - in a pilot machine plant. Pilot plants are characterized by the lack of strict control of the industrial processes, uniqueness of the products, creative nature of the workers' participation, and so forth. Judging primarily by the pulse rate, the lathe operator's job is moderately difficult (90 to 99 beats per minute) while the jobs of the machinist, milling machine operator, and engineer/programmer are light (less than 90 pulse beats per minute). But with regard to nervous strain and fatigue, all four categories of workers are essentially a like, i.e., the work of a lathe operator, machinist, and milling machine operator in a pilot plant is essentially a variety of mental work.

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USSR

UDC 577.4

KAGAN, B. M., and DANILENKO, S. YE.

"Questions in the Development of Systems of Optimum Design"

V sb. Kibernetich. sistemy avtomatiz. proyektir. (Cybernetic Systems of Automated Design -- Collection of Works), Moscow, 1973, pp 132-136 (from RZh-Matematika, No 6, Jun 73, Abstract No 6V587 by G. LEVIN)

Translation: The article discusses the general principles for the development and structure of software for systems of optimum design. The basic software components are: a search program complex (SPC) to solve nonlinear programming problems, a library of programs of mathematical models of the object to be designed, operational programs. The SPC, in turn, includes local search programs (which are the central part thereof), programs for determining the point of an admissible region, and search area study programs.

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- 24 -

USSR

KAGAN, B. M., DANILENKO, S. Ye.

"Problems of the Architecture of a System of Optimal Planning"

Kibernetich. Sistemy Avtomatiz. Proyektir. [Cybernetic Systems for Automation of Planning -- Collection of Works], Moscow, 1973, pp 152-156 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V587, by G. Levin).

Translation: The general principles of construction and the structure of the software (SW) of an optimal planning system are discussed. The basic components of the SW are: a search program set (SPS) for solution of problems on nonlinear programming, a library of programs of mathematical models of the object being planned, and operational programs. The SPS in turn includes a local search program (its central portion), a program for determination of a point in a permissible area and a program for investigation of a search area.

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Automata

USSR

UDC: 8.74

KAGAN, B. M., KERTUYAN, I. B., and BUZYUK, M. A.

"A Realization of the D-Algorithm in the System of Automating the Design of Diagnostic Tests (SAPDT) for Combination Automata"

Moscow, Tr. Mosk. in-ta inzh. zh.-d. transp. (Transactions of the Moscow Institute of Railroad Engineering) 1971, No 395, pp 195-209 (from RZh--Matematika, No 7, 1972, Abstract No 7V558)

Translation: Problems in the automation of diagnostic test construction for combination automata are considered. A D-algorithm is used for finding sets of input variables controlling the specified fault. An example of using the algorithm for computing the controlling test for an automaton with memory is given.

USSR

UDC 8.74

KAGAN, B. M., MERTUMYAN, I. B., BUZYUK, M. A.

"An Execution of the D-Algorithm in the System for Automation of the Planning and Design of Diagnostic Tests (SAPDT) for Combination Automata"

Tr. Mosk. in-ta inzh. zh.-d. transp. (Works of Moscow Institute of Railroad Transportation Engineers), 1971, vyp. 395, pp 195-209 (from EZh-Kibernetika, No 7, Jul 72, Abstract No 7V556)

Translation: A study was made of the problems of automating the construction of diagnostic tests for combination automata. In finding the sets of input variables controlling the given failure, the D-algorithm is used. An example is presented of the application of the algorithm to calculate the controlling test for an automaton with a memory.

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1/2 034

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--STRUCTURE OF HIGH DENSITY POLYETHYLENE PIPES -U-

AUTHOR--(02)-KAGAN, D.F., POPOVA, L.A.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 32-3

DATE PUBLISHED-----70

K

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MOLECULAR STRUCTURE, POLYETHYLENE, PIPE, MICROPHOTOGRAPHY,
BRITTLE FRACTURE, SPHERULITE, PLASTIC FABRICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0660

STEP NO--UR/0191/70/000/003/0032/0033

CIRC ACCESSION NO--AP0119568

UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SUPRAMOL. STRUCTURE OF HIGH D. POLYETHYLENE (I) PIPES WAS STUDIED BY MICROSCOPIC EXAMN. OF BRITTLE FRACTURES OF I (15 TIMES 15 TIMES 3 MM). MICROPHOTOGRAPHS OF BRITTLE FRACTURES SHOWED THAT THE SPHERULITES WERE ARRANGED IN A CERTAIN DIRECTION DEPENDING ON THE EXTRUSION MOLDING CONDITIONS..

UNCLASSIFIED

USSR

UDC 536.722

SHPIL'RAYN, E. E., KAGAN, D. N., BARKHAMOV, L. S.

"Experimental Study of Thermodynamic Properties of Berillium Oxide in Liquid and Solid Phases"

Teplofizika Vysokikh Temperatur, Vol 9, No 5, 1971, pp 926-928.

Abstract: A mixing method using a calorimeter with an evaporating liquid is used to measure the enthalpy of berillium oxide in liquid and solid phases in the 2,000-3,200°K interval. The material studied was under its own vapor pressure in sealed ampules of tungsten and molybdenum. The results of measurements are used to produce the heat of melting and heat capacity of the liquid phase of berillium oxide, which have not been published previously in the literature.

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USSR

UDC 615.849.19.03:616.6(047)

KRYLOV, V. S. and KAGAN, E. M.

"Lasers and the Outlook for Their Use in Urology"

Moscow, Urologiya i Nefrologiya, No 3, pp 62-66

Abstract: Following a discussion of the construction of lasers, their mechanism of action, effects on various tissues, and advantages over other instruments, the authors conclude from a review the literature, Soviet and foreign, on the use of lasers in various branches of medicine that they have proven themselves to date only in ophthalmology. Although lasers have been successfully used in the treatment of certain tumors, calculi and some other forms of genitourinary pathology, the prospects for their wider employment in urology are largely dependent on further improvement of both the apparatus and the surgical technique.

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Acc. Nr.

AP0045149

Abstracting Service:

CHEMICAL ABST.

K5-76

Ref. Code

UR0138

91294z Effect of the type of vulcanizing agent on the resistance of vulcanized butyl rubber to acetic acid. Kagan, E. R.; Fomina, A. S.; Kokman, F. S. (Sverdlovsk, Filial Nauch. Issled. Inst. Rezin. Prom., Sverdlovsk, USSR). *Kauch. Rezina* 1970, 29(1), 17-19 (Russ). Butyl rubber (I) of mol. wt. 45,000 was vulcanized in the presence of S, Captax, thiuram, and ZnO; S, Altax, p-quinone dioxime (II), and ZnO; or 101K resin (III) and SnCl₂·2H₂O, and the vulcanizates were tested in glacial AcOH at 29-118°. The acid resistance of I vulcanizates at 100° followed the order: III vulcanizates > S vulcanizates > S-II vulcanizates. Max. acid resistance in the free and stressed states at 90-118° was obsd. in III vulcanizates, which were thus recommended for the manuf. of gaskets for heat exchangers operating in contact with AcOH at 50-118°. CKJR

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UDC: 621.974.001.01

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USSR

SMIRNOV, V.S., DANILEVICH, G.F., ALEXANDROV, A.A., KAGAN, E.S., and KRYV, V.I.,
and ZOR'KIN, YE.F.

"Stamping of Thick Two-Layer Steel-Titanium Sheets"

Moscow, Mashinno-Stampevochnoye Proizvodstvo, No 1, Jan 70, pp 10-14

Abstract: The Izorskiy Plant imeni A.A. Zhdanov produces elliptical bottoms with 900-, 1200-, and 1600-mm diameters by the hot stamping of VStSp - VSt-0 sheets 30 mm thick. The bimetallic steel-titanium sheets were obtained by maximum peak rolling. In the hot stamping of bimetallic steel-titanium sheets, the correct selection of billet heating conditions is very important. Improper heating of the steel-titanium bimetal, generally leads to a growth of the transition and fusion zone between the layers and increases its hardness, thus leading to lower final quality. In heating the bimetallic billets, no material titanium oxide reduction should be permitted, owing to the difficulty of removing the gas-oxidation layer. If the billet heating temperature before stamping does not exceed 1050, no noticeable growth of the transition diffusion zone between the layers occurs, and, at the same time, the metal possesses adequate plasticity. Good surface quality is obtained in the stamped products. The technique, conditions, and equipment used in hot stamping of the bottoms are described. Investigations of specimens of the various sections of the bottoms showed that heating and stamping under the conditions given do not worsen the bimetal properties. An increase in the thickness of the

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SMIRNOV, V.S., et al, Kuznetsko-Shtampovochnoye Proizvodstvo, No 1, Jan 80, pp 18-19

transition zone was not observed. The hardness of the transition zone did not change. Metallographic sections established that the thickness of the titanium gas-saturated layer did not exceed 0.05 mm. To obtain high-quality welded seams, it is first necessary to clean the titanium surface with an abrasive disk.

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USSR

UDC 619:616.981.57:595.771

KAGAN, F. I., Professor, State Scientific Control Institute of Veterinary Preparations, and POLYAKOV, V. A., and TYUTIKOV, F. M., Candidates of Veterinary Science, Zonal Scientific Research Institute of Agriculture of the North East

"Isolation of Clostridium perfringens From Black Flies"

Moscow, Veterinariya, No 8, 1971, pp 30-32

Abstract: Flies of the Simuliidae family, which plague deer on the Chukot Peninsula, were investigated for the presence of the pathogen of necrobacillosis of reindeer. Flies collected in 30% glycerol were disinfected and ground with sterile saline solution, and samples of the homogenate were grown on various media. An anaerobic culture with abundant gas formation developed on the third day. Gram-stained smears revealed thick, short rods evenly and deeply stained blue. The rods, identified as *Cl. perfringens*, decomposed sucrose, glucose, maltose, lactose, and other simple sugars, and were proteolytic and hemolytic. Intradermal injections of the culture filtrate into guinea pigs caused local inflammation which, within a few days, terminated with an insignificant necrosis. One of the four mice into which 0.5 ml of the culture solution had been injected intravenously died after 1 day.

1/2

1/3 019 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CHROMATOSPECTROPHOTOMETRIC METHOD FOR THE QUANTITATIVE ESTIMATION
OF THEOPHYLLINE, DIMEDROL, AND EPHEDRINE HYDROCHLORIDE IN DRUGS -U-
AUTHOR-(02)-KIRICHENKO, L.O.; KAGAN, F.YU. K
COUNTRY OF INFO--USSR
SOURCE--FARM. ZH. (KIEV) 1970, 25(1), 42-7
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY
TOPIC TAGS--DRUG ANALYSIS, PROCESSED PLANT PRODUCT, CHROMATOGRAPHY,
SPECTROMETRY

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0722 STEP NO--UR/0491/70/025/001/0042/0047
CIRC ACCESSION NO--AP0131321
UNCLASSIFIED

2/3 019

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131321

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR THE SPECTROPHOTOMETRIC DETN. OF THEOPHYLLINE (I), EPHEDRINE-HCL (II), AND DIMEDROL (III), ABSORPTION MAX. AT 271, 258, AND 259 NM, RESP., IN 95PERCENT ETOH SOLNS. WERE SELECTED WITH THE CORRESPONDING E PRIME/PERCENT SUB1 CM VALUES OF 537.3 PLUS OR MINUS 2.8, 8.91 PLUS OR MINUS 0.07, AND 14.57 PLUS OR MINUS 0.03. BEER'S LAW WAS OBEYED OVER THE CONCN. RANGE 2-15, 100-800, AND 100-600 MUG-ML OF I, II, AND III, RESP. TO DET. I IN MIXTS. CONTG. II AND III, DISSOLVE A SAMPLE CONTG. SIMILAR TO 0.05 G I IN 30-40 ML ETOH, DIL. THE SOLN. FIRST TO 50 ML WITH ETOH AND THEN TO A CONCN. OF 7-12 MUG I-ML, AND MEASURE THE ABSORPTION AT 271 NM. TO DET. II AND III IN MIXTS. CONTG. I THE FOLLOWING PROCEDURE WAS DEVELOPED: EXT. A 0.05 G SAMPLE WITH 2-3 ML ETOH ON A WATER BATH, DIL. THE SOLN. TO 5 ML WITH ETOH, AND FILTER. APPLY SEVERAL 0.1-ML PORTIONS OF THE FILTRATE TO A 20 TIMES 30 CM PLATE COVERED WITH A 0.7 MM THICK AL SUB2 O SUB3 LAYER (AL SUB2 O SUB3 PREPD. BY REFLUXING 1 HR WITH 1PERCENT HCL, WASHING TO NEUTRAL REACTION, AIR DRYING, AND CONDITIONING 1 HR AT 130DEGREES ON THE PLATE) AND DEVELOP FOR 20-30 MIN IN C SUB6 H SUB6-ETOH (9:1) IN A CHAMBER CONTG. ADDNL. 4-5 ML 25PERCENT AQ. NH SUB3. SPRAY THE WET CHROMATOGRAMS WITH A MODIFIED DRAGENOURFF REAGENT TO DETECT I (R SUBF 0.10), II (R SUBF 0.65), AND III (R SUBF 0.88). FROM ANALOGOUS UNSPRAYED CHROMATOGRAMS CUT OUT SPOTS DUE TO II AND III, EXT. THEM SEP. WITH 2.5 ML ETOH, MAKE UP THE EXTS. TO 5 ML WITH ETOH, AND MEASURE THE ABSORPTION AT 258 AND 259 NM, RESP., AGAINST BLANK SOLNS. THE PROCEDURE WAS EMPLOYED FOR DETG. I, II, AND III IN TABLETS.

UNCLASSIFIED

3/3 019

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131321

ABSTRACT/EXTRACT--THE ERROR WAS PLUS OR MINUS 0.19 TO PLUS OR MINUS 0.48,
PLUS OR MINUS 0.32 TO PLUS OR MINUS 1.98, AND PLUS OR MINUS 0.5% TO PLUS
OR MINUS 1.31PERCENT FOR I, II, AND III, RESP. FACILITY: KIEV.
INST. POSTGRAD. TRAINING PHYSICIANS, KIEV, USSR.

UNCLASSIFIED

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7

Foundry

USSR

UDC 669.185.1

NIKIFOROV, B. V., SMOKTYI, V. V., GULIYEV, G. F., ORLOV, V. S.,
SIZENKO, A. S., SAPRONOV, YU. YA., KOLESNIK, V. D., MASLOV,
YU. V., RUDNITSKIY, YA. N., FAYERSHTEYN, A. D., KAGAN, I. I.,
Institute of Ferrous Metallurgy in Dnepropetrovsk and Krivoy
Rog Metallurgical Plant

"Operating Experience With a 55-Ton Converter With Increased
Blowing Rate"

Moscow, Stal', No 3, Mar 70, pp 215-218

Abstract: Metallurgists of the Institute of Ferrous Metallurgy
in Dnepropetrovsk and Krivoy Rog Metallurgical Plants have
developed a technique for smelting in 55-ton converters with
the oxygen feed rate almost doubled from 2.8-3 to 4-6 cu m/t
per minute. A new-type tuyere is used, the nose of which has
two rows of concentrically arranged nozzles with independent
oxygen feed to each row. The increased blowing rate improves
slag formation. The yield of acceptable product and the degree
of improvement in slag formation are determined by the struc-
tural characteristics of the noses. Nose No. 5 was found to be
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USSR

NIKIFOROV, B. V., et al., Stal', No 3, Mar 70, pp 215-218

the most effective of all those tested. The use of a tuyere with nose No. 5 reduces the blowing time by 40 percent and increases converter productivity by 20.5 percent. Steels K St. 5sp, K St. 3sp, 35GS, K St. 5 ps, K St. 3ps, K St.0m, 03kp, 10kp, K2, K3, KExp., K3kdr, T, and Sv-08A were obtained without any decrease in the yield of acceptable product, deterioration of metal quality, or decrease in refractory lining resistance. In newly designed shops provision should be made for a gas circuit capacity and oxygen feed system sufficient for the operation of converters with a blowing rate of 5-6 cu m/(t. min).

2/2

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HOMOATOMIC UNSATURATED SYSTEMS AS LIGANDS. II. COORDINATION OF
SYSTEMS, N SUB2 AND N SUB4 WITH TRANSITION METALS -U-
AUTHOR--(03)-SHUSTOROVICH, YE.M., KAGAN, G.I., KAGAN, G.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 108-20

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROGEN, TRANSITION METAL, CALCULATION, CYCLIC GROUP,
DIMERIZATION, METAL COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1653

STEP NO--UR/0192/70/011/001/0108/0120

CIRC ACCESSION NO--AP0125275

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125275

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A QUANT. EXAMN. OF POSSIBLE FORMS OF THE COORDINATION OF SYSTEMS N SUB2 AND N SUB4 AS A FUNCTION OF THE NO. M OF "EFFECTIVE" VALENCE ELECTRONS OF THE CENTRAL ATOM IN THE COMPLEX WAS CONDUCTED. CALCNS. ARE CARRIED OUT WITHIN THE FRAMEWORK OF THE EXPANDED HUECKEL METHOD IN THE BROAD INTERVAL OF PARAMETERS OF VALENCE ORBITALS OF THE METAL AND WITH VARIATION OF THE INTERNUCLEAR DISTANCES AND VALENCE ANGLES. ENERGETIC DIFFERENCES OF THE CONFIGURATIONS ARE SMALL, WHICH PERMITS EXPECTATION OF THE EXISTENCE OF SOME STABLE ISOMERIC FORMS. RATHER CHARACTERISTIC RELATIONS OF THE RELATIVE ENERGIES OF CONFIGURATION TO THE MAGNITUDE OF M ARE FOUND, ON THE BASIS OF WHICH THE KNOWN EXPTL. DATA IS CONSIDERED AND A SERIES OF PREDICTIONS IS MADE SUCH AS THE MECHANISM OF THE FIXATION OF MOL. N ON COMPLEXES OF LIGHT TRANSITIONAL METALS WHERE THE ADVANTAGE OF THE FORMATION OF DIMERIC AND CYCLIC STRUCTURES IS SHOWN. FACILITY: INST. OSHCH. NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HOMOATOMIC UNSATURATED SYSTEMS AS LIGANDS. II. COORDINATION OF
SYSTEMS, N SUB2 AND N SUB4 WITH TRANSITION METALS -U-
AUTHOR--(03)-SHUSTOROVICH, YE.M., KAGAN, G.I., KAGAN, G.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 108-20

K

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROGEN, TRANSITION METAL, CALCULATION, CYCLIC GROUP,
DIMERIZATION, METAL COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1653

STEP NO--UR/0192/70/011/001/0108/0120

CIRC ACCESSION NO--AP0125275

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125275

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A QUANT. EXAMN. OF POSSIBLE FORMS OF THE COORDINATION OF SYSTEMS N SUB2 AND N SUB4 AS A FUNCTION OF THE NO. M OF "EFFECTIVE" VALENCE ELECTRONS OF THE CENTRAL ATOM IN THE COMPLEX WAS CONDUCTED. CALCNS. ARE CARRIED OUT WITHIN THE FRAMEWORK OF THE EXPANDED HUECKEL METHOD IN THE BROAD INTERVAL OF PARAMETERS OF VALENCE ORBITALS OF THE METAL AND WITH VARIATION OF THE INTERNUCLEAR DISTANCES AND VALENCE ANGLES. ENERGETIC DIFFERENCES OF THE CONFIGURATIONS ARE SMALL, WHICH PERMITS EXPECTATION OF THE EXISTENCE OF SOME STABLE ISOMERIC FORMS. RATHER CHARACTERISTIC RELATIONS OF THE RELATIVE ENERGIES OF CONFIGURATION TO THE MAGNITUDE OF M ARE FOUND, ON THE BASIS OF WHICH THE KNOWN EXPTL. DATA IS CONSIDERED AND A SERIES OF PREDICTIONS IS MADE SUCH AS THE MECHANISM OF THE FIXATION OF MOL. N ON COMPLEXES OF LIGHT TRANSITIONAL METALS WHERE THE ADVANTAGE OF THE FORMATION OF DIMERIC AND CYCLIC STRUCTURES IS SHOWN. FACILITY: INST. OBSHCH. NEORG. KHIM. I.M. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 576.858.74.06

TIMAKOV, V. D., KAGAN, G. Ya.

L-formy bakteriy i semeystvo Mycoplasmataceae v patologii (Bacterial L-Forms and the Part Played by the Mycoplasmataceae Family in Pathological Processes), Moscow, Meditsina, 1973, 392 pp, 2,500 copies printed

Abstract

The monograph summarizes the results of many years of experimentation and observation by the authors and their colleagues and cites data in the literature on the most important division of modern mycoplasmatology: the part played by Mycoplasma and bacterial L-forms in pathological processes.

Part One -- L-Forms of Microorganisms and Their Role in Pathological Processes -- presents a detailed description of the factors and conditions of induction of L-forms in vitro and of their biological characteristics and of the stabilization of L-forms. Reversion of L-forms to bacteria and the biological characteristics of these bacteria are described.

The book provides most complete information on the pathogenic potential of L-forms of microorganisms, on L-form induction, on the persistence of L-forms and their reversion in vivo and in cell culture, on pathogenic factors and pathological responses to experimental infection, and on experimental models of pathological processes involving various species of L-form microorganisms. Of particular interest are materials analyzed by the authors concerning the isolation and identification of bacterial L-forms and other forms

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USSR

TIMAKOV, V. D., KAGAN, G. Ya., *Meditcina*, 1973, 392 pp, 2500 copies printed

of microorganisms devoid of cell walls from the pathological matter of patients with septicemia, septic endocarditis, rheumocarditis, purulent meningitis, inflamed genitourinary tract, and other human diseases.

Part Two -- The Family of Mycoplasmataceae and Its Role in Pathological Processes -- discusses the biological characteristics of Mycoplasmataceae and the comparative biology of bacterial L-forms and mycoplasmas, their phylogeny and taxonomy. Pathogenic potential of mycoplasmas in cell culture and in vivo, pathological reactions and experimental models of pathological processes caused by various mycoplasma species; pathogenesis, clinical aspects, epidemiology, epizootiology of mycoplasma infections (respiratory diseases, diseases of the genitourinary system, etc.) and laboratory diagnosis are presented in detail in this part of the monograph. The possible significance of mycoplasma in leukemia and the problem of combined mycoplasma-viral infection are also analyzed.

The book essentially deals with the clarification of the part played by L-forms and mycoplasma in human and animal pathology.

The monograph is intended for biologists, microbiologists, virologists, medical workers, epidemiologists and veterinarians.

2/10

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USSR

TIMAKOV, V. D., KAGAN, G. Ya., Meditsina, 1973, 392 pp, 2500 copies printed

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TIMAKOV, V. D., KAGAN, G. Ya., *Meditcina*, 1973, 392 pp, 2500 copies printed

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TIMAKOV, V. D., KAGAN, G. Ya., Meditsina, 1973, 392 pp, 2500 copies printed

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USSR

TIMAKOV, V. D., KAGAN, G. Ya., *Meditcina*, 1973, 392 pp, 2500 copies printed

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TIMAKOV, V. D., KAGAN, G. Ya., Meditsina, 1973, 392 pp, 2500 copies printed

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USSR

TIMAKOV, V. D., KAGAN, G. Ya., Meditsina, 1973, 392 pp, 2500 copies printed

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10/10

USSR

UDC 576.858.74.095.38:576.858 (Langat)

SMIRNOVA, T. D., and KAGAN, G. YA., Institute of Epidemiology and Microbiology
imeni Gamaleya, Academy of Medical Sciences USSR

"Effect of Mycoplasma-Viral Infection of a Primary Culture of Chick Embryo
Cells on Interferon Production Induced by Langat Virus"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971,
pp 54-58

Abstract: The purpose of the experiments was to study: (i) the ability of some mycoplasmas to induce interferon production; (ii) the effect of mycoplasmas on the production of virus-induced interferon; (iii) the relationship between the production of virus-induced interferon, the duration of mycoplasma reproduction in a cell culture before it was infected with virus, and the size of the infectious dose of mycoplasmas. None of the Mycoplasma species studied (*M. laidlawii*, *M. gallisepticum*, *M. hominis* I) was able to induce interferon production in a primary culture of chick embryo cells with vesicular stomatitis virus used as an indicator. In a culture infected with both mycoplasmas and Langat virus, the mycoplasmas reproduced actively while inhibiting the reproduction of the virus and synthesis of interferon. The extent to which mycoplasma (all 3 species) depressed the production of virus-induced interferon was directly related to the length of time they reproduced in the cells before the virus was added. The interferon titers decreased
1/2

USSR

SMIRNOVA, T. D., and KAGAN, G. YA., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 54-58

most sharply when the mycoplasma strains were added to the culture 24 hours before the virus. The same phenomenon occurred when the cell cultures were infected with different amounts of mycoplasma. When the cells were treated with the antibiotic tylosine, which inhibits the reproduction of mycoplasmas, the cells regained almost completely their ability to produce interferon,

2/2

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USSR

UDC 616.155.392-036.11-07:[616.157+616.419]-078

KAGAN, G. Ya., GOLOSOVA, T. V., MARTYNOVA, V. A., CHUMAKOVA, L. P., KOPELOVA, Ye. I., and RASKOVA, T. M., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Sciences USSR, and Central Institute of Hematology and Blood Transfusion

"Isolation and Identification of Microbial Agents From Bone Marrow and Blood of Acute Leukemia Patients"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 72-76

Abstract: Four types of microorganisms can be isolated directly from blood and bone marrow of acute leukemia patients. Two of them are streptomicrococci and diphtheria-like microbes unlike the classical streptococci and diphtheroids. They are probably altered variants of the patient's microflora. Microbial agents of the third type are either a phase of induction of the L-form in the patient's body or a phase of bacterial reversion from the L-form. Polymorphic agents of the fourth type resemble the Mycoplasmataceae in several respects and they can be tentatively regarded as "mycoplasma-like" organisms.

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USSR

UDC 669.15:548.526

GOL'TSOV, V. A., KOSHELEVA, V. Yu., KAGAN, G. Ye., ANDREYEVA, L. P.,
AINOV'YEVA, G. P., and GEL'D, P. V., Ural Polytechnical Institute imeni S. M.
Kirov

"Influence of the K-State on Diffusion and Solubility of Hydrogen and Mechanical
Characteristics of Kh2ON80 Alloy"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 957-962

Abstract: The temperature dependence of the modulus of elasticity and internal friction (300-650°), permeability, diffusion, and solubility of hydrogen (350-900°C) in Kh2ON80 alloy was studied. The effects discovered were compared with results produced earlier on the influence of long- and short-range order and the K-state in alloys on the behavior of the hydrogen dissolved in them. It was determined that the modulus of elasticity and internal friction are sensitive to the formation and disruption of the K-state in nichrome. The activation energy for formation of the K-state, calculated on the basis of results of measurements of internal friction, is 42 Kcal/mol. This value agrees well with the activation energy calculated from measurement of hydrogen permeability (about 40 Kcal/mol). It was established that the atomic regroupings resulting

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USSR

GOL'TSOV, V. A., et al, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 957-962

in formation of the K-state sharply change the diffusion coefficient D and the solubility of hydrogen S in Kh20N80 alloy. D decreases significantly, while S increases significantly, as a result of which the hydrogen permeability $p = D \cdot S$ is less sensitive to these changes in the structure of the alloys.

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USSR

UDC 621.791.753.9

TKACHEV, V. N., Doctor of Technical Sciences, YUDIN, I. YE., Engineer, KAGAN, I. L., Engineer, MERKULOV, B. A., Engineer, Rostov Scientific Research Institute of Machinery-Manufacturing Technology

"Welding in Carbon Dioxide With Sv-08 Wire Coated With Aluminum Alloy"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 72, pp 20-22

Abstract: Results are presented of an experimental investigation in welding low-carbon steels in carbon dioxide with Sv-08 wire, 1.6 mm in diameter, coated with aluminum alloy of the composition (in %): 0.52 Mn, 8.18 Si, 1.81 Cu, 0.45 Mg, and 0.24 Zn. The welding process with alitized low-carbon wire in carbon dioxide is characterized by high stability of arc burning. The metal transfer within the 90-170 A/mm² current density range was found to be large. The microstructure of the beaded metal is shown. The mechanical properties and hardness distribution in welds by one- and multi-operation-welding are discussed by reference to 1/2

USSR

TKACHEV, V. N., et al, Svarochnoye Proizvodstvo, No 3, Mar 72,
pp 20-22

tabulated data and diagrams. The mechanical properties of the
welded-on metal were found to be identical to properties of the
metal beaded with Sv-08GS and Sv-08G2S wires. 2 illustrations,
2 tables, 3 bibliographic references

2/2

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USSR

UDC 161-006-02

KRASKOVSKIY, G. V., PORUBOVA, G. M., and KAGAN, L. F.

"Influence of the Immunodepressive Effect of Urethan on Carcinogenesis in Pulmonary Isotransplants in Mice"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 1, 1971, pp 112-113

Abstract: Urethan in a dose of one milligram per gram of body weight (mg/g) was intraperitoneally administered to strain AF male mice 2-3 months old twice with an interval of 48 hours between injections. Seventy-two hours later, the animals were intraperitoneally immunized with doses of $100 \cdot 10^6$ of ram erythrocytes. The control mice were given only ram erythrocytes. Pulmonary tissue sections of intact mice and mice given urethan were used as transplants. Five months after the administration of urethan, the transplants were extracted from the animals, fixed in a 10% solution of formalin, stained with hematoxylin eosin, and examined. It was found that urethan has a pronounced immunodepressive effect, manifested by a 31% decrease in the

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USSR

KRASKOVSKIY, G. V. et al., Izvestiya Akademii Nauk BSSR,
Seriya Biologicheskikh Nauk, No 1, 1971, pp 112-113

number of hemolysin-producing cells in the spleen. It was established also that urethan administered to mouse recipients 72 hr before isotransplantation increases by 92.9% the frequency with which adenomas develop in the pulmonary transplants of the donors given the carcinogen, and by six times the frequency of development of adenomas in the pulmonary transplants of intact donors.

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USSR

UDC 532.542

KAGAN, L. I.,

"A New Formula for the Coefficient of Hydraulic Friction Drag"

Otopleniye, Ventilyatsiya i Stroit. Teplofiz. Resp. Mezhd. Sb. (Heating, Ventilation, and Structural Thermophysics. Republic Interdepartmental Collection of Works), No 1, 1971, pp 119-125 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B585, Author's Abstract)

Translation: For the coefficient of hydraulic friction drag during the movement of a liquid in pipes a generalized formula is obtained on the basis of the processing of experimental data of various authors on an electronic computer:

$$\lambda = \frac{0.28}{\left(\lg \frac{5.5d}{K_s + 55 \frac{d}{R}} \right)^2}$$

The formula is suitable for all the zones of a turbulent regime of movement, has a sufficiently simple structure and, with respect to exactness, is not inferior to separate formulas for different zones of a turbulent regime of movement. Twelve references.

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= 61 =

KAGAN, M. B.

Semiconductor



DEPARTMENT OF THE ARMY
US ARMY POSITION SCIENCE AND TECHNOLOGY CENTER
40 EIGHTH STREET NE
CHARLOTTESVILLE, VIRGINIA 22911

In Reply Refer to:
FORM 23 (207-7)
DIA Task No. IT003301

Date: 2 January 1971

ENGLISH TITLE: Investigation of Photoelectric Characteristics of Gallium Arsenide Solar Cells Over a Wide Range of Change in Light Flux

TRANSLATION

Semiconductors/solar cells
A-2816
D-627193

AUTHOR: *Kagan, M. B. and
Kuznetsov, T. L.*
SOURCE: *Gelotekhnika, No. 2, 1971, TRANSLATOR: ACST, K-2601*
P. 12-21
LANGUAGE: Russian
COUNTRY: Russia

Approved for public release. Distribution unlimited.

FIGURE
FD71/001023/E07

USSR

UDC 621.382.2

GUTKIN, A. A., KAGAN, M. B., LEBEDEV, A. A., KHOLEV, B. A., SHAPOSHENIKOVA, T. A.

"Nonadditive Photoeffect During Combined Excitation in GaAs p-i-n-Structures"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 237-241

Abstract: Results are presented from studying the photoeffect during combined excitation in p-i-n-structures of GaAs alloyed with Cr. Light from the admixture and the characteristic absorption bands was used at room temperature. The study revealed mutual signal amplification. With constant illumination, the relative increase in the photocurrent $I_k / I_{ad} + I_{char}$ reaches 10, and with modulation of one of the light fluxes, the variable signal component can increase by 100 times and more. The effect is observed for $h\nu \geq 0.7$ electron volts. In the admixture region the photocurrent depends linearly on the illumination, and in the characteristic region it depends superlinearly. During combined excitation, the lux-ampere characteristic is sublinear. A qualitative model was investigated which explains the observed amplification of the photoresponse by an increase in the effective lifetime in the quasineutral region with illumination of the diode by admixture light. The experimental results agree well with the proposed model. The amplification of the photoresponse is not specific to the given diodes, but it is possible if the width of the

1/2

USSR

GUTKIN, A. A., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 237-241

quasineutral regions between the illuminated surface and the volumetric charge surface is greater than L_D (the length of the diffusion shift of the minority current carriers).

2/2

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1/2 037 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SOLAR CELLS BASED ON EPITAXIAL GAAS FILMS -U-
AUTHUR--(03)-KAGAN, M.B., KOROLEVA, N.S., NULLER, T.A. K
CCUNTRY OF INFO--USSR
SOURCE--GELIOTEKHNKA, NO. 2, 1970, P. 28-31. 13 REFS.
DATE PUBLISHED--70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS, ENERGY
CONVERSION (ICN-PROPULSIVE)
TOPIC TAGS--SOLAR CELL, EPITAXIAL PN JUNCTION, GALLIUM ARSENIDE PN
JUNCTION, THIN FILM CIRCUIT, CRYSTAL DEFECT

CCNTRL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1846 STEP NO--UR/0377/70/000/002/0028/0031
CIRC ACCESSION NO--AP0130676
UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0130676

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. INVESTIGATION OF THE MAIN PROPERTIES OF SOLAR CELLS OBTAINED BY CREATING HOMOGENEOUS DIFFUSION P-N JUNCTIONS IN AN EPITAXIAL FILM OF GALLIUM ARSENIDE GROWN ON A GERMANIUM SINGLE CRYSTAL SUBSTRATE. IT IS SHOWN THAT THE DIFFUSION JUNCTIONS THUS OBTAINED EXHIBIT THE PROPERTIES OF HOMOGENEOUS DIFFUSION P-N JUNCTIONS IN SINGLE CRYSTAL GALLIUM ARSENIDE. ALTHOUGH DEFECTS LEADING TO SOMEWHAT LARGER LEAKAGE CURRENTS THAN ARE CHARACTERISTIC OF SINGLE CRYSTAL P-N JUNCTIONS ARE FOUND TO BE PRESENT IN THE BULK OF THESE FILM JUNCTIONS, IT IS CONCLUDED THAT THESE DEFECTS CAN BE PREVENTED BY PREDIFFUSION, LOW TEMPERATURE ANNEALING OF THE FILMS. FACILITY: VSESOUZNYI NAUCHNO-ISSLEDOVATEL'SKII INSTITUT ISTOCHNIKOV TOKA, KISHINEV, MOLDAVIAN SSR.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THE EFFECT OF THE LAW OF MOLECULAR REFLECTION ON THE AERODYNAMIC
CHARACTERISTICS OF BODIES IN A RAREFIED GAS FLOW -U-
AUTHOR--KAGAN, M.L.

COUNTRY OF INFO--USSR

SOURCE--MOSKOVSKII UNIVERSITET, VESTNIK, SERIIA I-MATEMATIKA, MEKHANIKA,
VOL. 25, JAN.-FEB. 1970, P. 70-75
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS FLOW, RAREFIED GAS, FLAT PLATE, AERODYNAMIC FORCE,
MOLECULAR INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1983/1631

STEP NO--UR/0055/70/025/000/0070/0075

CIRC ACCESSION NO--AP0054477

UNCLASSIFIED

2/2 '038

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--A00054477

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MODEL PROBLEM OF A RAREFIED GAS FLOW PAST A PLATE IS SOLVED IN THE CASE WHEN THE LAW GOVERNING THE REFLECTION OF MOLECULES VARIES CONTINUOUSLY FROM DIFFUSIVE TO BEAM ONE IN THE DIRECTION OF THE NORMAL TO THE SURFACE. FACILITY:
MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

KAGAN M.S.

Philosophy

31 Mar 71

19

PROCESSED

25. USDP

AC. PERSONNEL

22. Technical Files Section

31 Apr 71

KAGAN, M.S., Doctor of Philosophical Sciences

"System Analysis of Human Activity"

Moscow, Philosophical Institute, No 5, 1970, pp. 42-52

Abstract: According to Marx and Engels, man is a complex system in which material and spiritual components, relations to nature and relations to each other are combined and interact. Labor has played a primary defining role in this system, but the form does not as a whole reduce only to labor activity. Thus in this paper an effort is made to construct a theoretical model of the given system, that is, define and explicate its necessary and sufficient parts for the system itself to have occurred, sustained historical stability and become capable of functioning normally. A theoretical copy of efforts by Soviet philosophers to define the structure of man is presented, including up to now efforts. The conclusion is drawn that human activity, on the one hand, activity of the subject directed either at the object or the environment, is what it is directed toward, and it can be perceived of spiritual, that is, having possibilities arising from this conclusion are discussed in detail. From the discussion it is concluded that the empirical material of human activity comprise the presence of four mediations which can be denoted purely formally. The value of 1/2

USSR

KAGAN, M. S., Philosophical Institute, No 5, 1970, pp. 42-52

This deduction is that the four types of activity investigated in the article do not constitute a random act, not a system which has structure and from its components the significance of relations necessary and sufficient for understanding human activity in its entirety. The closed chain formed by the four types of activity based on subject-object relations is disrupted and described. The following list of realization of types of activity of the subject in the set of specific forms of its activity are formulated and discussed: 1) appearance of each type of activity in a number of different forms; 2) mutual support of certain types of activity by others during their realization in specific forms of activity; 3) reciprocal reflection of the structure of human activity by the structure of nature. The author reflects his consideration of the structure of activity as a function "vector" of life -- as a type of control experiment also permits the validity of the system analysis of the structure of human activity to be checked.

2/2

USSR

UDC 621.762.2:669.22

CHIZHIK, S. P., SHTAYNBERG, A. N., KAGAN, N. M., KHASIN, E. I., SHELEST, A. YE.,
DMITRIYENKO, V. YE., and LAYNER, D. I.

"Method of Producing Silver Granules"

USSR Authors' Certificate No 267079, Cl. 40b, 1/04; 31 b³, 9/00, (B 22f), filed
27 Apr 67, published 16 Jul 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract
No 36404P by S. Krivonsova)

Translation: An alloy containing up to 50% Ag, the rest Al, is rolled into
strip and treated in alkali. In order to produce granules with up to 0.5%
Al content, the initial alloy is rolled into strip up to 0.5-5 mm in thick-
ness, and before alkali treatment is heated to 540-560^o, held for 1.5 hr in
an inert atmosphere until a solid solution of Ag in Al forms, and is hardened.

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PREPARATION OF RANEY SILVER FROM A SILVER CALCIUM ALLOY -U-
AUTHOR-(04)-LEBEDEVA, YE.N., KARONIK, V.V., CHERKASHINA, N.V., KAGAN, N.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 763-7 *K*
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--METAL CATALYST, SILVER, ETHYLENE, OXIDATION, ETHYLENE OXIDE,
SILVER ALLOY, CALCIUM ALLOY, PHASE ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0968 STEP NO--UR/0080/70/043/004/0763/0767
CIRC ACCESSION NO--AP0131553
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131553

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A AG-CA (RANEY AG) ALLOY, USED AS A CATALYST IN OXIDN.-REDN. REACTIONS SUCH AS THE CONVERSION OF ETHYLENE TO ETHYLENE OXIDE, WAS PREPD. BY ALLOYING THE COMPONENTS IN AN OPEN CRUCIBLE IN AN AR ATM. THE ALLOY CONTAINED 40 AT. PERCENT CA IN THE CHARGE, AND SOMEWHAT LESS IN THE PRODUCT. PHASE ANAL. OF THE ALLOY SHOWED THE PRESENCE OF THE PHASES AGCA, AG,CA, AG, AND CAO. DIFFRACTION DATA ARE GIVEN FOR ALLOY OXIDN. IN AIR AT 100-600DEGREES, AND IN WATER VAPOR AT 200-500DEGREES.

UNCLASSIFIED

USSR

ZHURAVLEVA, Ye. B., KAGAN, R. L., POLYAK, I. I.

"Calculation of Autocorrelation and Mutual Correlation Functions on the Basis of Several Realizations of a Random Process"

Tr. Gl. Geofiz. Observ. [Works of Main Geophysical Observatory], No 289, 1971, pp 20-28, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V567 by the author's).

Translation: An algorithm and program (in TA-1M translator input language) are presented for calculation of the autocorrelation (covariation) and mutual correlation (covariation) functions.

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Coatings

USSR

LUK'YANOV, V. M., ZEMSKOV, G. V., KOGAN, R. L., and VIDERMAN, V. S.

"Oxidation of Diffusion Coatings on a Niobium Alloy"

Kiev, Metallofizika, No 32, 1970, pp 127-130

Translation: This study presents the results of electron, X-ray diffraction, and microstructural analysis of multicomponent coatings on the VN-2A niobium alloy after their oxidation at the temperature 700-1200°C for 0.5-100 hours. The sequence of the formation of oxides on the surface of the (Cr + Ti) - Si coating was studied. Niobium oxide NbO appears at the first stage, followed by the oxides TiO₂, SiO₂, and Cr₂O₃. Further oxidation results in an increased concentration of Cr₂O₃ in the oxide film. In case of a prolonged oxidation of a coating at 1100°C for 100 hours the oxide film contains SiO₂ with an inclusion of oxides with a structure and parameters of TiO₂.

Bibliography: 5 entries. Illustrations: 2. Tables: 1.

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USSR

UDC 66.061.52

KAGAN, S. Z., KOVALEV, YU. N., and ZAKHARYCHEV, A. P., Moscow Chemical Technological Institute Imeni D. I. Mendeleev

"The Phase Contact Area in Drop Formation"

Moscow, Teoreticheskiye Osnovy Khimicheskoy Tekhnologii, Vol 6, No 6, Nov-Dec 72, pp 924-927

Abstract: The goal of this investigation was to determine experimentally the relationship between the surface of drops being formed at different time periods and the volume and radius of the cones. Also the flow velocity was determined at which the drop formation could be considered as a quasistationary process controlled by the equilibrium between the forces of interphase stress and of the weight forces. The volume of a drop can be described by the equation $v = v_0 + W_t$, where $0 \leq t \leq \tau$; it depends on the consumption of the liquid W and the volume of liquid remaining at the cones during the break-away of the previous drop. The flow process can be considered as quasistationary up to Weber values of 0.2-0.4. With higher Weber numbers the liquid volume remaining on the cone begins to be directly related to the flow rate. In that case determination of the volume on surface of the drops being formed can be carried out only from the equations of the movement.

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CSO: 1841 -W

- END -

USSR

Radar

UDC: 621.396.961

KAGAN, V. G., KUSHAT, T. S., GOLDOBIN, V. I.

"Informational Evaluation of Radiotechnical Systems in Accounting for Probabilistic Characteristics"

Tr. Novosib. elektrotekhn. in-ta (Works of the Novosibirsk Electrical Engineering Institute), 1970, vyp. 2., kn. 1, pp 48-57 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 668)

Translation: The authors introduce the concept of informativeness for evaluating the correspondence between the assumed and true coordinates of the target in a radar detection and tracking system. An informativeness formula is given in terms of the probability of detecting a signal against a background of noise, the probability of a false alarm, the probability of determining the target range with a given accuracy, and the probability of determining the angular coordinates with a given accuracy. In view of the complexity of the resultant expressions, simplifications must be made with the use of approximations or an appropriate computational algorithm. Bibliography of four titles. A. M.

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USSR

UDC: 6.01

KAGAN, V. K.

"On the Fundamentals of the Information Theory of Vision"

Probl. bioniki. Resp. mekhrad. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, Vol. 6, pp 3-16 (from RSK-Kibernetika, No 1, Jan 71, Abstract No IV1109)

Translation: An investigation is made of the possibilities of describing the operation of vision by means of existing mathematical models, and evaluations are made of the amount of information processed by the visual analyzer upon perception of complex visual patterns. Bibliography of 11 titles. Author's abstract.

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Acoustics

USSR

UDC 534

ANTSYFEROV, M. S., ANTSYTEROVA, N. G., KAGAN, YA. YA.

"Seismic-Acoustical Studies and the Problem of Predicting Dynamic Phenomena"

Seismoakusticheskiye issledovaniya i problema prognoza dinamicheskikh yavleniy
(cf. English above), Moscow, "Nauka", 1971, 136 pp, ill., 50 k (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh461 K)

Translation: The monograph covers the theoretical foundations of the seismic-acoustical method of predicting dynamic phenomena in mining. The method has been widely used in the Donbass. Seismic-acoustical observations keep track of crack formation in the coal layer under the action of pressure. An intensification of the process of crack formation indicates an unstable state of the layer and a growing danger of dynamic phenomena. This makes it possible to carry out seismic-acoustical predictions. Seismic-acoustical equipment is described in the monograph and the physical foundations and the theory of the method are given. Crack formation is considered as a random process, and the statistical laws of this process and their use in the practice of continuous prediction of the danger of dynamic phenomena are described. Analogies between seismic-acoustical processes accompanying dynamic phenomena in mines and earth-

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USSR

ANTSYFEROV, M. S., et al, Seysmoakusticheskiye issledovaniya i problema prognoza dinamicheskikh yavleniy, Moscow, "Nauka", 1971, 136 pp, ill., 50 k

quakes are discussed, and the potentialities of seismic-acoustical prediction of local earthquakes are shown. 102 ref. Resume.

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PHYSICS
Acoustics

USSR

UDC 534

ANTSYFEROV, M. S., ANTSYFEROVA, N. G., KAGAN, YA. YA.

"Seismic-Acoustical Studies and the Problem of Predicting Dynamic Phenomena"

Seismoakusticheskiye issledovaniya i problema prognoza dinamicheskikh yavleniy
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USSR

ANTSIFYEROV, M. S., et al, Seismoakusticheskiye issledovaniya i problema prognoza dinamicheskikh yavleniy, Moscow, "Mauka", 1971, 136 pp, ill., 50 k
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