

USSR

KOLACHEV, B. A., et al., Metallovedeniye i Termicheskaya Obrabotka Tsvetnykh Metallov i Splavov (Metallurgy and Heat Treatment of Nonferrous Metals and Alloys), Izdatel'stvo Metallurgiya, Moscow, 1972, 480 pp

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USSR

UDC 669.395,548.4:620.179:620.187.24.5

KOLACHEV, B. S., MAL'KOV, and SEDOV, V. I., Moscow Aviation Technology Institute

"Effect of Hydrogen on the Micromechanism of Failure in OT4 and OT4-1 Titanium Alloys"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, 1973, pp 59-64

Abstract: The effect of hydrogen in the failure of OT4 and OT4-1 titanium alloys was studied by methods of electron microscopy, microfractography, and electrical resistance measurement. Sheet samples, 3 mm thick, were used which had the following chemical composition:

	Al	Mn	Fe	Si	C	N ₂	O ₂	H ₂
OT4	1.37	1.13	0.13	0.12	0.06	0.004	0.083	0.006
OT4-1	2.95	1.41	0.14	0.11	0.07	0.0046	0.081	0.0064

Alloy structure in the annealed condition was approximately 95% alpha-phase and 5% beta-phase, and vacuum annealing was used to reduce and vary hydrogen content. Electrical resistance was measured for alloy OT4 containing 0.002% H₂, subjected to a stress of 85 kg/mm². The relationship of resistance to time-to-failure showed that the alloy went through four stages to failure. These

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KOLACHEV, B. A., et al., Fiziko-Khimicheskaya Mekhanika Materialov, No 3, 1973, pp 59-64

stages were the incubation period (constant electrical resistance), stage of defect accumulation and initial fatigue cracks (smooth change of resistance), crack propagation (spastic resistance), and catastrophic crack development leading to failure. It is possible that stage three is a continuation of stage two. From the obtained data it was possible to conclude that increased hydrogen content in OT4-1 alloy does not change the stages of failure, but only its duration. The negative effect of hydrogen on long-time strength only starts upon reaching specified concentrations. When there is a hydrogen content of 0.012% in the alloy, plastic deformation occurs by twinning of the crystals. Four figures, one table, fourteen bibliographic references.

2/2

USSR

UDC 621.318.435:621.391.822

KOLACHEVSKAYA, V. V., KOLACHEVSKIY, N. N., ROZHDESTVENSKIY, V. V., STRYGIN,
L. V.

"Spectral Distribution of Magnetic Noise Close to Harmonics of the Frequency
of Magnetic Alternation"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1211-1215

Abstract: The authors consider one of the possible mechanisms which may result in flicker of susceptibility. It is assumed that a specimen is placed in an external sinusoidal field with amplitude H_0 and magnetic alternation in some special cycle. In addition, a random field $h(t)$ is applied to the specimen with zero average value. Phenomenologically, this field describes additive magnetic noises such as Barkhausen noise, external fields of random type, etc. It is assumed that the interval of correlation of additive noise is much shorter than the period of magnetic alternation, and that its distribution function at fairly large h falls as $\exp(-h^m)$. It is shown that such an "inoculation" additive noise can generate flicker noise in susceptibility. The theory is experimentally verified by a study of the spectral distribution of excess magnetic noise in thin Permalloy films. The proposed theory can also be used to explain the experimental results of works where excess noise has been observed at a magnetic alternation frequency of several megahertz.

1/1

KOLACHEVSKIY, N.N.

magnetic noises

NEW BOOKS OF "NARVA" PUBLISHERS HOUSE

[Listed Moscow; Younger Academy Press, Russian, Vol 41, No 9, September 1971, pp 100-101]

PHYSICAL, MATHEMATICAL, and Technical Sciences

Автоматическая обработка результатов измерений в геодезии. Методы измерения и обработка результатов измерений в геодезии. Издание 2-е. М.: Стройиздат, 1971, 114 страниц, 9930 копий, 15 к.

Автоматическая обработка результатов измерений в геодезии. Методы измерения и обработка результатов измерений в геодезии. Издание 2-е. М.: Стройиздат, 1971, 114 страниц, 9930 копий, 15 к.

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Автоматическая обработка результатов измерений в геодезии. Методы измерения и обработка результатов измерений в геодезии. Издание 2-е. М.: Стройиздат, 1971, 114 страниц, 9930 копий, 15 к.

20RS 54565
20 Nov 71

USSR

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KOLACHEVSKAYA, V. V., KOLACHEVSKIY, N. N., ROZHDESTVENSKIY, V. V., STRYGIN,
L. V.

"Spectral Distribution of Magnetic Noise Close to Harmonics of the Frequency
of Magnetic Alternation"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1211-1215

Abstract: The authors consider one of the possible mechanisms which may result in flicker of susceptibility. It is assumed that a specimen is placed in an external sinusoidal field with amplitude H_0 and magnetic alternation in some special cycle. In addition, a random field $h(t)$ is applied to the specimen with zero average value. Phenomenologically, this field describes additive magnetic noises such as Barkhausen noise, external fields of random type, etc. It is assumed that the interval of correlation of additive noise is much shorter than the period of magnetic alternation, and that its distribution function at fairly large h falls as $\exp(-h^m)$. It is shown that such an "inoculation" additive noise can generate flicker noise in susceptibility. The theory is experimentally verified by a study of the spectral distribution of excess magnetic noise in thin Permalloy films. The proposed theory can also be used to explain the experimental results of works where excess noise has been observed at a magnetic alternation frequency of several megahertz.
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USSR

UDC: 019.941:63

KOLAROVA, M., People's Republic of Bulgaria

"Principal World Sources of Agricultural Literature (Secondary Publications)"

Moscow, Nauchno-Tekhnicheskaya Informatsiya, Ser. 1, Organizatsiya i Metodika Informatsionnoy Raboty, No 10, 1972, pp 21-25

Abstract: The article is a brief discussion of the information explosion in agriculture and what is being done about it. The author emphasizes the information system of Bulgaria and its heavy reliance on secondary sources of information (bibliographies, abstract journals, etc.). Three bibliographic reference works are discussed (Систематический указатель статей в иностранных журналах. Сельское хозяйство [Systematic Index of Articles in Foreign Journals. Agriculture], Сельскохозяйственная литература СССР [Soviet Agricultural Literature] and "Bibliography of Agriculture"), as well as abstract journals printed by the Soviet Union, Britain, France, and East Germany.

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USSR

UDC 621.371.029.6

AMANOV, S. A., KOLARZH, V. V., CHEN, B. B., KADYROV, I., and
RAIMKULOVA, K.

"Statistical Characteristics of UHF Signal Distribution Over Open
Land and Mountain Waterways"

Moscow, V sb. X Vses. konf. po rasprostr. radioyoln. Tezisy dokl.
Sekts. 2 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 2--collection of works) "Nauka," 1972
pp 13-17 (from RZh--Radiotekhnika, No 10, 1972, Abstract No
10A352)

Translation: Experimental integral functions are given for the
distribution of average-time values of the signal attenuation fac-
tor, together with results of an investigation into the daily
course of the fading range during the various months for land and
mountain waterways in the rayon of Lake Issyk-Kul'. Two illustra-
tions, bibliography of two. A. L.

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USSR

UDC 612:018.577.49

KOLPAKOV, M. G., KOLAYEVA, S. G., and SHARUROVA, G. S., Institute of Physiology, Siberian Department, Academy of Sciences USSR, Novosibirsk

"Seasonal Rhythms in the Functioning of the Endocrine System in Hibernating Mammals"

Moscow, Uspekhi Fiziologicheskikh Nauk, Vol 3, No 1, 1972, pp 52-68

Abstract: The article reviews 72 publications (dating from 1926 to 1970) concerning seasonal fluctuations and interrelationships of endocrine glands in hibernating hedgehogs, hamsters, squirrels, gophers, jerboas, and other mammals. During the waking season, the endocrine system of these animals is organized in the same pattern as that of other mammals. During the hibernating season, the hypothalamus and the hypophysis lose some of their master control function, while the autonomy of other glands, especially the pancreas, parathyroids, and adrenal cortex, increases. Typically, the secretion of cortisone and insulin exceeds the output of the other hormones produced by the adrenal cortex and pancreas. The year is divided into three periods with several phases: 1) homeothermic period (Apr-Aug) with a) phase of explosive endocrine activity (Apr-May), b) phase of rapid decrease (Jun), and c) phase of stabilization (Jul-Aug); 2) transitory period (Sep-Oct); and 3) hibernation period (Oct-Mar)

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KOLPAKOV, M. G., et al., Uspekhi Fiziclogicheskikh Nauk, Vol 3, No 1, 1972,
pp 52-68

with a) phase of initial sleep (Oct-Nov), b) phase of deep sleep (Dec-Jan),
and c) phase of preparation for arousal (Feb-Mar).

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USSR

UDC 616.992.282-022.14:616.988

KOLB, E. K., Military-Medical Academy imeni Kirov, Leningrad

"Course of a Viral Infection Against a Background of Candidiasis"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1971,
pp 143-144

Abstract: Mice were injected intravenously with a strain of *Candida albicans* and four days later inoculated with influenza virus. Other animals were infected either with the fungus alone or with influenza virus alone. The course of the disease was much more severe in the animals suffering from both candidiasis and influenza and their survival time was shorter. Study of the dynamics of accumulation of influenza virus in lung tissue showed that its content was significantly higher in the animals with the two diseases than in those with influenza or candidiasis alone, an indication that candidiasis aggravated the viral infection even in the absence of pronounced clinical symptoms. Changes were also observed in the properdin and lysozyme levels in mice with the combined infections. The decrease in properdin level was accompanied by a compensatory increase in lysozyme activity.

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Pharmacology and Toxicology

USSR

UDC: 543.545+615.843

BANDARIN, V. A., KOLB, V. G., and ULASHCHIK, V. S.

"Studying the Effect of Biologically Active Materials on the Permeability of Skin"

Minsk, Doklady Akademii nauk BSSR, No 3, 1973, pp 283-285

Abstract: Results are given of an investigation into the effect of several bioactive compounds on the permeability of human skin. For this study, the ionophoresis method was used in the way specified in an earlier paper (V. G. Kolb, Avtoref. kand. kiss., Minsk, 1959) with the standard mode of 0.3 mA/cm² current density and an operating period of 20 minutes. A formula is given for the coefficient of ionophoretic skin permeability, a factor characterizing the degree of penetration of material from the outside medium into the organism in terms of the quantity of electricity, the equivalent of the introduced ion, and the weight of the admitted material. Tables are given of the effect of hyaluronidase and urotropin on this factor and the changes in the factor wrought by acetylcholine, novocain, and chlorethane. It is found that the effect of biologically active materials on the factor depends on the pharmacological activity of the material and the physical-chemical parameters of the introduced ions.

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USSR

KOLB, Z. K., Chair of Microbiology, Military Medical Academy imeni S. M. Kirov

"Development of Experimental Influenza Complicated by Candidiasis"

Moscow, Voprosy Virusologii, No 5, 1971, p 625

Abstract: White mice were inoculated intranasally with influenza type A1 virus (strain 3711) in a dose of 0.1 LD₅₀ and in the lungs with fungi in a dose of 120 million cells in 0.2 ml. Infection of the animals with *Candida albicans* was found to have an unfavorable effect on the course of experimental influenza. The animals' growth was stunted, they showed distinct symptoms of disease and suffered a high death rate. Influenza virus reproduced rapidly in lung tissue and there was widespread and prolonged seeding of the lungs and other parenchymatous organs with the fungi. Under conditions of combined infection such potentially pathogenic agents as *Candida albicans* tend to become pathogenic.

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UDC 541.15'+541.183.03

USSR

GOLUBEV, V. B., ~~KOLBANOVSKIY, YU. A.~~, LEBEDEV, S. N., MASTEROVA, M. N., POLAK, L. S., Institute of Petrochemical Synthesis imeni A. V. Topchiyev, Moscow, Academy of Sciences USSR

"Process Kinetics of the Annealing of Adsorption and Paramagnetic Centers Generated by Radiation on the Surface of γ -Al₂O₃, as Studied by the Monte Carlo Method"

Moscow, Khimiya Vysokikh Energii, Vol 4, No 5, Sep-Oct 70, pp 439-442

Abstract: The Monte Carlo method was used for a kinetic study of the annealing of the adsorption and paramagnetic centers formed by gamma radiation on the surface of γ -Al₂O₃. The following initial data were used for computer-aided analysis of the experimental data by the Monte Carlo method: 1) kinetic curves for the thermal annealing of the adsorption and paramagnetic centers; 2) dependence of the number of radiation-induced defects on annealing temperature for the paramagnetic and adsorption centers. The trap depth distribution was assumed to be exponential. It was 1/2

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GOLUBEV, V. B., et al, Khimiya Vysokikh Energiy, Vol 4, No 5,
Sep-Oct 70, pp 439-442

found that the minimum trap depth does not exceed 4 kT. The total kinetic annealing curve is the result of the superimposition of a large number of exponents on each other, each corresponding to traps with a different depth in the forbidden gap. The annealing kinetics of the adsorption and paramagnetic centers were found to be the same, which argues in favor of the authors' theory that the centers are identical.

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1/2 010

UNCLASSIFIED

K- PROCESSING DATE--23OCT70

TITLE--RECOVERY OF SULFURIC ACID BY HIGH TEMPERATURE DECOMPOSITION OF

SPENT ACID -U-

AUTHOR--(05)-SISIN, M.F., LAKIZA, S.M., MANAYEV, A.KH., ~~KOLBASIN, A.YA.,~~

LANGE, S.A.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB, NEFTEKHIM. (MOSCOW) 1970, (1), 23-5

DATE PUBLISHED-----70

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

TOPIC TAGS--SULFURIC ACID, THERMAL DECOMPOSITION, WASTE TREATMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1819

STEP NO--UR/0318/70/000/001/0023/0025

CIRC ACCESSION NO--AP0118763

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 010

CIRC ACCESSION NO--AP0118783

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

ABSTRACT. SPENT H SUB2 SO SUB4 FROM
DITOLYLMETHANE MANUF. AND ALKYLATION WAS DECOMPO. IN A FURNACE AT
1200DEGREES, WHERE H SUB2 S WAS BURNT. THE TEMP. IN THE FURNACE WAS
CONTROLLED BY ENDOTHERMIC DECOMPN. OF THE ACID, THE LATTER BEING FED IN
DETD. AMTS. THE METHOD WAS RECOMMENDED FOR THE PRODUCTION OF H SUB2 SO
SUB4 BY DRY CATALYSIS. THE DECOMPN. CONDITIONS ARE TABULATED AND A FLOW
SHEET IS PRESENTED

FACILITY: SALAVAT. NKHK, SALAYANT, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23DCT70
TITLE--REMOVAL OF COMBUSTIBLES AND SULFUR COMPOUNDS FROM CARBON DIOXIDE
-U-
AUTHOR--(02)-NEUPOKOYEV, G.I., KOLBASIN, A.YA. *K*
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (1), 31-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CARBON DIOXIDE, UREA SYNTHESIS, SULFUR, CHEMICAL PURIFICATION,
CATALYST/(U)481 COPPER CATALYST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1818 STEP NO--UR/0318/70/000/001/0031/0033
CIRC ACCESSION NO--AP0118782
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 011

CIRC ACCESSION NO--AP0118782
ABSTRACT/EXTRACT--(U) GP-0-

SMALLER THAN OR EQUAL TO 1 MG S COMPS.-M PRIME3 AND SMALLER THAN OR
EQUAL TO 0.01 VOL. PERCENT COMBUSTIBLE COMPS. IN 1 STEP AT 10-12 ATM
AND SPACE VELOCITY SMALLER THAN OR EQUAL TO 1000 HR PRIME NEGATIVE1. THE
PROCESS INCLUDED A FURNACE TO HEAT THE GASES TO 320DEGREES AND A REACTOR
WITH CATALYST 481-CU, WHICH HAS A CALCD. LIFE OF 1.5-2.0 YEARS WITHOUT
REGENERATION. THE PURIFIED CO SUB2 WAS SUITABLE FOR UREA SYNTHESIS.
FACILITY: SALAVAT. NKHK, SALAVAT, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

1/2 009

TITLE--EFFECT OF COPPER ON THE FERMENTATIVE CONVERSION OF MOLASSES TO CITRIC ACID -U-

AUTHOR--(05)--PEGGSEYEV, V.F., ALEKSEYEV, I.N., KORUTCHENKO, A.V., KULBASKIKOVA, A.N., SVIRIDOVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--KHEBCEK. KONDITER. FROM. 1970, 14(1), 33-5

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SUCROSE, FERMENTATION, ASPERGILLUS, CITRIC ACID, COPPER SULFATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY KEEL/FRAME--3004/0039

STEP NO--UR/0344/70/014/001/0033/0035

CIRC ACCESSION NO--AP0131244

UNCLASSIFIED

2/2 CC9

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131244

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

ABSTRACT. LAB. EXPTS., VERIFIED AT THE INDUSTRIAL SCALE, REVEALED THAT ADDN. OF CuSO_4 AT CONCNS. CORRESPONDING TO 4-7 MG-100 G MOLASSES RESULTED IN BETTER FERMENTATIVE CONVERSION OF THE LATTER TO CITRIC ACID (4-23PERCENT HIGHER YIELDS) BY *ASPERGILLUS NIGER* (SURFACE CULTURE).

UNCLASSIFIED

USSR

UDC 621.396.666(088.8)

GOLUBEV, A. D., KOLBASOV, G. V.

"Amplifier with Automatic Gain Control"

USSR Author's Certificate No 253169, Filed 6 Jul 67, Published 24 Feb 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D136P)

Translation: An amplifier with automatic gain control is proposed. In order to obtain signals with constant amplitude within a broad dynamic range at the output, a threshold device, a pulse expander and a pulse storage unit are connected in series to the automatic gain control circuit.

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USSR

UDC 621.382.2

TYAGAY, V. A., KOLBASOV, G. YA., LUK'YANCHIROVA, N. B., SOLGANIK, B. D.

"Study of Photosensitivity and Noise of Semiconductor-Electrolyte Barrier Contacts"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 248-253

Abstract: A detailed study was made of the volt-ampere characteristics, complex conductivity and noise of a CdSe-electrolyte barrier contact during irradiation of it in the band-band absorption region. The lifetime of the minority current carriers was determined, and the threshold sensitivity of the contact was found. The phototreshold is limited by the noise of the charge capture process in the traps in the CdSe barrier layer region. The noise of the limiting photocurrent of the contact is caused by power fluctuations of the incident photon flux. The threshold sensitivity of a number of semiconductor-electrode contacts with different width of the forbidden band was determined. From the tabulated data it follows that the semiconductor cadmium chalcogenides with a sufficiently broad forbidden band have the best photosensitivity. Decreasing the width of the forbidden band (or high admixture concentration, as in the case of GaP) leads to an increase in the dark currents, and the sensitivity becomes appreciably worse. The phototreshold for Ge and CdTe crystals of the 1/2

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TYAGAY, V. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972,
pp 248-253

p-type is appreciably below that for the corresponding samples of the n-type. This behavior is partially caused by a decrease in the phenomenological quantum yield and can be connected with the high rate of surface pair recombination on the surface of the semiconductors in the negative bias region.

2/2

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1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FARADAIC RECTIFICATION IN A PLATINUM IODIDE-TRIODIDE SYSTEM -U-
AUTHOR--(02)-TYAGAY, V.A., KOLBASOV, G.YA. K
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKIMIYA 1970, 6(4), 473-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IODIDE, PLATINUM, ELECTRIC IMPEDANCE, ELECTRONIC RECTIFICATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1158 STEP NO--UR/0364/70/006/004/0473/0479
CIRC ACCESSION NO--AP0121717
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121717

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYSTEM PT-NEGATIVE -I
SUBNEGATIVE WAS INVESTIGATED BY FARADAIC RECTIFICATION AND IMPEDANCE
MEASUREMENTS. THE OVERALL ELECTRODE REACTION FOLLOWED THE SCHEME:
DISCHARGE RECOMBINATION, THE DISCHARGE BEING THE SLOW STEP. THE KINETIC
PARAMETERS OF THE DISCHARGE PROCESS WERE DETD. (Z (NO. OF ELECTRONS IN
THE OVERALL REACTION) EQUALS 0.99 PLUS OR MINUS 0.1; α (THE CATHODIC
TRANSFER COEFF.) EQUALS 0.47 PLUS OR MINUS 0.04) AND THE VALUE OF THE
RATE CONST. CALCD. (k EQUALS $(1-5) \times 10^7$ PRIME NEGATIVE 2 CM-SEC). A
METHOD WAS WORKED OUT FOR DETG. THE NO. OF ELECTRONS INVOLVED IN THE
SLOW DISCHARGE PROCESS. A THEORY OF FARADAIC RECTIFICATION WAS
DEVELOPED FOR THE CONSECUTIVE REACTION OF DISCHARGE RECOMBINATION,
TAKING INTO ACCOUNT THE FRACTIONAL COVERAGE OF THE ELECTRODE SURFACE BY
THE ADSORBED SPECIES. SIMULTANEOUS MEASUREMENTS OF THE FARADAIC
IMPEDANCE AND RECTIFICATION MAY SERVE AS A BASIS FOR DETG. THE EQUIL.
COVERAGE. IN THE SYSTEM UNDER STUDY THE FRACTIONAL COVERAGE OF THE PT
SURFACE BY AT. H WAS IN THE RANGE OF 0-0.5 DEPENDING ON THE I CONCN. IN
THE SOLN. FACILITY: INST. POLUPROV., KIEV, USSR.

UNCLASSIFIED

172 009 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--BROWN COALS FROM THE KHOLBOL'DZHINSKII PART OF THE GUSINOUZERSK
DEPOSIT AS FUEL FOR LARGE SCALE POWER PLANTS -U-
AUTHOR--(04)--SHARLOVSKAYA, M.S., PUGACH, L.I., KOLBASOV, YE.V., SKERKO,
N.N.
COUNTRY OF INFO--USSR
SOURCE--TEPLCENERGETIKA 1970, 17(5), 45-7
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--COAL, ELECTRIC POWER PLANT
CENTRAL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0389 STEP NO--UR/0095/70/017/005/0045/0047
CIRC ACCESSION NO--AP0132618
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132618

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMBUSTIBLE MASS CONTAINED 69-73PERCENT C, 4.5-5.1PERCENT H, AND 38-43PERCENT VOLATILE MATTER. SOME COALS HAD 4.5 PERCENT S (DRY BASIS), CONSISTING OF 72-90PERCENT ORG. AND PYRITE S. THE ASH CONTENT WAS 9-30PERCENT. THE ASH CONTAINED 30-70PERCENT SIO SUB2, 11-24PERCENT AL SUB2 O SUB3, 1.7-16PERCENT CAO, 3-27PERCENT FE SUB2 O SUB3, 0.35-3PERCENT NA SUB2 O K SUB2 O, AND 0.77-16PERCENT SO SUB3. WITH DECREASING ASH CONTENT, THE AMT. OF CAO AND SO SUB3 IN THE ASH INCREASED. THE ASH WAS LOW MELTING.

UNCLASSIFIED

USSR

ANTSIFEROV, V., ~~KOLBENEV, Yu.~~

"Scientific and Technical Conference on "Powder Metallurgy Materials in Machine Building""

Kiev, Poroshkovaya Metallurgiya, No 6, Jun 72, pp 105-107.

Abstract: The scientific and technical conference was held at the Perm' Polytechnic Institute 26-30 November, 1971. The conference involved 130 persons from 31 cities of the Soviet Union, from 65 enterprises, scientific research organizations and educational institutions. The conference studied problems of the production of structural metal ceramic materials, methods of their processing and applications in machine building. Specific subjects covered in the reports included: dispersion-hardened alloys; studies of metal ceramic materials based on titanium; composite materials; problems of practical utilization of metal ceramic alloys in machine building; production of metal ceramic filter materials; production of metal ceramic structural steel; friction properties of metal ceramic materials; magnetically soft metal ceramic iron-nickel alloys; hot extrusion of iron-graphite into pipes; heat and chemical-heat treatment of metal ceramic materials; influence of hot pressing parameters on compacting and structure formation processes in powder
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USSR

ANTSIFEROV, V., KOLBENEV, Yu., Kiev, Poroshkovaya Metallurgiya, No 6, Jun 72, pp 105-107.

steel; problems related to the equipment used for the production of metal ceramic material; and a method of production of powders alloyed with chromium, nickel, molybdenum, etc., based on synthesis of the initial oxides and their subsequent reduction. A resolution passed by the conference noted the necessity of broad introduction of powder metallurgy to machine building.

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1/2 010 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--COMPARATIVE ANALYSIS OF THE HYDROCARBON COMPOSITION OF FRACTIONS OF
HYDROGENATED GASOLINE OF THERMOCRACKING AND STRAIGHT RUN GASOLINE -U-
AUTHOR--(05)-RISOV, B.YA., MAMAYEVA, K.N., SMIRNOV, N.P., BERG, G.A.,
KOLBIN, M.A.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (6), 59
DATE PUBLISHED-----70
SUBJECT AREAS--PROPULSION AND FUELS
TOPIC TAGS--CHEMICAL ANALYSIS, HYDROCARBON, GASOLINE, THERMOCRACKING,
HYDROGENATION, PETROLEUM CATALYTIC REFORMING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED .
PROXY FICHE NO----FD70/605060/C04 STEP NO--JR/0318/70/000/006/0059/0059
CIRC ACCESSION NO--AP0144347
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--11DEC70
SIRC ACCESSION NO--AP0144347
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPN. OF THE TITLE FRACTIONS
WAS SIMILAR ENOUGH TO PERMIT THE USE OF THE DEEP HYDROFINED FRACTION OF
THERMCCRACKING AS STOCK FOR CATALYTIC REFORMING. FACILITY:
NOVO-UFIMSK. NPZ, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--JUDCT70
TITLE--STRUCTURE OF PRODUCTS FROM PENTENE POLYMERIZATION ON A PHOSPHORUS
CATALYST -U-
AUTHOR--(051)-KOLESNIKOVA, T.A., KOLBIN, M.A., KAYUMOV, R.L., KRASNOVA,
L.V., GRUDNIKOVA, A.F.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (1), 27-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--AMYLENE, POLYMERIZATION, DIMERIZATION, SYNTHETIC RUBBER,
CHEMICAL PRODUCT PRODUCTION, HYDROGENATION, GAS CHROMATOGRAPHY, HEPTANE,
OCTANE, HEXANE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1766 STEP NO--UR/0318/70/000/001/0027/0028
CIRC ACCESSION NO--AP0120473
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PREPN. OF ISOPENTENES FOR THE PRODUCTION OF SYNTHETIC RUBBER INVOLVES 2 STEPS: DIMERIZATION OF ISO AND N-C SUB5 FRACTIONS AND DEPOLYMN. TO PURE ISOPENTENES (T. A. KOLESNIKOVA, 1965). THE COMPN. OF DIMER MIXT. IS NOW DETD. THE DEHYDRATION OF ISOAMYL ALCS. OR AMUL ALCS. OVER AL SUB2 O SUB3 CATALYST AT 360DEGREES OR 365DEGREES GAVE 99-99.9PERCENT PURE 1,PENTENE, 2,PENTENE, 2,METHYL,1,BUTENE AND 2,METHYL,2,BUTENE. THE PENTENES WERE DIMERIZED AT 185DEGREES, 50 ATM, AND 1 HR PRIME NEGATIVE I SPACE VOL. VELOCITY, VOER H SUB3 PO SUB4 ON SILICA GEL. THE PRODUCTS WERE HYDROGENATED AND ANALYZED BY GAS CHROMATOG. THE HYDROGENATED DIMERS, REGARDLESS OF THE STARTING PENTENE, CONTAINED 30-40PERCENT TRIMETHYLHEPTANES, SIMILAR TO 20PERCENT DIMETHYLOCTANES, SIMILAR TO 20PERCENT TETRAMETHYLHEXANES, AND SIMILAR TO 20PERCENT C SUB8 C SUB9, AND ISO-C SUB10 HYDROCARBONS.

UNCLASSIFIED

USSR

UDC 547.34

DOROKHOVA, V. V., RATOVSIIY, G. V., KOLBINA, V. Ye., GRECHKIN, Ye. F., and KALABINA, A. V., Irkutsk State University imeni A. A. Zhdanov

"Spectral Manifestations of Intramolecular Interactions in Unsaturated Phosphorus Acid Chlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2172-2178

Abstract: Bathochromic shifts observed in the UV spectra of β -phosphorus substituted vinyl esters and styrenes as well as increased extinction coefficients ϵ and vibrational forces f of the absorption bands can be related to the interaction of phosphorus containing groups with the unsaturated fragments. It was shown that the interaction of the unsaturated fragment with PCl_2 , $P(O)Cl_2$, $P(S)Cl_2$ groups is expressed much stronger than in respective unsaturated derivatives containing an alkyl radical at the phosphorus atom. The 190, 225 and 260 mmicron bands in the phosphone substituted vinyl alkyl and vinyl phenyl ethers and in styrenes are related to electronic transitions from the occupied π orbitals of unsaturated fragments onto the orbitals containing in addition to the π orbitals of the unsaturated fragment also vacant orbitals of the phosphorus containing groups.

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USSR

KOL'CFENKO, A. P. et al (Institute of Automation and Electrometry, Siberian Department of the USSR Academy of Sciences; Institute of Spectroscopy, USSR Academy of Sciences; Institute of Nuclear Physics, Siberian Department of the USSR Academy of Sciences)

"Effect of Selective Collisions on the Velocity Distribution of Atoms and on Nonlinear Interference Effects"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; October, 1972; pp 1173-93

ABSTRACT: The effect of elastic collisions on the velocity distribution of excited atoms located in an external electromagnetic field is investigated. The authors employ a collision integral which simultaneously takes into account strong collisions and scattering at small angles (selective scattering). It is shown that along with the familiar Bennett "dip" in the velocity distribution, there may exist a collision "dip" which is due to selective scattering. The dependence of its parameters on pressure differs from that for the Bennett "dip". The shape of the Lamb shift and of the amplification line of a weak wave interacting with a strong field is analyzed for either the same transition or an adjacent one. Collisions involving a change of velocity manifest themselves differently in two- and three-level systems.

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USSR

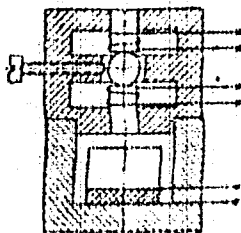
UDC: 531.768

KOLBIN, V. I., Siberian State Scientific Research Institute of Metrology

"An Accelerometer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 21, Jul 72, Author's Certificate No 344359, Division G, filed 19 Aug 70, published 7 Jul 72, p 182

Translation: This Author's Certificate introduces an accelerometer which contains a housing accommodating a vibration pickup of the piezoelectric type and a calibration element made in the form of a sphere. As a distinguishing feature of the patent, the range of measurement and calibration is extended by using an electromagnet connected to a source with controllable current strength.



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USSR

UDC 621.396.6.019.32

KOLBIN, V. I.

"On the Problem of Improving the Quality of Vibration Testing of Radio Equipment Elements"

Tr. Sib. n.-i. in-t metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1970, vyp. 5, pp 50-57 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V262)

Translation: It is shown that it is necessary to account for so-called mounting resonance (fastening resonances) of the platform of a vibrostand and other parts of a testing installation in evaluating the results of tests of elements of radio equipment for vibration resistance. The author discusses the possibility of eliminating the effect of stable resonances by raising their frequency beyond the limit of the working range. Necessary improvements in equipment are considered. One illustration, bibliography of four titles. N. S.

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USSR

UDC 532.5:532.135

KOLBOVSKIY, YU. YA., SHANIN, N. P.

"Concerning the Problem of the Flow of a Newtonian Liquid in Circular and Slit Channels"

Uch. zap. Yaroslav. tekhnol. in-ta (Scientific Notes of Yaroslavskiy Technological Institute), 1971, Vol. 23, No. 2, pp 5-13 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3B972)

Translation: V. G. Litvinov solved the problem of Poiseuille flow of a Newtonian liquid in a circular infinite tube with an effective viscosity

$$\eta = a_0 + \mu \left(\frac{dv_z}{dr} \right)^2 \quad (1)$$

where η is the effective viscosity, dv_z/dr is the velocity gradient, and a_0, μ are rheological constants (Mekhan. polimerov, 1966, No. 4, pp 603-610: RZhMekh, 1967, 6B823). It is assumed that μ is small and a solution was obtained by the small-parameter method disregarding second and higher order terms. This paper analyzes the solution of V. G. Litvinov by reducing it to dimensionless form.

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USSR

KOLBOVSKIY, YU. YA., SHANIN, N. P., Uch. zap. Yaroslav. tekhnol. in-ta, 1971,
Vol. 23, No. 2, pp 5-13

Two more problems are solved for a liquid with the rheological equation (1) by the same method: the flow of a liquid in a plane infinite tube and motion between two infinite rotating cylinders. The latter problem is discussed as applied to a rotation viscosimeter when the value of the rotational moment is given. S. A. Bostandzhiyan.

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USSR

UDC 539.3

KOI, CHAKOV, M. G.,"Three-Dimensional Working of a Long Flat Shell of Variable Thickness"

Teor. i pril. mekh. (Theoretical and Applied Mechanics), 1971, Vol. 2, No. 1, pp 75-89 (From RZh-Mekhanika, No 3, Mar 72, Abstract No 3V167)

Translation: The stress-deformation state of a flat shell of double curvature and variable thickness $h(x, y)$ is considered from the aspect of semimomentless theory. In the longitudinal direction the shell is calculated by beam theory, which makes it possible to obtain the longitudinal force N_x on the basis of the Navier hypothesis concerning the distribution of normal stresses along the cross section. The remaining forces and displacements are found in quadratures. The author then considers the case when the middle surface of the shell has the form $z = z(y)$ and the thickness $h = h(y)$ and gives calculation formulas for certain forms of the profile. The article is an extension of the work of H. Mishonov (Izv. In-ta mekhanika, 1967, Vol. 4, pp 83-92; RZhMekh, 1968, 6V116).
N. G. Gur'yanov.

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USSR

UDC: 519.2:62-19

KOLCHANOVA, L. I.

"Estimates of the Initial Moments of Distribution of the Time of No-Fail Operation in Terms of Quantiles"

V sb. Nadezhnost' i kontrol' kachestva (Prilozh. k zh. "Standarty i kachestvo") [Reliability and Quality Control—collection of works (Supplement to the journal "Standards and Quality")], No 2, Moscow, 1971, pp 57-63 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V324)

[No abstract]

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USSR

UDC 621.315.592

IBRAGIMOV, V.YU., KOLGHANOVA, N.M., NASLEDOV, D.N., TALALAKIN, G.N.

"Special Feature Of Negative Photoconduction In Gallium Arsenide Crystals"

Fizika i tekhnika poluprovodnikov, Vol 6, No 1, Jan 1972, pp 53-57

Abstract: The paper considers the negative photoconduction which was observed in high-resistance n-type gallium-arsenide crystals (with concentrations of electrons of 10^{10} -- 10^{11} cm^{-3}) during illumination by "impurity" light. Negative photoconduction occurred with electrical fields exceeding 100 v/cm. In order to account for negative photoconduction the mechanism of recombination with the participation of centers with a negative barrier is drawn. The temperature, lux-ampere, and other dependences of the photoconductivity are explained on the basis of the proposed model of the structure of the forbidden band of the crystal. Physicotechnical Institute imeni A.F. Ioffe, AS, USSR, Leningrad. Received by editors 19 Feb 1971; in finished rewording 17 May 1971. 4 fig. 14 ref.

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1/2 035 UNCLASSIFIED PROCESSING DATE--16OCT70
 TITLE--IMPURITY PHOTOCONDUCTIVITY IN GALLIUM ARSENIDE CRYSTALS -U-
 AUTHOR-(04)-KOLCHANOVA, N.M., MIRDZHALILOVA, M.A., NASLEDOV, D.N.,
 IBRAGIMOV, V.YU.
 COUNTRY OF INFO--USSR
 SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 358-60
 DATE PUBLISHED-----70
 SUBJECT AREAS--PHYSICS
 TOPIC TAGS--PHOTOCONDUCTIVITY, GALLIUM ARSENIDE SEMICONDUCTOR,
 SEMICONDUCTOR IMPURITY, OPTIC SPECTRUM, RADIATION INTENSITY, CHROMIUM,
 ELECTRON TRANSITION, TEMPERATURE DEPENDENCE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1988/0085 STEP NO--UR/0449/70/004/002/0358/0360
 CIRC ACCESSION NO--AP0105171

2/2 035

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--A0105171

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IMPURITY PHOTOCOND., SIGMA SUBPH, OF CR DOPED GAAS WAS INVESTIGATED AT 77-300DEGREEK. THE MAX. AT 0.85 EV ON THE CURVE OF SPECTRAL DEPENDENCE OF SIGMA SUBPH BECOMES MORE DISTINCT AT LOWER TEMPS. THE POSITION OF THE MAX. CHANGES VERY SLIGHTLY WITH TEMP. THE CHARACTER OF THE DEPENDENCE OF SIGMA SUBPH ON INCIDENT PHOTON ENERGY AT 0.8-1.1 EV CANNOT BE EXPLAINED ONLY BY OPTICAL QUENCHING. IT IS POSSIBLE TAHT 2 STAGE PHONON ASSISTED TRANSITIONS TAKE PLACE IN THEPHOTOEXCITATION AT SIMILAR TO 0.85 EV, E.G. ELECTRON TRANSITIONS FROM THE CR ACCEPTOR LEVEL TO A SHALLOW DONOR LEVEL, WITH SUBSEQUENT THERMAL EXCITATION INTO THE CONDUCTION BAND.
FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

Acc. Nr. **AP0054347**

Abstracting Service **6-70**
CHEMICAL ABST.

Ref. Code
4R0449

115930g Properties of gallium arsenide doped with iron and nickel. Kolchanova, N. M.; Nasledov, D. N.; Talalakin, G. N. (Fiz.-Tekh. Inst. im. Lofe, Leningrad, USSR). *Fiz. Tverd. Poluprov.* 1970, 4(1), 134-41 (Russ). The Hall effect, sp. resistance, photocond., and photomagnetic effect of GaAs single crystals doped with Fe and Ni to a concn. of 0.01-1.5 at. % were studied as functions of temp. at 80-300°. At low Fe and Ni contents (0.01%) a series of *n*-type specimens was obtained, with electron concns. of 10^{16} - $10^{17}/\text{cm}^3$. The mobility of the electrons in these specimens was lower than in undoped crystals having the same electron concn. and grown under the same conditions. This is probably due to the presence of Fe and Ni atoms. In low-resistance *n*-type crystals doped with Ni, the electron mobility increases with decrease in temp. down to 80°. Thus, $\mu_{300} = 2400$ -3300, and $\mu_{80} = 3100$ -4150 $\text{cm}^2/\text{V}\cdot\text{sec}$. The hole concn. in crystals doped with Ni is 10^{14} - $10^{15}/\text{cm}^3$, and their mobility is 100-200 $\text{cm}^2/\text{V}\cdot\text{sec}$, and falls on lowering the temp. The decrease in mobility indicates that in *p*-type crystals the ratio between the no. of Ni ions and atoms changes in such a way that the ions play the predominant part in current carrying. On lowering the temp., the equil. concn. of holes decreases, which indicates the presence of a deep impurity level, which may be assocd. with the presence of Ni. The spectral distribution of the photocond. in *n*-type specimens contg. Ni and Fe, with a carrier concn. of 10^{16} - $10^{17}/\text{cm}^3$, is no different from that of undoped crystals with

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AP0054347

similar electron concns. The curve for the spectral distribution of the photocond. of crystals doped with Fe, with a concn. of approx. $10^{18}/\text{cm}^3$, exhibits impurity cond. The luminescence spectra also exhibit a wide max. at 0.95 eV. In crystals contg. Ni, the photoluminescence spectra did not exhibit characteristic bands at 0.22 and 0.35 eV at room temp. and the temp. of liq. N. p -Type GaAs single crystals with impurity Fe atoms at a concn. $>10^{17}/\text{cm}^3$ showed little sensitivity to light at 200-300°K. p -Type GaAs single crystals contg. Fe atoms to a concn. $>10^{17}/\text{cm}^3$ show little sensitivity to light at high temps. (200-300°K), and no changes in the concn. of current carriers under the action of light were obsd. over this temp. range. The lifetimes of the holes and electrons in specimens contg. Ni are $\sim 10^{-8}$ and $\sim 10^{-8}$ sec, resp., at room temp. F. N. Standen

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19831494

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EXPERIMENTAL DETERMINATION OF STRESSES IN RUBBER PIECES ACCORDING
TO HARDNESS -U-
AUTHOR--(02)-KOLCHENKO, A.V., TITARENKO, A.I.
COUNTRY OF INFO--USSR *K*
SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (2), 41-2
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELASTOMER, COMPRESSIVE STRESS, SHOCK ABSORBER, HARDNESS,
DRILLING MACHINERY/(U)IRP1124 RUBBER ELASTOMER, (U)IRP1294 RUBBER
ELASTOMER, (U)IRP1226 RUBBER ELASTOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0734

STEP NO--UR/0314/70/000/002/0041/0042

CIRC ACCESSION NO--AP0119641

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119641

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRESSES EXERTED ON RUBBER ELASTOMER COMPONENTS (SUCH AS GASKETS OR SHOCK ABSORBERS USED IN THE OIL DRILLING INDUSTRY) OPERATING UNDER TENSION OR COMPRESSION WERE EVALUATED BY MEASURING THE HARDNESS BY MEANS OF A PUNCTURE HARDNESS GAGE TI. SINCE THE HARDNESS OF ELASTOMERS WAS PROPORTIONAL TO THE APPLIED STRESS, THE GAGE WAS CALIBRATED AND APPROPRIATE GRAPHS WERE USED FOR MEASUREMENTS OF COMPRESSION STRESSES IN IRP 1124, IRP 1294, IRP 1226, AND 93 RUBBER ELASTOMERS.

UNCLASSIFIED

Physiology

USSR

UDC 612.821

KOL'CHENKO, N. V., and MOLDAVSKAYA, S. I., Department of the Higher Nervous Activity at the Institute of Physiology Imeni A. A. Bogomolets, Academy of Sciences Ukrainian SSR, Kiev

"The Effect of Prolonged Hypokinesia on the State of Higher Nervous Activity of Humans"

Kiev, Fiziologichnyy Zhurnal, Vol 19, No 4, Jul/Aug 73, pp 435-440

Translation: Investigation of higher nervous activity with prolonged hypokinesia carried out on healthy volunteer subjects has shown that strict bed confinement without immobilization lasting up to 10 days did not have a negative influence on the state of higher nervous activity; strict bed confinement without immobilization lasting from 10 to 30 days and strict bed confinement with immobilization of lower extremities by means of plaster bandages lasting from 5 to 10 days leads to a deterioration of the performance of the brain, increased latent period of the optic-motor reflex, decreased number of scanned symbols in correction tables over a period of 10 minutes, and an increased percentage of error. Return of these indexes to the starting level occurs about 8 days after discontinuation of hypokinesia. The magnitude and the direction of changes in higher nervous activity with

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USSR

KOL'CHENKO, N. V., and MOLDAVSKAYA, S. I., Fiziologichnyy Zhurnal, Vol 19,
No 4, Jul/Aug 73, pp 435-440

hypokinesia depend on individual typological characteristics of higher
nervous activity.

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USSR

UDC 620.171-41

PANSHIN, B. I., KOTOVA, L. P., and KOLCHEV, O. V.

"Method for Determining the Mechanical Properties of Sheet Materials With a Shear in the Sheet Plane"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 11, 1970, pp 1371-1374

Abstract: A brief review is presented of methods for determining the rigidity and strength characteristics of isotropic and anisotropic materials in the presence of shear in the sheet plane. The shortcomings of indirect methods for determining the shear characteristics of anisotropic materials are noted. Refined formulas for calculating the modulus of transverse elasticity G and the shear stress τ_p from data from tensile and compression tests are derived. A systematic error inherent to tests on buckling of sheet materials in conventional hinge frames is shown and evaluated in tests of ST-1 glass-reinforced textolite. A new stand for pure shear testing is described and presented schematically. It ensures a uniform stress and strain distribution and makes it possible to determine G and τ by refined

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USSR

PANSHIN, B. I., et al., Zavodskaya Laboratoriya, Vol 36, No 11,
1970, pp 1371-1374

formulas without corrections. Comparative results obtained
using the conventional and new test stands are presented in tables.

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1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--PURIFICATION OF LEUCOPARAFUCHSINE -U-

AUTHOR--(05)-ILMUSHKIN, V.M., LAZARENKO, L.I., KHOMENKO, V.V., KOLCHEV,
V.D., FOTCHENKO, A.S.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,977
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TCVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL PURIFICATION, BIOLOGIC PIGMENT, DYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1809

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132075

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132075

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEUCOPARAFUCHSINE (I) WAS PURIFIED BY TREATING TECH. I WITH HCL AND NACL IN THE PRESENCE OF 5-20PERCENT NA SUB2 S SUB2 O SUB4.2H SUB2 O (ON THE WT. OF I) AT 20-110DEGREES. THE RESULTING I.3HCL WAS FILTERED, DISSOLVED IN DISTO. WATER IN THE PRESENCE OF AACTIVATED C, AND REFILTERED. THE RESULTING FILTRATE WAS TREATED WITH NH SUB4 OH AND PURE I FILTERED AND DRIED.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--KINETICS OF PARALLEL REACTIONS DURING MELANOIDIN FORMATION -U-
AUTHOR--(03)-KELCHEVA, R.A., KHARIN, S.YE., SAPRONOV, A.R.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., PIS'CH, TEKHNOL. 1970, (2), 206-10
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GLUCOSE, ALANINE, PHOSPHATE, BIOLOGIC PIGMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1674 STEP NO--UR/0322/70/000/002/0206/0210
CIRC ACCESSION NO--AT0133579
UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AT0133579
ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. KINETICS OF DECOMPN. OF D-GLUCOSE
(I) AND ALPHA-ALANINE (II) AND OF MELANOIDIN FORMATION WERE MEASURED IN
PHOSPHATE BUFFER SOLNS. (PH 3.46-7.97) OF 0.2M I AND (OR) II AT
100DEGREES. A CONSIDERABLE PROPORTION OF I AND II DECREASE DURING
MELANOIDIN FORMATION IS DUE TO THEIR DECOMPN. EQUATIONS ARE DERIVED FOR
CALCN. OF CONSTS. IN SIMILAR REACTION SYSTEMS. FACILITY:
VORONEZH. TEKHNOL. INST., VORONEZH, USSR.

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--KINETICS OF THE DECOMPOSITION OF SOME AMINO ACIDS IN RELATION TO PH
-U-
AUTHOR--(03)-KHARIN, S.E., KOLCHEVA, R.A., SAPRONOV, A.R.
COUNTRY OF INFO--USSR
SOURCE--FERMENT. SPIRT. PROM. 1970, 36(2), 21-3
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--AMINO ACID, CHEMICAL DECOMPOSITION, HYDROGEN ION CONCENTRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0795

STEP NO--UR/0071/70/036/002/0021/0023

CIRC ACCESSION NO--AP0119702

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT7C

CIRC ACCESSION NO--AP0119702

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BUFFERED SOLNS. OF 0.2 MOLE-L. OF BOTH MONOBASIC AND DIBASIC AMINO ACIDS WERE MADE TO UNDERGO DECOMPOSITION 5 HR AT 130DEGREES AT VARIOUS PH VALUES, ESP. 5-7. THE GREATEST AND FASTEST DECOMPNS. OCCURRED CLOSE TO THE ISOELECTRIC POINT OF THE AMINO ACIDS; BOTH IN THE MORE ACID OR MORE ALK PH REGIONS THE ACIDS WERE MORE STABLE; AT PH 1 THE DECOMPN. WAS SLOWED DOWN TO ONE TENTH OF THE VALUE AT THE ISOELECTRIC POINT, AND AT PH 10 THE DECOMPN. DROPPED ALMOST TO ZERO. FACILITY: VORONEZH. TEKHNOL. INST., VORONEZH, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.677

KAZANSKIY, V. B., KOLCHIGIN, N. N., LITVINENKO, L. N.

"On the Problem of Resonance Properties of Double Strip Gratings"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), vyp. 13, 1970, pp 156-162 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5B5)

Translation: The authors analyze the resonance properties of structures consisting of two layers of flat metal gratings in the case of normal incidence of an electromagnetic wave in which the H vector is parallel to the metal strips. It is shown that such systems with narrow gaps between strips have high-Q properties, and consequently can be used for precision measurement of the wavelength and permittivity of gases. Experimental data are presented which confirm the theoretical conclusions. Five illustrations, bibliography of six titles. Resumé.

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- 21 -

USSR

UDC: 621.398

DMITRIYEV, V. F., Candidate of Technical Sciences, and KOL'CHIK,
A. D., NEDIL'KO, A. F., Engineers

"Experiences in the Installation and Operation of the TM-100
Remote Control System"

Moscow, Pribory i Sistemy Upravleniya, No 9, 1973, pp 19-21

Abstract: Details of the installation and operation of the new re-
mote control system TM-100, designed by the TsNIIKA (State All-
Union Central Scientific Research Institute of Complex Automation)
and NIPINeftekhimavtomat (Scientific Research and Planning Insti-
tute for Complex Automation of Production Processes in the Petro-
leum and Chemical Industries) in 1966. The system prototype was
built in 1968 by the ZTA (Plant for Remote Control Equipment),
underwent interdepartmental testing, and was put into production.
This equipment provides the answer of these principal technical problems: a
duplex method for transmitting signals in a communication channel using standard
telegraphic channel-forming equipment; a combination of highly effective message
safeguards and synchronous operation independent of noise; constant control of
communications channels and such system devices as output remote control units
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DMITRIYEV, V. F., et al., Pribory i Sistemy Upravleniya, No 9, 1973, pp 19-21

with no false command outputs; economy in reproducing information through the use of memory systems; and automatic self-modifying programs for command output in an emergency situation. Photographs of the system control desk and the receiver-transmitter UPP-KP assembly are produced, and a summary of the results obtained from installation is given, together with some relevant technical specifications.

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- 15 -

USSR

KONSTANTINOV, B. P. (Deceased), BREDOV, M. M., KOLCHIN, A. A., LEBEDEV, V. V. and SKREBTSOV, G. P., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR

"Investigation of Proton Fluxes in the Range 1.5-50 Mev on the 'Zond-4' and 'Zond-5' Automatic Interplanetary Station"

→ Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No. 11, Nov 70, pp 2250-2254

Abstract: A brief description of the equipment used and the data obtained on "Zond-4" and "Zond-5" is presented. "Zond-4" was launched toward the moon on 2 March 1968 and "Zond-5" on 15 September 1968. Two proton detectors were used, one detecting protons in the ranges 1.5-10 Mev and 10-21 Mev and the other to detect protons in the ranges 30-35 Mev and 45-50 Mev. No other particles besides protons were recorded. Measurements beginning at a distance of $3.5 R_E$ are summarized, concentrating on data from "Zond-5". It was noted that "Zond-5", in accordance with the flight program, sometimes changed orientation and maneuvered in space;

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KONSTANTINOV, B. P., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 11,
pp 2250-2254

the average counting intensity in all channels remained approximately the same, thus making it possible to speak of the "average intensity" of the proton flux. The magnitudes of the average intensities of proton fluxes obtained were: 1.5-10 Mev, $I = 0.5 \cdot 10^3 \text{ m}^{-2} \cdot \text{str}^{-1} \cdot \text{sec}^{-1}$; 10-20 Mev, $I = 40 \text{ m}^{-2} \cdot \text{str}^{-1} \cdot \text{sec}^{-1}$; 30-35 Mev, $dI/dE = 35 \text{ m}^{-2} \cdot \text{str}^{-1} \cdot \text{sec}^{-1} \cdot \text{Mev}^{-1}$; and 45-50 Mev, $dI/dE = 50 \text{ m}^{-2} \cdot \text{str}^{-1} \cdot \text{sec}^{-1} \cdot \text{Mev}^{-1}$. A table is given comparing the intensities of proton fluxes in the range 1-10 Mev obtained with U.S. and Soviet space probes from 1964 to 1969.

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1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--DETERMINATION OF THE AVERAGE LIFETIMES OF ADSORBED CESIUM IODIDE
MOLECULES ON A TUNGSTEN SURFACE -U-
AUTHOR--(03)--KOLESNIKOV, B.YA., KOLCHIN, A.M., PANCHENKOV, G.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. TEKH. FIZ1970, 40(4), 868-71
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TUNGSTEN, CESIUM COMPOUND, IODIDE, ADSORPTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0293 STEP NO--UR/0057/70/046/004/0868/0871
CIRC ACCESSION NO--AP0124052
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124052

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF AN INTERRUPTED MOL. BEAM WAS USED IN CONJUNCTION WITH A MASS ANALYZER TO DET. THE AV. LIFETIME FOR ADSORBED, NEUTRAL CSI MOLS. ON THE SURFACE OF POLYCRYST. W AT 729-856DEGREESK FOR A BEAM OF 1.9 TIMES 10 PRIME13 MOLS. PER CM PRIME2 SEC. THE RESULTS ARE GIVEN BY THE FORMULA: TAU (SEC) EQUALS I TIMES 10 PRIME NEGATIVE14 EXP(47,500-RT). THE ADSORPTION OF THE MOLS. WAS 2 PHASE IN NATURE. FACILITY: MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

Stress Analysis and Stability Studies

USSR

UDC 539.3

KOLCHIN, G. B., LAPENKO, V. V., Kishinev Polytechnical Institute

"Integral Transformations in the Elasticity Theory Problem for a Nonhomogeneous Wedge"

Kiev, Prikladnaya mekhanika, No. 11, Nov 71, pp 84-89

Abstract: It is shown that if the mechanical characteristics of the material of an infinite wedge are discontinuous functions of the coordinates, i.e., if the wedge is nonhomogeneous, methods used in classical plane problems of elasticity theory are also effective for certain types of inhomogeneities. The mechanical characteristics of the wedge are assumed to be discontinuous functions of the coordinates and under a change in these quantities, which is represented in the form of the product of a power function of the radius and an arbitrary function of the polar angle, the problem is reduced to a boundary value problem for ordinary differential equations with the aid of the Mellin transform. The case when the functional dependence of the mechanical characteristics on the polar angle has the form of an exponential function is investigated. The results are applicable to the particular problem when a concentrated force in any direction is applied at an arbitrary point of a nonhomogeneous isotropic wedge.

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1/2 014

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--KINETICS OF PROPYLENE OXIDATION ON A BISMUTHMOLYBDENUM CATALYST -U-

AUTHOR--(04)--GORSHKOV, A.P., GAGARIN, S.G., KOLCHIN, I.K., MARGOLIS, L.YA.

COUNTRY OF INFO--USSR

SOURCE--NEFTEKHIMIYA 1970, 10(1), 59-63

DATE PUBLISHED--70

K

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CHEMICAL REACTION KINETICS, PROPYLENE, CATALYTIC OXIDATION, FORMALDEHYDE, CHEMICAL LABELLING, CHEMICAL REACTION MECHANISM, CHEMICAL REACTION RATE, CARBON ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1965

STEP NO--UR/0204/70/010/001/0059/0063

CIRC ACCESSION NO--AP0112929

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112929

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MECHANISMS OF THE OXIDN. OF H SUB2
CU, ACH, ACROLEIN, AND PROPYLENE WERE STUDIED BY USING PRIME14 C LABELED
COMPOS. THE OXIDNS. WERE CARRIED OUT AT 460DEGREES ON A BI-MO
CATALYST. RATE CONSTS. OF THE INDIVIDUAL REACTIONS ARE GIVEN.
MECHANISMS ARE PROPOSED FOR THE OXIDN. OF PROPYLENE. FACILITY:
INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

Hydrobiology

USSR

UDC 612:599.537:591.185.21

KOLCHIN, S. P. and BEL'KOVICH, V. M., Institute of Developmental Biology,
Academy of Sciences USSR, Moscow

"Tactile Sensitivity in the Common Dolphin (*Delphinus delphis*)"

Moscow, Zoologicheskii Zhurnal, No 4, 1973, pp 620-622

Abstract: Study of 3 adult dolphins (2 male and 1 female) showed the radius of about 5 cm around the blowhole and radius of 3 to 5 cm around the palpebral fissure to be most sensitive to tactile stimulation of the skin; the threshold of sensation in these regions is less than 10 mg/mm². The threshold of sensation around the frontal protuberance is somewhat higher, 10 to 20 mg/mm². On the dorsal surface of the body caudal to the blowhole, the threshold ranges from 30 to 40 mg/mm². These values are similar to those found in the most sensitive regions of human skin (finger tips, eyelids, lips). They suggest that the dolphin cutaneous analyzer is capable of perceiving and discriminating hydrostatic and hydrodynamic pressure changes of 10 to 40 mm.

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USSR

UDC 599.537

KOLCHIN, S. P., and BEL'KOVICH, V. M., Candidate of Biological Sciences,
Institute of Developmental Biology, Academy of Sciences USSR Moscow

"The Functioning of the Dolphin's Heart"

Moscow, Priroda, No 11, 1970, pp 73-74

Translation: One hundred years ago, Paul Bert described the state of "reduced frequency of heart contractions" that arises in ducks while diving. This phenomenon, which has been given the name of diving bradycardia in the scientific literature, did not arise only in cases when, before diving, the ducks had been atropine, or when their vagus nerve had been severed. The conclusion was, therefore drawn that bradycardia in ducks is due to the increased tonus of the vagus nerves. By now, the phenomenon of diving bradycardia has been established in almost all vertebrates, both terrestrial and aquatic. However, the mechanisms by which bradycardia arises and its role in the system of the organism's adaptation to diving have not as yet been clarified.

In this respect, aquatic mammals -- seals and cetaceans -- the great divers, are of special interest. We investigated certain mechanisms of

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KOLCHIN, S. P. and BEL'KOVICH, V. M., *Priroda*, No 11, 1970, pp 73-74

bradycardia in four adult dolphins -- three common dolphins (*Delphinus delphis*) and one bottlenose dolphin (*Tursiops truncatus*). The experiments were performed in a tank with dimensions of 4 x 1, 5 x 1 meters, filled with artificially aerated sea water; water temperature was +22, +23°C, and air temperature was +25, +27°C. With the use of slings, the dolphins were kept on the surface of the water or immersed to a depth of 30-40 cm. Shifts in the frequency of heart contractions were registered by an electrocardiograph. The heart contraction rate of dolphins varies in the following manner: during immersion in water, a marked reduction in the rate of heart contractions takes place, amounting to 50-60% of the initial rate. Immediately upon surfacing, the rate increases, sometimes exceeding the level that was observed before immersion.

According to present notions, the nervous impulses do not affect the heart directly but rather by means of the secretion of special substances -- transmitters (or mediators) of the nervous impulses -- norepinephrine and acetylcholine, from the nerve endings. The mediators interact with the formations located on the surface of the heart muscle cells, the receptors, which are probably protein molecules. As a result of this interaction, certain properties of protein molecules (their spatial orientation, etc.)

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KOLCHIN, S. P., and BEL'KOVICH, V. M., Priroda, No 11, 1970, pp 73-74

change and, correspondingly, the state of the cells also changes. Norepinephrine intensifies the work activity of the cardiac muscle cells; acetylcholine, on the contrary, slows it down by reducing the rate of heart contractions. Consequently, if we introduce norepinephrine or acetylcholine into the blood, we can alter the rate of heart contractions in a definite direction. By changing the amount of the mediator that is administered, we can control the qualitative and quantitative shifts in the state of cardiac muscle cells which occur when the dolphins are diving or surfacing.

Experiments have shown that, under water, those receptors that react with acetylcholine are more active. Conversely, the activity of receptors interacting with norepinephrine is reduced.

At the time of surfacing, the dolphin's heart becomes more sensitive to norepinephrine and less sensitive to acetylcholine.

In this manner, during diving and surfacing, coordinated shifts occur in the activity of the adrenoreceptor and cholinoreceptor regulatory systems of dolphins; these shifts are the cause of the shifts in the rate of the heart contractions.

What is the significance of these facts? It is known that acetylcholine

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KOLCHIN, S. P., and BEL'KOVICH, V. M., *Priroda*, No 11, 1970, pp 73-74

intensifies assimilation processes, while epinephrine and norepinephrine intensify dissimilation processes. Acetylcholine ensures a more economical functioning of the heart together with a high efficiency of oxygen utilization. Norepinephrine, although it lowers the efficiency of oxygen utilization, increases oxygen consumption by the heart by 200-300%.

In addition, acetylcholine causes the heart to be filled more completely with blood by prolonging the period of diastole. Norepinephrine, by increasing the force and speed of cardiac contraction (the systole) also speeds up blood circulation.

Therefore, we can picture the functioning of the dolphin's heart as follows. At the time of diving, when the dolphin does not breathe, the heart functions at a slow rate and the rate of blood circulation is slower; as a consequence, the cells of the organs and tissues extract a larger amount of oxygen from the blood, and the heart itself functions more economically, with high efficiency. These phenomena are due to the increased activity of those receptors that interact with acetylcholine. At the time of surfacing, the heart begins to contract at a more rapid rate and with increased force. Blood circulation is accelerated, and this makes it possible to quickly "wash out" of the cells the waste accumulated during diving; the heart absorbs

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KOLCHIN, S. P., and Bel"KOVICH, V. M., Priroda, No 11, 1970, pp 73-74

oxygen at a great rate, replenishing the expended stores of energy.

It is much more complicated to explain the mechanism of the shift in the activity of the receptors which react to acetylcholine and norepinephrine. For the time being, it is only possible to make up more or less probable hypotheses.

Thus, on basis of our investigations, it can be stated that the adaptive reactions of the dolphin's heart to diving -- bradycardia, the shift in oxygen consumption, and others -- take place as a result of shifts in the sensitivity of the cardiovascular system to the mediators of nervous impulses: acetylcholine and norepinephrine. The significance of bradycardia is that the functioning of the heart becomes more economical.

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USSR

UDC 591.112:591.524.14:599.537+612.172.014.423.019

KOLCHIN, S. P., and BEL'KOVICH, V. M., Institute of Developmental Biology, Academy of Sciences USSR, Moscow

"Some Features of Cardiac Function in Dolphins"

Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 6, No 4, Jul/Aug 70, pp 411-417

Abstract: A study was made of the EKG's of five dolphins (four *Delphinus delphis* and one *Tursiops truncatus*). The results showed that the configuration of the curve is similar to that in carnivorous animals and man. During diving, the dolphin cardiac rate slowed markedly as compared with that when the animals were on the surface or out of the water. Bradycardia during diving results from the increased "affinity" of the choline receptor for acetylcholine and from increased vagal tone. This mechanism enables the heart to adapt to overloads and function more efficiently under conditions of oxygen insufficiency. Activation of the choline receptors during diving is regarded as a nonspecific reaction (characteristic of many organisms) to asphyxia, apnea, changes in external hydrostatic pressure, and other factors. A peculiarity noted in all of the dolphins is the higher functional activity of the right heart as compared with that of terrestrial mammals.

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1/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--ADRENERGIC AND CHOLINERGIC REACTIONS DURING EXPERIMENTAL DIPHThERIA
MYOCARDITIS IN RABBITS AND DURING THE USE OF SOME BIOPREPARATIONS -U-

AUTHOR--KOLCHIN, S.P.

COUNTRY OF INFO--USSR

K

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 995-8

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIPHThERIA, MYOCARDIUM, RABBIT, HEART, CARDIOVASCULAR SYSTEM,
BACTERIAL TOXIN, ADRENALINE, ACETYLCHOLINE, NORADRENALIN, HEMODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1086

STEP NO--UR/0020/70/190/004/0995/0998

CIRC ACCESSION NO--AT0115105

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0115105

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF EXPTL. DIPHTHERIA MYOCARDITIS INVOLVED COMPLEX CHANGES IN BOTH CHOLINERGIC AND ADRENERGIC REGULATION OF CARDIAC ACTIVITY AND OF THE CARDIOVASCULAR SYSTEM. DURING THE 1ST PERIOD (1-3 DAYS AFTER INJECTION OF BACTERIAL TOXIN) CARDIOVASCULAR DISTURBANCES APPEARED WITH INCREASED CONCNS. OF ADRENALINE IN THE SPECIFIC RECEPTOR ZONE AND SIMULTANEOUS INCREASES IN ADRENALINE SENSITIVITY AND EFFECTIVENESS OF PRESSOR ADRENERGIC REACTION. AT 5-15 DAYS AFTER TOXIN INJECTION THE ACETYLCHOLINE CONCEN. INCREASED IN THE CHOLINORECEPTOR ZONE, AND SENSITIVITY TO THE MEDIATOR AND EFFECTIVENESS OF THE CHRONOTROPIC CHOLINERGIC REACTIONS DECREASED. EFFECTIVENESS OF THE PRESSOR REACTION TO NORAADRENALINE DECREASED DURING COMPARATIVELY SMALL CHANGES IN THE ADRENALINE PRESSOR REACTION. IN THE LATE PERIOD (30-60 DAYS AFTER TOXIN INJECTION) ADRENERGIC AND CHOLINERGIC REACTIONS WERE RELATIVELY NORMALIZED, BUT THERE WERE CHANGES IN THE ADRENOACTIVITY OF THE ADRENERGIC EFFECTIVE SYSTEM. CHANGES IN THE CONTRACTILE FUNCTION AND MYOCARDIAL CONTRACTOR RHYTHM, AND CHANGES IN HEMODYNAMICS DURING DIPHTHERIAL INTOXICATION AND MYOCARDITIS WERE CAUSED BY C RESPONDING CHANGES IN THE MEDIATOR RECEPTOR SYSTEM DAMAGED BY BACTERIAL TOXIN. CHANGES IN THE REACTIVITY OF THE CARDIOVASCULAR SYSTEM WERE PROBABLY CAUSED BY DISTURBANCES IN THE REGULATORY EFFECTS OF ADRENERGIC AND CHOLINERGIC SYSTEMS.

RAZV., MOSCOW, USSR. FACILITY: INST. BIOL.

UNCLASSIFIED

USSR

UDC 681.888.631.121.8

KOLCHIN, V.A., BALAKISHIYEV, G.A.

"Following Ultrasonic Level Indicator"

Za tekhn. progress (For Technical Progress), 1970, No 6, pp 4-6 (from
RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A421)

Translation: A following ultrasonic level indicator is considered which eliminates the deficiencies of existing following level indicators and makes it possible to observe level changes automatically during operation, with a precision independent of the properties of the medium being monitored. Automatic shift of the carriage by level is accomplished by a Type PD-C.9 motor. The electronic part includes a generator of ultrasonic oscillations and two receiving devices, which consist of an electronic amplifier, an emitter follower, and a transistor key [klyuch]. The pickup [datchik] of the indicator is a 2-channel acoustic-transducer constructed according to a emitter-receiver circuit. The acoustic channels are shifted vertically one with reference to the other to the section determining the amount of precision of the level indicator. The precision of indication by the channels can be increased by diaphragming the ultrasonic rays at the piezocrystal receivers. It is established that for water and transformer oil the precision of the level indicator amounts to $< 1 \text{ mm}$, which is indicative of the independence of the level indicator from the composition of the liquid being monitored. A block diagram and the principal electrical circuit of the indicator are presented. 3 ill. 16 ref. L.K.

1/1

Probability & Statistics

USSR

KOLCHIN, V. F.

"A Problem on the Arrangement of Particles by Cells and Cycles of Random Permutations"

Moscow, Teoriya Veroyatnostey i yeye Primeneniya, January-March 1971, pp 67-81

Abstract: The uniform distribution of the set of all permutations of degree n is considered. A random permutation from the set has a random number of cycles $x_n = a_1 + \dots + a_n$, where a_r is the number of cycles of length r . The cycles are arranged in order of nondecreasing length, and the random variable equal to the length of the m -th cycle in the sequence is denoted by S_m .

It is proven that the distribution of a_1, \dots, a_n is the same as the distribution of certain random variables in an arrangement of particles by cells. This allows the investigation of a_1, \dots, a_n and the associated random variables x_n, S_m , and S_{x_n-m+1} to be reduced to a problem on the summation of independent, identically distributed random variables. In 1/2

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KOLCHIN, V. F., *Teoriya Veroyatnostey i yeye Primeneniya*, January-March 1971, pp 67-81

this way several limit theorems for the random variables x_n , S_m , and $S_{X_{n-m+1}}$ are proven.

A total of ten theorems is presented. The article includes 18 equations. There are 8 bibliographic references.

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USSR

UDC: 621.318.1(088.8)

MEDVEDEV, S. A., KOLCHIN, V. V., BALBASHOV, A. M., CHEPARIN, V. P., Moscow
Power Engineering Institute

"A Hexaferrite"

USSR Author's Certificate No 281710, filed 3 Jun 68, published 10 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V465 P)

Translation: This Author's Certificate introduces a hexaferrite which contains iron oxide, strontium oxide and chromium oxide. As a distinguishing feature of the patent, the field of anisotropy is increased to values of 33-40,3 thousand oersteds with a ferromagnetic resonance width of 1.8-2.2 thousand oersteds or less by taking the initial components in the following proportions (in percent by weight): strontium oxide 9.85-9.95, chromium oxide 23.2-32, and the remainder iron oxide.

1/1

KOLCHIN, Ye. V.

STPRS 56,459
1451147.2

EXPERIMENTAL STUDY OF 120-DAY HYPOKINESIA AND SOME PHARMACOLOGICALLY ACTIVE SUBSTANCES ON THE BEHAVIORAL TRENDS OF VITAMINS B, C AND B6

Article by Ye. V. Kolchin, Moscow, Aktualnye Voprosy Ksenukologii i Meditsiny (Current Problems in Space Biology and Medicine), Moscow, 1971, pp 152-154

The objective of this investigation was a study of the influence of 120-day hypokinesia and a combination of hypokinesia and the administration of pharmacologically active substances (pibutirin, DCCSA, vitamin), employed for correction of water-mineral and protein metabolism, on the metabolic indices of vitamins E, C and B6.

The experiment, carried out under the direction of Professor V. N. Krupina, was conducted on ten healthy males in the age group from 23 to 45 years, distributed in three groups: first -- for studying the effect of hypokinesia; second -- for studying the joint effect of hypokinesia and pibutirin (and later DCCSA) on water-mineral metabolism; third -- for studying the joint effect of hypokinesia and hormonal on protein metabolism.

The experiment was broken down into three parts: 1) collection of background data for a period of 20 days; 2) experimental -- 120 days; 3) study of recovery reactions -- 35 days. During the first and third periods the subjects adhered to an ordinary regime. During the second period they were confined to bed, lying horizontally on the back. During the first and third periods the subjects were fed a ration with a caloric content of 2,900 Cal; during the second period the caloric content was 2,400 Cal. There were three meals a day; the food was prepared from natural products; there was no restriction on water intake.

USSR

UDC 547.245+547.241+547.244

ANDRIANOV, K. A., VARLAMOVA, N. V., KOLCHIDA, A. G., SEVERNYIY, V. V., and SHAPATIN, A. S.

"Synthesis and Study of Properties Bis(organophosphinoxy)dibutoxy Titaniums"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1560-1565

Abstract: The authors previously studied the synthesis of some bis(organophosphinoxy)dibutoxy titaniums by the condensation of tetrabutoxytitanium with phosphorus monoacids or acid monoacids. In the present article the authors report using an analogous method to obtain similar compounds containing a catecholoxy or methylene-o-carboranene group at the phosphorus. The synthesis of the former was through the corresponding acid monoacids, the latter through 1,2-methylene-o-carboranephosphoric acid. The resistance of these and the previously synthesized compounds to thermooxidative degradation was studied. It was found that thermooxidative degradation is accompanied by loss of the organic part of the monomers. Given the same titanium framework, the comparative resistance to thermooxidative degradation for similar compounds is determined by the stability of the organic phosphorus framework.

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USSR

ANDRIANOV, K. A., et al., Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70,
pp 1560-1565

Monomers containing alkoxy or aryloxy groups at the phosphorus are the least stable, the monomer with two phenyl radicals the most stable. The monomer containing a methylene-o-carboranene group at phosphorus loses this grouping during thermooxidative degradation.

2/2

KOLCHINA, Ye. V.

SPRS 56, 499
14 JULY 72

INVESTIGATION OF VOLATILE SUBSTANCES RELEASED BY GRANULED CONSTRUCTION MATERIALS

Article by V. D. Yablochkin, A. H. Popov, A. I. Gorshunova, V. A. Shestirskaya, Ye. V. Kolchina and M. I. Chukhryaeva. Khimiya Volatilnykh Vеществ Molekul' i Iodoliznykh Soedineniy v Sverkhbiologii i Meditsine, Moscow, 1971, pp 201-209.

I. Block, Sheet and Granulated Plastics

In the recent years there has been a considerable broadening of the field of applicability of plastics as construction materials (E. Behr, 1957). Thermoplastics on the basis of polyacrylates, polyamides and copolymers of the ABC type (Spencer, 1969) have shown the greatest possibilities of use in this direction. The content of volatile substances in polymers exerts a substantial effect on their physicochemical properties and toxicity (G. B. Vyazovskaya, V. V. Iapshin, 1964; V. D. Yablochkin, 1969). Accordingly, the purpose of this study was an investigation of the combination of a complex of volatile substances released by some block, sheet and granulated plastics under conditions simulating the external medium in the process of using polymer construction materials.

Experimental Part

We studied a "round of block", sheet and granulated construction materials, including 10 samples on the basis of phenol-formaldehyde resin, polyacrylate (Ariston), polyamide, polymethyl methacrylate and butadiene-styrene-acrylonitrile copolymer (Ang resin).

All the samples were investigated at normal (20-20°C) temperature and with an exposure of 10 days. In addition, tests of the materials, other than pressed powder and material on the basis of ABC copolymer, was investigated at increased

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STUDY OF VOLATILE SUBSTANCES RELEASED BY POLYMER CONSTRUCTION MATERIALS

Article by Ye. V. Yablochkin, Ye. A. Shkhraykaya, A. V. Popov, A. I. Gorshunova, Ye. V. Alshina and G. I. Chubina. Problems in Space Biology and Medicine, Russian, 1971, pp 301-305.

1.1. Foam and Porous Plastics Based on Polystyrene and Cellulose

Taking into account the peculiarities of practical use, one can expect polymer construction materials to be affected by different environmental factors, especially temperature, and release of great quantities of volatile substances. Yablochkin, 1969). The objective of this study was an investigation of a complex of volatile substances released by foam and porous plastics under conditions simulating the parameters of the surrounding medium in the course of their use.

Experimental Part

In our study we selected a group of nine samples of foam and porous plastics on the basis of foam polystyrene and foam-porous polyurethane, including: foam polystyrene and hard foam plastic, beaded polyurethane P-1, P-2 and P-3, based on solutions of silicone rubber, porous plastic made from it (porolon matting).

The method for formulating and conducting the analytical investigation of the volatile substances released by polymer construction materials, including chemical, spectrophotometric and gas chromatographic analysis, did not differ from that described in communication I.

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SPRS 576,499
14 JULY 72

STUDY OF VOLATILE SUBSTANCES RELEASED BY POLYMERS BASED ON
POLYMERIZABLE HALOGENE DERIVATIVES

Article by Ye. V. Kolchina, Ye. V. Yabluchkin, Ye. A. Shchir-
kova, A. I. Gornunova and A. I. Gubanova. Moscow, Akademiya
Nauk SSSR, 1971. 10 p. (Russian). (Engineering Journal, 1972,
167)

Abstract based on polyethylene derivatives containing
halogens are used extensively in the national economy, their
use in outfitting living quarters and factory rooms is accom-
panied by the possibility of atmospheric contamination by
volatile products which are toxic to man.

The literature contains limited information on the ana-
lysis and chemical characteristics of these groups of poly-
mers. In studies published during recent years various authors
mention the possibility that materials with a polyvinyl chlor-
ide base can release such toxic compounds as carbon monoxide,
dibutyl phthalate, ammonia, hydrogen chloride, chloroacarbon
compounds, fatty acids and aldehydes (Ye. G. Dvorkin, et al.,
1966; V. D. Yabluchkin, 1967; S. L. Mal'manovich, 1967; Ye. G.
Dvorkin, 1968). There have very few comparisons made
based on polytetrafluoroethylene release into the atmosphere
only insignificant quantities of carbon monoxide and hydrocar-
bons (V. G. Yabluchkin, 1967).

Due to the extensive use of polymers based on polyethy-
lene derivatives containing halogens it seemed desirable to
continue investigation of the gas release of samples of a num-
ber of the polymer construction materials most frequently used
in industry which are based on polyvinyl chloride and polytetra-
fluoroethylene.

In the sanitary-chemical investigation we selected a
group of six materials, three samples each from the polyvinyl

KOLCHINSKAYA, A. Z.

RESPIRATION OF BOTTLE-NOSSED PORPOISES

TPRS 559PZ
15 May 72

Article by A. Z. Kolchinskaya, O. G. Karadadzica, T. S. Migchenko, N. M. Stupnov, S. K. Vasilieva and Yu. V. Stepanov, Kiev, Kiev, Bionika, Russian, No 5, 1971. 1st-vo "Naukova Dumka," pp 19-28.

The specialization of the respiratory system in cetaceans in a water medium resulted in profound anatomical and functional changes in this system. Despite the fact that the fundamental changes in the system of marine mammals is of the greatest interest to biologists, zoologists, physiologists and specialists in bionics, until recently information on the physiology of respiration of these animals was limited due to the lack of appropriate conditions, such as occurrence, large marine aquariums and apparatus for specialized investigations, and also due to certain systematic difficulties which faced biologists in investigating the respiration of marine mammals. Even at the present time not only respiration in the broad sense of the word, but even the pulmonary respiration of cetaceans, which is easier to study, have not been investigated adequately, which is a number of review articles and sections in monographs have been devoted to this subject (1, 2, 5-9, 11-14, 16-20, 27-30, 32, 33, 35-37, 40-45). They give far more information on the ecology of these animals, the anatomy and histology of their organs of respiration than on physiology. Data on pulmonary and respiratory volumes, pulmonary ventilation, and on oxygen consumption have been obtained for a small number of small cetaceans (1, 15, 21-26, 31, 34, 38, 39). But even in these animals such important indices as total lung capacity and its components, compliance of alveolar air, physiologic dead respiratory space, and alveolar ventilation have not been determined experimentally. Data on them have been cited on the basis of speculative conclusions. The literature contains no information on the mechanics of respiration of dolphins. There is virtually no precise information on respiration regimes and on the factors exerting

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RESPIRATORY CONTROL IN CHILDREN AND TEEN-AGERS

A. Z. Kolchinska

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Summary

A summary is presented of investigation of respiration in more than 500 children, teen-agers and adults under various conditions (rest exercise, hypoxia, hypercapnia). Conclusions are drawn on most important peculiarities of respiratory control.

The ways are discussed of adjustments of ventilation to metabolic requirements and mechanisms that serve to change respiratory rate and volume, and raise the effectivity of respiration in the process of growth and development.

A hypothetic functional scheme of a respiratory regulator is proposed. The scheme may serve to construct a mathematical model that will help to find quantitative expressions for relations between ventilation and $p_A(p_s)O_2$, $p_A(p_s)CO_2$, ph_s , exercise nervous stimuli, sympathetic and cortical (conditional) drives.

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pO_2 and pCO_2 fluctuations in the alveolar air and arterial blood taking place during the respiratory cycle, greater rates of pO_2 decrease and pCO_2 increase during expiration, that depend on higher rate of oxygen consumption and smaller volume of the alveolar reservoir, are supposed to play a certain part in establishing a more frequent respiratory rhythm in children.

An assumption is advanced that hypoxic and hypercapnic drives can play a certain part in the development and "self-learning" of the regulator of ventilation and serve it to make a choice of optima that increases the effectivity of external respiration with age and development of a child.

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UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--STEAM GAS TREATMENT OF A POLYCAPROLACTAM MELT FOR THE EXTRACTION OF
LOW MOLECULAR WEIGHT COMPOUNDS -U-

AUTHOR-(02)-KOLCHINSKAYA, L.M., FISHMAN, K.YE.

COUNTRY OF INFO--USSR

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SOURCE--KHIM. VOLOKNA 1970, (2), 69-71

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CAPROLACTAM, FLUID VISCOSITY, HYDROLYSIS, THERMAL DEGRADATION,
SOLVENT EXTRACTION, CHEMICAL SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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PROCESSING DATE--23OCT70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENT OF LOW MOL. WT. COMPOUNDS IN POLYCAPROLACTAM (I) MELTS WAS REDUCED BY SHORT TERM EXTN. (SIMILAR TO 0.5 HR) WITH STEAM, H, AND STEAM N MIXTS. AT 265-400DEGREES. WITH LONGER EXTN. TIMES, THE CONTENT OF LOW MOL. WT. COMPOS. AGAIN INCREASED ALTHOUGH THE I RELATIVE VISCOSITY (1PERCENT IN H- SUB2 SO SUB4) CHANGED LITTLE. VISCOSITY INCREASED FASTER AND TO A GREATER EXTENT BY TREATING MELTS WITH N OR 1:3 STEAM N MIXTS. THAN WITH STEAM OR 3:1 STEAM N MIXTS. BECAUSE THE HIGHER WATER CONTENT OF THE LATTER PROMOTED HYDROLYSIS AND THERMAL DEGRADATION OF I.

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PROCESSING DATE--04DEC70

TITLE--EFFECT OF LATTICE STRUCTURE ON THE PHOSPHORESCENCE OF PURE AND
DOPED BENZOPHENONE CRYSTALS -U-

AUTHOR--(03)--GOLOVCHENKO, V.P., FAYDYSH, A.N., KOLCHINSKIY, M.Z.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 589-93

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL LATTICE STRUCTURE, PHOSPHORESCENCE, PHOSPHORESCENT
MATERIAL, BENZENE DERIVATIVE, ABSORPTION BAND SPECTRUM, ENERGY BAND
STRUCTURE, IMPURITY LEVEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1809

STEP NO--UR/0048/70/034/003/0589/0593

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PROCESSING DATE--04DEC70

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CIRC ACCESSION NO--AP0118774

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOSPHORESCENCE SPECTRA, AND THE DURATION AND QUANTUM YIELDS OF THE PHOSPHORESCENCE OF 5 MODIFICATIONS OF BOTH PURE AND DOPED BENZOPHENONE (I) CRYSTALS WERE MEASURED AT DIFFERENT TEMPS., BUT MOSTLY AT 77DEGREEK. THE CONDITIONS OF THE PREPN. OF EACH MODIFICATION ARE GIVEN. THREE MODIFICATIONS OF PURE I SHOWED STRONG PHOSPHORESCENCE AT 77DEGREEK (MODIFICATION, M.P., FREQUENCY ν SUBO OF THE PRIMARY MAX., HALWIDTH OF THE BANDS, QUANTUM YIELD, LIFETIME OF OVERALL AND RADIATION TRIPLET STATE GIVEN); ALPHA, 322DEGREEK, 24,000 CM PRIME NEGATIVE1, 400, 0.09, 7 TIMES 10 PRIME NEGATIVE4, 7.7 TIMES 10 PRIME NEGATIVE3; X, 205DEGREEK, 23,400 CM PRIME NEGATIVE1, 700, 0.6-0.7, 3.4 TIMES 10 PRIME NEGATIVE3, 6 TIMES 10 PRIME NEGATIVE3; Y, 220DEGREEK, 23,400 CM PRIME NEGATIVE1, 500, 0.08, --. STRONG TRANSFER OF THE TRIPLET ECITATION ENERGY CAUSING THE ATTENUATION OF PHOSPHORESCENCE OF I AND OCCURRENCE OF SENSITIZED IMPURITY PHOSPHORESCENCE WAS OBSD. IN THE CRYSTALS OF THESE 3 MODIFICATIONS DOPED WITH EITHER NAPHTHALENE OR ALPHA BROMONAPHTHALENE. BOTH PURE AND DUPEO CRYSTALS OF THE FURTHER MODIFICATION (BETA, M. 299DEGREEK) SHOWED VERY WEAK PHOSPHORESCENCE WHICH WAS SUPPOSED TO BE BOUND TO INCREASED PROBABILITY OF RADIATIONLESS INTRAMOL. TRANSITION IN BETA I. THE PHOSPHORESCENCE SPECTRUM OF THE MODIFICATION Z I WAS ALSO VERY WEAK AND DID NOT SHOW THE BAND STRUCTURE. ALTHOUGH THE EXACT NATURE OF Z I WAS NOT CLEAR, THE EFFECT OF IMPURITIES WHICH COULD BE FORMED IN THE CONDITIONS OF PREPG. Z I, ON THE PHOSPHORESCENCE WAS CONSIDERED.

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3/3 028

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CIRC ACCESSION NO--AP0118774

ABSTRACT/EXTRACT--THE OBSD. PHENOMENA WERE GENERALLY EXPLAINED BY THE
CHANGES OF THE CRYSTAL LATTICE STRUCTURE EFFECTING THE INTERMOL.
INTERACTION. FACILITY: FIZ. FAK., KIEV. GOS. UNIV. [M.
SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR

KOLCHURINA, A. A., (Deceased), TARANOVA, G. P., and SMIRNOVA, L. B., State Control Institute of Medical and Biological Preparations imeni L. A. Tarasevich, Moscow

"Some Special Aspects of the Biological Properties of Influenza A2 Virus Strains Isolated in 1968-1970"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 492

Translation: A control analysis was performed on influenza A2 virus strains isolated in various years. Changes were found not only in antigenic structure, but also in other biological properties of the pathogen. In the process of this mutation, at first inhibitor-resistant strains disappeared, and then inhibitor-resistant viruses vanished from a mixed population of strains sensitive to inhibitors. Virus particles with reduced sensitivity to inhibitors were found, but no virus particles completely resistant to the inhibitors were observed in a population of A2 strains (1968-1970). The strains displayed a high replication rate of infectious virus and hemagglutinins and a weak capacity to replicate at 40°C.

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