

USSR

UDC 772.99:681.3

FEDOROV, B. F., Candidate of Sciences, ~~ELIMAN, B. I.~~, Doctor of Sciences

"Computer Synthesis of Holograms"

Moscow, Optiko-Mekhanicheskaya Promyshlennost', No. 4, 1972, pp 21-23

Abstract: In connection with the expansion of the possibilities of optical information processing systems, it is proposed that the use of machine holograms is effective in cases in which it is difficult or impossible to obtain holograms by ordinary optical means, such as obtaining optimal holographic filters for recognition devices and the holography of hypothetical, calculated machine images of objects. The possibilities of existing computer techniques for the synthesis of holograms are evaluated to analyze trends in the development of machine holography and its use in electron optics systems. The possibilities of producing double Fourier holograms was evaluated using the BESM-4 computer with the ATsPU-123 alphanumeric printout. The word format of the printout unit has 128 positions. Examination of the reproduced image showed that it has a periodic nature due to the discrete nature of the Fourier transformation. Each individual image has a weak, centrally symmetric component due to a loss in the sign of the phase. The total machine time expended on obtaining one hologram was 15 mins. Experience in the machine synthesis of holograms indicates the possibility of a detailed study of the holographic process by modeling it with the aid of a computer.

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UDC 539.4.001.2

ABASOV, S. A., ALIYEVA, M. KH., and ELMIRA, CHALAL GYZY

"Strength Properties of a TlSe Single Crystal and the Effect of Different Factors on It"

Baku, Doklady Akademii Nauk Azerbaydzhan SSR, Vol 28, No 8, 1972, pp 11-16

Abstract: The results of investigating the time and temperature relationship for the strength of a thallium selenide single crystal and the effect of heat treatment, crystal anisotropy, and various impurities on these relationships are presented. It was found that the thallium atoms in TlSe exist in two completely different crystallographic positions in which half the atoms are monovalent and the remainder trivalent. During heat treatment (523°K for 2 and 25 hours) favorable conditions are created for dissipation of thermal stresses, the atoms occupy their normal positions, and the crystal becomes more complete. During this same period the concentration of carriers decreases from 10^{18} to 10^{13} cm³, resulting in increased crystal strength. However, when the heat-treated TlSe single crystal is quenched after heat treatment, unstable acceptor centers are formed, associated with inherent lattice defects, which leads to an unstationary state and strength is diminished. The activation energy for the process of mechanical failure of TlSe was found 1/2

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ABASOV, S. A., et al, Baku, Doklady Akademii Nauk Azerbaydzhan SSR, Vol 28,
No 8, 1972, pp 11-16

to be $U_0 = 23$ kcal/mol. Academician G. G. ABDULIYEV assisted the authors
in this work. 5 figures, 1 table, 11 bibliographic references.

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USSR

correct.

UDC:511

EL'NATANOV, B. A.

"Limit of Sums of Products of Multiplicative and Additive Functions by Numbers With Prime Divisors in Fixed Intervals"

Uch. Zap. Dushanbinsk. Gos. Ped. In-t [Scientific Writings of Dushanbe State Pedagogics Institute], Vol. 71, No. 6, 1970, pp. 31-57 (Translated from Referativnyy Zhurnal Matematika, No. 12, 1970, Abstract No. 12A90 by A. Faynleyb)

Translation: Suppose $0 < \beta_0 < \beta_1 < \dots < \beta_k = t$; M_ν is a set of natural numbers all prime divisors of which fall in the interval $(x^{\beta_{\nu-1}}, x^{\beta_\nu}]$; $f_1(n), \dots, f_k(n)$ are the multiplicative functions; $g(n)$ is the additive function; $f(n) = f_1(n_1) \dots f_k(n_k)$. Introducing the generalized Manholdt function $\Lambda_f^{(g)}(n)$, defined by the relationship

$$I(n) g(n) = \sum_{d|n} I(d) \Lambda_f^{(g)}\left(\frac{n}{d}\right).$$

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UDC:511

EL'NATANOV, B. A., Uch. Zap. Dushanbinsk. Gos. Ped. In-t, Vol. 71, No. 6, 1970, pp. 31-57

and using the results of B. V. Levin and the abstractor on the addition of multiplicative functions, the author studies the asymptotic behavior of sums of the form

$$\sum_{n < x, n_v \in M_v} l(n) g(n), \quad \text{where } x \rightarrow \infty.$$

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UDC 541.63+541.124.547.491

KOSTYANOVSKIY, R. G., EL'NATANOV, YU. I., and PLEKHANOV, V. G., Institute of Chemical Physics, Academy of Sciences USSR

"Absence of p- π -Resonance in Cyano- and Acylphosphine Vinylogs"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, p 2355

Abstract: Addition of di-tert-butylphosphine to activated acetylenes gave $(Me_3C)_2PCH_2CHX$ type of compounds, where X = CN (I) or $COOCH_3$ (II). The reaction was highly stereospecific yielding cis-(I) and trans-(II). On the basis of spectral data and because the cis-trans-isomerization did not occur smoothly at 150-200°C, it has been concluded that there is no p- π -resonance in these compounds.

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UDC 547.26'118

PROKOF'YEVA, A. F., MEL'NIKOV, N. N., VLADIMIROVA, I. L., and EYNISMAN, L. I., All-Union Scientific Research Institute of Chemical Plant Protection

"Organic Insectofungicides. Reaction of Substituted Benzyl Chlorides with Dialkyl and Trialkyl Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1702-1706

Abstract: Since there has been insufficient study of the Michaelis-Becker reaction for the synthesis of phosphonates in the case of benzyl halides, the authors undertook to study the reaction of dialkylphosphorous and thiophosphorous acid salts with benzyl chlorides containing various substituents in the benzene ring. Salts of dimethyl-, diethyl-, diisopropylphosphorous acids and diethylthiophosphorous acid were used as the nucleophilic agent. The reaction, conducted in absolute toluene at 70-90° for 3-10 hours, gives O,O-dialkyl benzylphosphonates. The principal processes occurring in such polar solvents as methanol, methanol-water, methanol-toluene, dioxane-water are methanolysis or hydrolysis of the initial benzyl chlorides. 5-chloro-2-methoxy(2-ethoxy)benzyl chlorides in methanol-water are converted into corresponding benzyl alcohols. The reaction of benzyl chlorides with sodium diethylthiophosphite gives benzylthiophosphonates. Biological studies show that the synthesized O,O-dialkyl benzylphosphonates possess fungicidal properties.

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UDC 911.3:616.981.452(479.2)

EYGELIS, Yu. K., ALIYEV, M. N., LENCHITSKIY, A. Z., and MAMEDZADE, U. A.

"Present Structure and History of Natural Plague Foci in Transcaucasia"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 58-62 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.113)

by B. Dobrokhotov

Translation: There are at present three autonomous zones in the Transcaucasian territory, which have natural plague foci. In the plain-foothill part of East Transcaucasia, the focal activity is maintained by red-tailed Libyan jirds, *Xenopsylla conformis* and *Ceratophyllus laeviceps* fleas. In the Armenian highlands on the alpine and subalpine meadows and mountainous plains, the enzootic is usually maintained by the common vole and by the fleas *C. caspius*, *C. consimilis* and *Frontopsylla elata*. In the semiarid zone of Nakhichevan Autonomous ASSR -- Vinogradov's gerbils, *X. conformis* and *C. iramus* fleas. The history of the origin of plague foci in Transcaucasia is described and is linked to the scattering of gerbils from the Iran-Afghanistan desert and to the special features of the course of the epizootic disease in various regions of focal activity. In spite of the common origin of all three natural foci, at present a link between them seems very unlikely.

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EL'NER, A. M.

CHANGE IN REFLEX REACTION OF HUMAN MUSCLES DURING ACQUAINT VERTEBRAL STIMULATION

ISSUE NO. 14, 1972, PAGES 101-105

JPRS 56030
18 May 72

Article by Ye. I. Pal'tov and A. M. El'ner, Vsesoyuznyy Nauchno-Issledovatskiy Biologicheskiy Tsentr, Moscow, Vol. 14, No. 14, March-April 1972, pp 101-105, submitted for publication 12 May 1971.

Abstract: This paper gives experimental data on changes in the reflex excitability of human leg muscles in response to adequate vestibular stimulation (body rotation in the sagittal plane with an angular acceleration). Functional changes in the extensor digitorum longus developed up to 15-20 msec after the onset of rotation. Variations in reflex excitability of different muscles in response to the same vestibular stimulation (direction of body rotation) were dissimilar. Changes in reflex excitability of the same muscle were also different in response to various vestibular stimuli. Changes in reflex excitability of the same muscle were also different in response to various vestibular stimuli. It is concluded that the vestibular apparatus may perform a coordinating function during dynamic control of movements, but also may carry out a stabilizing function. It is shown that even during steady rotation reflex reactions were observed in response to body movement's body by movements of the vestibular apparatus.

Presently available data on vestibular-ocular influences in man obtained using cultured or evaporate stimulation (Ye. I. Pal'tov et al.; I. Ya. Kalinovsky and Yu. S. Novovitch; Ye. M. Kozs and V. A. Terlyanov), due to the artificiality of such stimuli (K. I. Khilov) do not make it possible to judge the nature of vestibular effects on the functional state of the segmentary structures in the spinal cord participating in the regulation of posture and movements under natural conditions. Attempts at clarifying the influence of adequate vestibular stimulation on the regulation of the muscles were undertaken by Matthews and Whitfield. However, the results of these investigations, made only on healthy subjects and without registering accelerations, do not make it possible to answer the question convincingly as to what is responsible for the changes.

Heat, Combustion, Detonation

USSR

UDC 536.244:66.015.23

SMOL'SKIY, B. M., EL'PERIN, I. T., FATEYEV, G. A., and TARASEVICH, L. I.

"The Effect of Conductive and Convective Heat Exchange on the Speed of the Reaction Zone's Motion in a Porous Body That Is Being Purged"

Minsk, Teplo- i massoperenos -- sb. (Heat and Mass Transfer -- Collection of Works), Vol 2, Part 2, 1972, pp 493-499 (from Referativnyy Zhurnal -- Teploenergetika, No 10, 1972, Abstract No 10G150)

Translation: The authors, who are employed by the Belorussian SSR Academy of Sciences' Institute of Heat and Mass Exchange and the Belorussian Polytechnic Institute in Minsk, analyzed the equations describing the steady temperature field in a reacting porous body that is being purged and, on the basis of this analysis, discovered the effect of the conductive and convective transfer of heat on the speed at which the reaction zone moves. They established that the effect of both types of heat transfer is analogous, although the analogy is not effective for the small Re numbers and the large values of the relative adiabatic combustion temperature that characterize the intensity of an internal heat source. The reason that the analogy is destroyed is related to the complication of the temperature profile's configuration near the reaction zone, for which the quadratic

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SMOL'SKIY, E. M., et al., Teplo- i massopereenos -- sb., Vol 2, Part 2, 1972,
pp 493-499 (from Referativnyy Zhurnal -- Teploenergetika, No 10, 1972, Abstract
No 10G150)

approximation of the profile that is the basic analogy becomes inadequate.
(1 illustration; 4 bibliog. ref.)

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USSR

UDC: 532.529

^{correct}
EL'PERIN I. T., MEL'TSEV, V. L., LEVENTAL', L. I.

"Motion of a Solid Particle in Head-on Gas Jets"

V sb. Teplo- i massopereenos v apparatakh s dispersn. sistemami (Heat and Mass Transfer in Devices With Disperse Systems--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 83-91 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B920)

Translation: The motion of a solid particle in opposed gas jets is analytically considered for the self-similar, transition and Stokes regions of the law of resistances. Generalized analytical relationships are found which permit approximate calculation of the basic parameters of motion of the particles in the acceleration section and in the zone of collisions of the jets. It is shown that use of the method of opposed jets makes it possible to increase the stay of the solid phase as compared with ordinary flows of a gas suspension. Authors' abstract.

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1/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--QUENCHING OF ULTRASONIC WAVES IN AQUEOUS SOLUTIONS OF NUCLEIC ACIDS

-U-

AUTHOR-(03)-^{correct}ELPINER, I.YE., SADYKHOVA, S.KH., BRAGINSKAYA, F.I.

COUNTRY OF INFO--USSR

E

SOURCE--BIOFIZIKA 1970, 15(1), 26-30

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NUCLEIC ACID, AQUEOUS SOLUTION, ULTRASOUND ABSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/0710

STEP NO--UR/0217/70/015/001/0026/0030

CIRC ACCESSION NO--AP0119617

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119617

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION OF ULTRASONIC ENERGY BY NATIVE AND DENATURED NUCLEIC ACIDS (I) WAS STUDIED BY MEANS OF A 12-68 MHZ GENERATOR. THE DENATURATION CAUSED BY THE ACTION OF HCHO OR NH SUB2 OH ON I, AND LIMITED TO CHANGES OF THE SECONDARY STRUCTURE OF I, RESULTED IN AN INCREASE OF THE ABSORPTION OF ULTRASONIC WAVES. RUPTURE OF THE POLYMER CHAINS IN I CAUSED BY THE ACTION OF HIGH INTENSITY ULTRASONIC WAVES, UREA, OR HYDROLYZING AGENTS RESULTED IN A DECREASE OF THE ABSORPTION OF ULTRASONIC ENERGY IN THE FREQUENCY RANGE EXAMD. FACILITY: INST. CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--USE OF ULTRASONIC WAVES TO STUDY THE COMPLEXING OF NUCLEIC ACIDS
WITH POLYANIONS -U- ^{correct}
AUTHOR--(03)-ELPNER, I.YE., BRAGINSKAYA, F.I., SADYKHOVA, S.KH.
COUNTRY OF INFO--USSR E
SOURCE--BIOFIZIKA 1970, 15(2), 274-7 (RUSS)
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--YEAST, RNA, SODIUM COMPOUND, PHOSPHORUS COMPOUND, CHEMICAL
REACTION, ULTRASONIC IRRADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0284

STEP NO--UR/0217/70/015/002/0274/0277

CIRC ACCESSION NO--AP0135780

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135780

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTERACTIONS BETWEEN YEAST RNA AND THE POLYPHOSPHATES (NAP0 SUB3) SUB75 AND (NAP0 SUB3) SUB3 WERE STUDIED BY MEASURING QUENCHING OF ULTRASONIC WAVES. QUENCHING WAS MEASURED ON AN IMPULSE DEVICE IN THE FREQUENCY RANGE 12-68 KHZ. METHACHROMASIA WITH TOLUIDINE BLUE WAS ALSO EMPLOYED. THE ABSORPTION MAX. OF TOLUIDINE BLUE IS DISPLACED TOWARD LOWER WAVELENGTHS (600 AND 540 M MU) IN THE PRESENCE OF RNA AND POLYPHOSPHATE, RESP. THE LINEAR (NAP0 SUB3) SUB75 IS APPARENTLY BOUND BY NONHELICAL PORTIONS OF THE RNA MOL., WHICH THEN ACQUIRES DOUBLE STRANDED PROPERTIES. (NAP0 SUB3) SUB3, ON THE OTHER HAND, DOES NOT CHANGE ITS METACHROMATIC REACTION WITH THE DYE UPON ADDN. TO RNA. METACHROMATIC DATA ARE IN GOOD AGREEMENT WITH RESULTS OF STUDIES ON ACOUSTIC PARAMETERS OF POLYPHOSPHATES DURING INTERACTION WITH RNA. SONICATION OF RNA UNDER CERTAIN CONDITIONS (IN H, 2 HR, FREQUENCY 750 KHZ, INTENSITY 10-12 W-CM PRIME2) RESULTS IN RUPTURE OF RNA MOL. ALONG NONHELICAL REGIONS. AS A RESULT, THE SONICATED RNA LOSES SOME OF ITS ABILITY TO INTERACT WITH (NAP0 SUB3) SUB75. FACILITY: INST. CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 576.311

DEBORIN, G. A., EL'PINER, I. Ye. (Deceased), BARANOVA, V. Z., SOROKINA, A. D., and TONGUR, A. M., Institute of Biochemistry imeni A. N. Bakh, Academy of Sciences USSR, and Institute of Chemical Physics, Academy of Sciences USSR, Moscow

"The Reaction of Tobacco Mosaic Virus With Phospholipid Monolayers Exposed to Ultrasound"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 6, Jun 71, pp 1,445-1,448

Abstract: Curves showing the expansion and compression of a monolayer of pure phospholipids (obtained from cattle brain) and of a monolayer of phospholipids with tobacco mosaic virus coincided in shape and values of maximum pressures, suggesting that the virus did not penetrate into the surface film of the phospholipids. On the other hand, curves showing the compressibility of sonicated phospholipids and sonicated phospholipids with tobacco mosaic virus diverged considerably, indicating that the layer of phospholipids was penetrated by the virus. In other words, a monolayer of sonicated phospholipid is capable of incorporating virus particles to form a mixed phospholipid -- virus film. Thus, a change in the condition or structure of a biological membrane (or its individual constituents) can influence its
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EL'PINER, I. Ye.

JPRS 55304
29 February 1972

FORMATION OF AMINO ACIDS ON IRRADIATION OF FOG CONTAINING
FORMALDEHYDE AND AMMONIUM NITRATE WITH UV LIGHT

[Article by I. Ye. Pavlovskaya, T. A. Tseligina, A. Y. Sokol'skaya, and
I. Ye. Mikhlin (Dezhnevskaya), Izvestiya Akademi Nauk SSSR, Seriya
Khimicheskaya, Moscow, No 6, 1971, unnumbered 15 June 1971, pp 922-925]

One of the possible ways of the abiogenetic formation of biologically important materials under the conditions of the primordial earth as well as under extraterrestrial conditions could have been the photochemical processes occurring in fogs, raindrops, and in clouds. Experimental data obtained by simulating these conditions are reported. The fog consisting of formaldehyde, ammonium nitrate and water was obtained by means of an ultrasonic generator and irradiated with 254 nm UV light. Glycine, alanine, and possibly threonine were identified among the photosynthetic products.

According to the present concepts, the generation of life was preceded by a long period of chemical evolution during which the formation of substances necessary for life processes occurred (Oparin, 1957). One of the experimental techniques used in the investigation of this problem in recent years is the study of the abiogenetic formation of compounds of biological importance in systems simulating the conditions of primordial earth (Pavlovskiy and Pavlovskaya, 1964; Pavlovskaya, 1971).

On the other hand, the possibility of the abiogenetic formation of biologically important compounds is proved by the discovery of organic compounds in extraterrestrial sources. Pertinent data may be obtained, first of all, from the investigation of meteorites belonging to the class of carbonaceous chondrites containing organic compounds. In one investigation of this type, describing the analysis of a meteorite that fell in the region of Murchison, Australia in September 1969 (Kvenvolden et al., 1970), convincing proofs of the extraterrestrial origin of the amino acids and hydrocarbons found in the meteorite are cited.

USSR

EL'PINER, I. Ye., and BRONSKAYA, L. M., Institute of Biological Physics,
Academy of Sciences USSR, Pushchino, Moscovskaya Oblast

"Effect of Ultrasound Waves on the ATP-ases of Cytoplasm Membranes"

Moscow, Biofizika, Vol 15, No 5, Sep/Oct 70, pp 852-856

Abstract: An aqueous suspension of cytoplasm membranes isolated from the rat liver by the method of M. Takeuchi and H. Terayama was subjected to the action of ultrasound waves with a frequency of 750 kc and an intensity of 8-10 w/cm. After the action of ultrasound for 30 min, the membrane fragments had an Mg^{++} -dependent ATP-ase activity that was lower than the corresponding activity of the intact membranes before treatment with ultrasound and an NaK-ATP-ase activity that was higher by 25-30%. On treatment of the membranes with ultrasound for 60 min, both ATP-ase activities were lower than those of the intact membranes. In membrane fragments that remained in the supernatant liquid after centrifuging (at 18,000 g) a suspension treated with ultrasound, the Mg^{++} -ATP-ase activity was retained while the NaK-ATP-ase activity was entirely absent. The 5'-nucleotidase activity was retained after prolonged treatment of the membrane suspension with

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EL'PINER, I. Ye., and BRONSKAYA, L. M., Biofizika, Vol 15, No 5, Sep/Oct
70, pp 852-856

ultrasound waves (120 min); it even increased with increasing lengths of
the time of treatment in the 0-120 min range. In interpreting the shifts
in ATP-ase activity that were observed, the effect of ultrasound in
splitting off sialic acids from the lipoprotein complex that functions
as carrier of enzyme activity must be considered.

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1/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--AMINE OXIDASE ACTIVITY IN CYTOPLASMIC MEMBRANES AND NUCLEI OF LIVER
CELLS -U-
AUTHOR--(04)--AITOVA, E.A., BRONSKAYA, L.M., GORKIN, V.Z., ELPINER, I.YE.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 176-183
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, CYTOPLASM, CELL MEMBRANE, AMINE, OXIDASE, ISONIAZID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0802

STEP NO--UR/0301/70/016/002/0176/0183

CIRC ACCESSION NO--AP0102765

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--020070

CIRC ACCESSION NO--AP0102765

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CYTOPLASMIC MEMBRANCE AND NUCLEI OF RAT LIVER CELLS AMINE OXIDASE ACTIVITY IS FOUND; TYRAMINE, SEROTONIN, HYSTAMINE AND LYSINE ARE READILY DEAMINATED. IN RAT LIVER NUCLEI DEAMINATION OF ADENOSINE,5,MONOPHOSPHATE (AMP) IS ALSO NOTED. IN "MIXED SUBSTRATES" EXPERIMENTS COMPETITION BETWEEN SEROTONIN AND LYSINE IS OBSERVED; THE PHENOMENON IS NOT, HOWEVER, RECORDED IF ONE OF THESE SUBSTRATES IS SUBSTITUTED FOR AMP. DEAMINATION OF SEROTONIN BY AMINE OXIDASES FROM RAT LOVER NUCLEI IS PARTIALLY INHIBITED BY PARGYLINE (BUT NOT BY ISONIAZID). AMINE OXIDASE ACTIVITY IS PRESENT IN RAT LIVER CYTOPLASMIC MEMBRANES AND CELL NUCLEI DESTROYED BY SONICATION (ESPECIALLY IN NITROGEN ATMOSPHERE). SONICATION OF SUSPENSIONS OF PREVIOUSLY LYOPHYLIZED PREPARATIONS OF CYTOPLASMIC MEMBRANCE PRODUCES AMINE OXIDASE ACTIVITY CONTAINING PARTICLES WHICH ARE NOT SEDIMENTED IN ULTRACENTRIFUGE WITHIN 90 MIN AT 105,000 G.

UNCLASSIFIED

F
Biochemistry

USSR

BRAGINSKAYA, F.I., SADIKOVA, S.KH., and EL'PINER, I.YE., Institute of
Chemical Physics, Academy of Sciences USSR

"Study Formation of Complexes of Nucleic Acids With Polyanions by Means of
Ultrasound Waves"

Moscow, Biofizika, Vol 15, No 2, Mar/Apr 70, pp 274-276

Abstract: For the first time, determination of the attenuation of ultrasound waves was used to study the interaction of nucleic acids with polyphosphates [yeast RNA, $(\text{NaPO}_3)_{75}$, and $(\text{NaPO}_3)_2$]. Attenuation of ultrasound was measured with an impulse device in a frequency range of 12-68 megacycles per second. Along with the study of acoustic parameters of polymers, the method of metachromasia with toluidine blue was used. In the presence of RNA or polyphosphate, the absorption maximum of toluidine blue is displaced toward shorter wavelengths (600 millimicrons and 540 millimicrons, respectively), while in the presence of the complex it is shifted toward longer wavelengths (620 millimicrons). The linear polyphosphate $(\text{NaPO}_3)_{75}$ apparently becomes attached to the nonhelical portions of the RNA molecule, and the latter acquires the properties of a double helical polymer. Unlike the $(\text{NaPO}_3)_{75}$, when the $(\text{NaPO}_3)_3$ is added, it does not change the metachromatic reaction of RNA with the dye.

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BRAGINSKAYA, F.I., et al, Biofizika, Vol 15, No 2, Mar/Apr 70, pp 274-276

The metachromatic data agree with the results obtained in studies of the acoustic parameters of polyphosphates during their interaction with RNA. Under certain conditions (in hydrogen, exposure of 2 hours, frequency of 750 kilocycles/sec, intensity of 10-12 watts/cm²), ultrasound treatment of RNA results in a breakage of the RNA molecules in their nonhelical regions. As a consequence, the treated RNA loses some of its ability to interact with (NaPO₃)₇₅.

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USSR

E

EL'PINER, I.YE., Institute of Chemical Physics, Academy of Sciences USSR

"Noncavitational Ultrasound and Its Biological Effects"

Moscow, Biofizika, Vol 15, No 2, Mar/Apr 70, pp 333-342

Abstract: Investigation of the biological effect of noncavitational ultrasound has become important because of the successful application of ultrasound in biology and medicine. Ultrasound is used in medical diagnosis to visualize organs and tissues. Since noncavitational ultrasound of high intensity affects the structure and function of living cells, it is effectively used in neurosurgery, neuropathology, otolaryngology, and other fields. Publications on the mechanism of formation of microscopic currents in liquids in ultrasonic fields are reviewed. The role of ultrasonic microcurrents in the degradation of macromolecules, alteration of the physiological state of cells and their ability to react to stimuli, impairment of cell membranes, and destruction of cells is analyzed. The nature and form of microcurrents developing along the borderline between cells and the surrounding liquid, as well as within the cells, are described. These currents may cause reversible shifts in the microscopic and submicroscopic structures, or changes which become genetically fixed and are mutations. The changes may involve mutual relations among cellular molecular complexes.

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IL'PINER, I.M., *Biophysika*, Vol 15, No 2, Mar/Apr 70, pp 333-342

and their spatial orientation. Great experimental possibilities have been disclosed for the use of the ultrasonic method in study of the role of the spatial organization of microscopic and submicroscopic cellular structures in vital processes in bacterial, animal, and plant cells.

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1/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--INFLUENCE OF THE NUCLEAR STRUCTURE ON PHOTODISINTEGRATION OF
LITHIUM 6 -U-
AUTHOR-(04)-KURDYUMOV, I.V., SMIRNOV, YU.F., SHITIKOVA, K.V., ELSAMARAI,
S.KH.
COUNTRY OF INFO--USSR
SOURCE--PHYS. LETT. B 1970, 31(4), 163-6
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NUCLEAR STRUCTURE, PHOTONUCLEAR REACTION, LITHIUM ISOTOPE,
EXCITED NUCLEUS, EXCITATION CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0808

STEP NO--NE/0000/70/031/004/0163/0166

CIRC ACCESSION NO--AP0052244

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--APO052244

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ATTEMPT IS MADE TO DESCRIBE IN A SINGLE WAY THE TOTAL CURVE OF THE DIPOLE PHOTOEXCITATION OF THE PRIME⁶ LI NUCLEUS. THE PARTIAL CROSS SECTIONS OF PHOTOREACTION AND THE DECAY SPECTRA ARE COMPARED TO EXPTL. DATA. THE INFLUENCE OF THE EFFECTS OF N CLUSTERING IN THE GROUND STATE ON THE FORM OF PHOTOABSORPTION CROSS SECTION IS ESTD. FACILITY: INST. NUCL. PHYS., MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--TRANSLATIONALLY INVARIANT SHELL MODEL -U-
AUTHOR-(04)-KURDYUMOV, I.V., SMIRNOV, YU.F., SHITIKOVA, K.V., ELSAMARAI,
~~S.KH.~~
COUNTRY OF INFO--USSR E probably OK
SOURCE--NUCL. PHYS. A 1970, 145(2), 593-612
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--NUCLEAR SHELL MODEL, HARMONIC OSCILLATION, WAVE FUNCTION,
COORDINATE SYSTEM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/0011 STEP NO--NE/0000/70/145/002/0593/0612
CIRC ACCESSION NO--AP0114411
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0114411

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TRANSLATIONALLY INVARIANT SHELL MODEL IN WHICH THE N OSCILLATE HARMONICALLY WITH RESPECT TO THE NUCLEAR CENTER OF MASS IS CONSIDERED. IN THIS MODEL THE WAVEFUNCTION OF THE NUCLEUS DEPENDS ON THE $3(A-1)$ JACOBI COORDINATES. THUS, THE PROBLEM OF THE SPURIOUS STATES IS ABSENT IN THIS MODEL. THE TRANSFORMATION FROM ONE SET OF JACOBI COORDINATES INTO ANOTHER FOR THE OSCILLATOR WAVEFUNCTIONS IS DISCUSSED. THE METHOD FOR CALCG. THE FRACTIONAL PARENTAGE COEFFS. IS SET OUT. FACILITY: INST. NUCL. PHYS., MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ASSOCIATION OF DISEASES OF THE DIGESTIVE ORGANS WITH OTHER DISEASES
-U-
AUTHOR--(02)--ELSHTEYN, N.V., ^{Correct}POTAPOVA, L.V.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELU, 1970, NR 5, PP 49-51
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, DIAGNOSTIC METHODS, SURGERY

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1728 STEP NO--UR/0475/70/000/005/0049/0059
CIRC ACCESSION NO--AP0129096
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129096

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INCIDENCE HAS BEEN STUDIED OF ASSOCIATED AND PARALLEL DISEASES IN 1806 GASTROENTEROLOGICAL PATIENTS. AS SINGLE DISEASES DIGESTIVE PATHOLOGY MADE UP 31.3PERCENT, IN 23.3PERCENT ONE GASTROENTEROLOGICAL DISEASE WAS ASSOCIATED WITH ANOTHER, IN 26.7PERCENT IT WAS ASSOCIATED WITH NON GASTROENTEROLOGICAL PATHOLOGY AND 18.7PERCENT ASSOCIATED DISEASES OF THE DIGESTIVE ORGANS WERE ASSOCIATED WITH DISEASES OF OTHER ORGANS AND SYSTEMS. THE INCIDENCE OF ASSOCIATED PATHOLOGY INCREASED WITH AGE AND WAS MORE MARKED IN FEMALES THAN IN MALES. THE DIFFICULTIES AND PROBLEMS OF DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS OF SUCH ASSOCIATED DISEASES ARE ANALYSED AND DISCUSSED. THE PROBLEMS OF TREATMENT, CHOICE OF SURGICAL TACTICS OR CONSERVATIVE THERAPY ARE DISCUSSED AS WELL. FACILITY: INSTITUTA EKSPERIMENTAL'NOY I KLINICHESKOY MEDITSINY MZ ESTSSR, TALLINSKAYA BOL'NITSA, KHAR'YUMYAE.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

1/3 033

TITLE--EXPERIENCE IN THE ORGANIZATION OF ENDOCRINOLOGICAL SERVICE TO AN

URBAN POPULATION -U- *correct*

AUTHOR--(02)-ELSHTEYN, N.V., MIROSHNICHENKO, R.S.

COUNTRY OF INFO--USSR

E

SOURCE--TALLIN; MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 3, 1970,

PP 27-32

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ENDOCRINOLOGY, PUBLIC HEALTH, GOITER, MEDICAL FACILITY,
MEDICAL PERSONNEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0663

STEP NO--UR/0753/70/000/003/0027/0032

CIRC ACCESSION NO--AP0132792

UNCLASSIFIED

2/3 033

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132792

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WE HAVE NOT FOUND IN THE LITERATURE SUMMARY RESEARCH ON THE ORGANIZATION OF SPECIALIZED ENDOCRINOLOGICAL SERVICE IN CITIES. ONLY A. P. NEGUREY PRESENTS CERTAIN MATERIAL ON FIRST STEPS IN DEVELOPING THIS KIND OF SERVICE. A NUMBER OF AUTHORS (K. S. RUBTSOVA; L. T. KLYACHKINA; M. A. RAKCHEYEVA; S. P. SEREBRYANAYA AND M. S. NOSOVA, ETC.) TREAT DISPENSARY SERVICE OF PATIENTS WITH ENDOCRINOUS PATHOLOGY. BUT ONE GETS THE IMPRESSION THAT THERE STILL DOES NOT EXIST A UNIFIED APPROACH TO THE PRINCIPLES OF ORGANIZING THIS WORK AND THE PRINCIPLES FOR OBSERVATION OF THESE PATIENTS. A UNIQUE SITUATION HAS TAKEN SHAPE IN TALLIN: THERE IS AN ENDOCRINOLOGIST IN EVERY POLYCLINIC, BUT THE PATIENTS WHO NEED TO BE EXAMINED ARE SENT TO TARTU, WHICH IS 190 KILOMETERS FROM TALLIN. ACCORDING TO DATA WE HAVE OBTAINED FROM THE TARTU GOITER CONTROL DISPENSARY, 25 PERCENT OF THE BEDS IN ITS INFIRMARY ARE OCCUPIED BY INHABITANTS OF TALLIN. THUS, THE ENDOCRINOLOGISTS OF THE POLYCLINICS, DEPRIVED OF THE NECESSARY EQUIPMENT, HAVE BECOME AN INTERMEDIATE ADMINISTRATIVE STAGE, NOT INFREQUENTLY REROUTING PATIENTS FROM THERAPEUTISTS IN TALLIN TO THE TARTU GOITER CONTROL DISPENSARY. WE BELIEVED THERE WAS NO JUSTIFICATION FOR THIS FORM OF ORGANIZATION OF ENDOCRINOLOGICAL SERVICE TO THE POPULATION OF THE CITY. ON A RECOMMENDATION FROM ONE OF US (N. V. EL'SHTEYN), THE MINISTRY OF HEALTH ESTONIAN SSR CREATED A CITY ENDOCRINOLOGICAL DISPENSARY DEPARTMENT ASSOCIATED WITH THE KHAR'YUMYAYE HOSPITAL. THE ENTIRE STAFF OF THE ENDOCRINOLOGY OFFICES OF THE POLYCLINICS WAS TRANSFERRED TO THIS DEPARTMENT.

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3/3 033

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132792

ABSTRACT/EXTRACT--IN ADDITION, A GYNECOLOGIST ENDOCRINOLOGIST, A NEUROPATHOLOGIST, A PHYSICIAN FOR THE FUNCTIONAL DIAGNOSIS OFFICE, AND LABORATORY ASSISTANTS WERE INCLUDED IN THE STAFF. IN CONNECTION WITH THE OPENING OF THE ENDOCRINOLOGY DISPENSARY DEPARTMENT, THE QUESTION AROSE OF THE PRINCIPAL LINES OF ITS ACTIVITY. AS WE KNOW, GOITER CONTROL DISPENSARIES HAVE BEEN DEVELOPED IN VARIOUS REPUBLICS (B. M. KOTLYARENKO AND M. S. GLUSKER; I. D. LEVIT), AS HAVE DISPENSARIES FOR TREATING CLIMACTERIC DISORDERS (N. V. SVECHNIKOVA). IT SEEMED TO US THAT SUCH A NARROW SPECIALIZED APPROACH TO THE ORGANIZATION OF ENDOCRINOLOGICAL SERVICE WAS INSUFFICIENTLY SUBSTANTIATED FOR A CITY LIKE TALLIN (AS OF 1 JANUARY 1965 ITS POPULATION WAS 334,000). IN ACCORDANCE WITH ORDER NO 340, DATED 30 APRIL 1968, OF THE MINISTER OF HEALTH USSR, IN CITIES WITH A POPULATION OVER 25,000 THE POSITION OF POLYCLINIC ENDOCRINOLOGIST IS TO BE ESTABLISHED AT THE RATE OF 0.2 PER 10,000 ADULTS. AS THE MATERIAL PRESENTED ABOVE SHOWS, IN CITIES THAT HAVE SEVERAL POLYCLINICS (AND IN LARGER CITIES THIS APPLIES TO RAYONS), IT IS EXPEDIENT TO CENTRALIZE ENDOCRINOLOGICAL SERVICE. AN ESTABLISHMENT OF THE DISPENSARY TYPE SHOULD BE MADE PART OF ONE OF THE HOSPITALS, AND A SPECIALIZED HOSPITAL DEPARTMENT OR BEDS ALLOCATED TO THIS SPECIALIZATION SHOULD BE ORGANIZED WITH THE HOSPITAL'S FACILITIES.

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USSR

UDC 624.072.2.04:539.374:534.11

EPSHTEYN, YU. P., Petrozavodsk

"Plastic Deformations of a Cantilever With Yield Lag Under Impulsive Loading"

Podol'sk, Stroitel'naya mekhanika i raschet sooruzheniy, No. 5, 1971, pp 20-23

Abstract: The property of low-carbon steel to retain a state of elasticity for a certain time (the yield lag time) under stresses exceeding the static yield point in the case of an arbitrary dynamic load regime is called yield lag. A model of an elastic-plastic medium with yield lag describing the dynamic properties of materials of the low-carbon steel type that was proposed by Yu. N. Rabotnov is used to study plastic deformation of a rigid-plastic cantilever with yield lag under impulsive loading. The results are compared with solutions previously obtained by the author based on the ordinary rigid-plastic analysis. It is assumed that consideration of yield lag leads to a decrease in the residual deformation and the effect of yield lag is stronger under the action of pulses of short duration. It is noted that values of residual deformation obtained experimentally are less than theoretical values calculated on the basis of the ordinary rigid-plastic theory but that consideration of the effect of yield lag gives a more refined solution and the theoretical results approach the experimental results.

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72 028 UNCLASSIFIED PROCESSING DATE--020CT70
 TITLE--FUNCTIONAL AND STRUCTURAL PECULIARITIES OF TRANSPORT RNA IN
 BIOSYNTHESIS OF PROTEIN WITH SOME PHYSIOLOGICAL STATES OF ANIMALS -U-
 AUTHGR--(05)-MATSUKA, H.KH., BABIY, T.P., SKVIRSKA, YE.B., KOVALENKO, M.Y.,
 YELSKAYA, V.
 COUNTRY OF INFO--USSR

E

SOURCE--UKRAYNS'KIY BIOKHMICHNIY ZHURNAL, 1970, VOL 42, NR 2, PP 217-226

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RNA, PROTEIN SYNTHESIS, PHENYLALANINE, GLAND, HIBERNATION,
 LIVER, RABBIT, RAT, AMINO ACID, MANGANESE, CALCIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY RELL/FRAME--1988/1529

STEP. NO--UR/0300/70/042/002/0217/0226

ARC ACCESSION NO--AP0106293

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--020CT70

IRC-ACCESSION NO--AP0106283

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TRANSPORT RNA MANIFEST FUNCTIONAL AND STRUCTURAL PECULIARITIES AT THE CORRESPONDING PHYSIOLOGICAL STATES OF AN ORGANISM WHEN CONSIDERABLE QUALITATIVE AND QUANTITATIVE CHANGES OCCUR IN PROTEIN BIOSYNTHESIS. THESE PECULIARITIES ARE MANIFESTED IN THE FOLLOWING. THE AMOUNT OF ISOACCEPTOR LEUCIN T-RNA CHANGES IN THE MAMMARY GLAND. ONE FRACTION OF LEUCIN T-RNA REMAINS INSTEAD OF TWO WITH TRANSITION FROM THE LACTATE STATE INTO THE INVOLUTION. BESIDES, THE QUANTITATIVE RATIOS OF SUCH RNA AS GLUTAMINIC AND PHENYL ALANINE IS CHANGED IN THE LACTIC GLAND WITH THE BEGINNING OF THE SYNTHESIS OF MILK PROTEINS. GOPHERS, BEING AT THE STATE OF HIBERNATION, THE AMOUNT OF GLYZINE ISOACCEPTOR T-RNA OF LIVER DECREASES FROM THREE UP TO TWO IN COMPARISON WITH THE ANIMALS AT THE STATE OF VIGIL. IN RABBITS UNDER CONDITIONS OF STARVATION SUCH T-RNA AS PHENYL ALANINE, GLYCINE, METHIONINE, LYSINE, LEUCINE AND TYROSINE IS CONSIDERABLY LOWER THE ABILITY TO ACCEPTATE AMINO ACIDS. THE SAME IS SHOWN IN EXPERIMENTS WITH METHIONINE T-RNA OF RAT LIVER. THE RESULTS OBTAINED TESTIFYING IN FAVOUR OF THE FACT THAT DECREASE OF ACCEPTOR ACTIVITY OF T-RNA WITH STARVATION IS A RESULT OF POSSIBLE CONFORMATION CHANGES IN MOLECULE OF T-RNA. IT IS ESTABLISHED THAT THE LOST ACCEPTOR ABILITY OF T-RNA OF FASTENED RABBITS AND RATS IS ALMOST COMPLETELY RESTORED AFTER HEATING OF T-RNA IN THE PRESENCE OF MAGNESIUM IONS. BESIDES, TYROSINE T-RNA OF RABBIT LIVER RESTORES ITS ACCEPTOR PROPERTIES WITH HEATING OF T-RNA IN THE PRESENCE OF MANGANESE AND CALCIUM IONS.

UNCLASSIFIED

USSR

UDC 531.01

GONOSTAREV, V. A., EL'STING, O. G.

"On the Problem of Low-Frequency Fluctuations of the $f^{-\alpha}$ Type in a Gyroscope"

Tr. Kazan. aviats. in-ta (Works of Kazan' Aviation Institute), 1971, No. 137, pp 45-48 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6A110)

Translation: Fluctuations of a free gyroscope in the frequency range 0.005-1.2 Hz are considered and the spectral density of random deviations in the position of the gyroscope axis is calculated and measured. A system of measuring is proposed with a sensitivity of $3.6 \cdot 10^{-9}$ deg²/Hz that is suitable for measuring nonstationary random processes. 7 ref. Authors abstract.

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USSR

UDC 621.382.3

FRYANIKOV, V.S., EL'ISTING, O.G.

"Some Results Of An Experimental Investigation Of The Low-Frequency Noise Of Low-Powered Transistors"

Kazan. aviats. in-ta (Kazan Aviation Institute), 1970, Issue 104, pp 112-115
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B211)

Translation: The block diagram is described of a unit for measurement of the spectral density $G(f)$ of the low-frequency noise of a transistor. One hundred Type P416A transistors were investigated. Measurements of $G(f)$ were conducted in the range from 20 Hz to 20 kHz with the identical regime: $U_k = 8$ v, $I_k = 3$ ma. The experimentally obtained $G(f)$ for all the transistors show that $G(f) = 1/f\delta$ with $f < f_1$, where f_1 is the frequency of inflexion of the function $G(f)$; δ is a parameter. With $f > f_1$, the magnitude G is constant. The statistical distribution of the absolute value $G(f)$ shows that for the majority of Type P416A transistors the spectral density of the power at a 20 Hz frequency with $I_k = 5$ ma and $U_k = 8$ v lies in the limits $10^{-13} \pm 10^{-12}$ v²/Hz. 3 ill. 2 ref. G.R.

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- 68 -

Acc. Nr: AF0034395

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 2, pp 158-161

EFFECT OF CATIONIC, ANIONIC AND NON-IONOGENIC SURFACE ACTIVE
SUBSTANCES (SAS) AND ANTIBIOTICS ON LOSS OF GYALURONIDASE FROM
CELLS OF STAPHYLOCOCCUS AUREUS

Yelinov, N. P.; El'sukari, A.

Chemico-Pharmaceutical Institute, Leningrad

A number of substances, belonging to ionic and non-ionogenic surface active substances, as well as to antibiotics was studied. Their effect on the loss of gyaluronidase from the cells of Staphylococcus aureus was found. At the same time it was shown that efficacy of cationic substances was higher than that of anionic ones, while non-ionogenic twins (40, 80, 85) and OP-7 had no effect on the enzyme loss, though protected the cells from the action of anionic detergents. An increase in the enzyme level in outer medium on addition of cationic and anionic surface active substances and antibiotics was due to liberation of gyaluronidase from dead cells.

Dr.

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REEL/FRAME
29711054

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Acc. Nr:

~~AP003656~~

~~EL-SUKKARI~~ - A.

Ref. Code: UR 0301

PRIMARY SOURCE: Voprosy Meditsinskoy Khimii, 1970, Vol 16,
Nr 1, pp 42-46

EFFECT OF ANION SURFACE-ACTIVE SUBSTANCES ON HYALOURONIDASE
OF ST. AUREUS

Yelinov, N. P.; El'-Sukari, Adel'

Chemical Pharmaceutical Institute, Leningrad

Anion surface-active substances inhibit the hyalouronidase of S. aureus. The kinetics of enzymatic action in the presence of three anion surface-active substances was studied. During the growth of cells with sub-bacteriostatic concentrations of anion surface-active substances the enzymatic activity is significantly decreased 18 hr after the beginning of growth. At the same time the inhibition of growth was not detected.

D.A.

REEL FRAME

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1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THEORETICAL QUESTIONS OF ADSORPTION -U-
AUTHOR--^{correct}ELTEKOV, YU. A. **E**
COUNTRY OF INFO--USSR
SOURCE--ARTICLE BY CANDIDATE OF CHEMICAL SCIENCES, YU. A. EL'TEKOV;
MOSCOW, VESTNIK AKADEMII NAUK SSSR, RUSSIAN, VOL 40, NO 5, MAY 1970, PP
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--ADSORPTION, CHEMICAL CONFERENCE, PHASE EQUILIBRIUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605022/D08 STEP NO--UR/0030/70/040/005/0110/0113
CIRC ACCESSION NO--AT0141196
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0141196

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THOSE QUESTIONS WERE WIDELY DISCUSSED AT THE SECOND ALL UNION CONFERENCE ON THEORETICAL QUESTIONS OF ADSORPTION, HELD FROM 20 TO 26 JANUARY IN MOSCOW. IT WAS ORGANIZED BY THE SCIENTIFIC COUNCIL FOR THE SYNTHESIS, STUDY AND APPLICATION OF ADSORBENTS, THE INSTITUTE OF PHYSICAL CHEMISTRY, AND THE INSTITUTE OF ORGANIC CHEMISTRY IMENI N. D. ZELINSKIY OF THE AS USSR AND WAS DEDICATED TO THE CENTENNIAL OF THE BIRTH OF V. I. LENIN. THE MAIN ATTENTION WAS GIVEN TO TWO QUESTIONS, THERMODYNAMIC DESCRIPTION OF HETEROGENEOUS EQUILIBRIUM, THAT IS, THE EQUILIBRIUM BETWEEN THE VOLUME AND ADSORPTION PHASES, REPRESENTED BY MULTICOMPONENT SYSTEMS, AND THE SELECTION OF A STANDARD STATE. SUMMING UP THE WORK OF THE CONFERENCE, THE CHAIRMAN OF THE SCIENTIFIC COUNCIL FOR THE SYNTHESIS, STUDY AND APPLICATION OF ADSORBENTS M. M. LUBININ NOTED THAT IN THE STUDY OF ADSORPTION FROM ULTICOMPONENT PHASES IT IS IMPORTANT TO DISTINGUISH TWO LIMITING CASES. ADSORPTION ON NONPOROUS ADSORBENTS AND ADSORPTION BY MICROPOROUS ADSORBENTS, IT BEING NECESSARY TO CLEARLY FORMULATE THE SELECTION OF THE STANDARD STATE. THE PROBLEM OF DETERMINATION OF THE THICKNESS OF AN ADSORPTION FILM REQUIRES FURTHER STUDY WITH THE APPLICATION OF NEW METHODS OF INVESTIGATION, INCLUDING OPTICAL AND MAGNETIC METHODS. IT ALSO IS NECESSARY HERE TO USE AS A BASIS THE LAWS OF STATISTICAL PHYSICS AND ALSO THE MATHEMATICAL MODELLING OF ADSORPTION PROCESSES.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--COMPARATIVE STUDY OF ADSORPTION OF 2,4-DINITROPHENYL HYDRAZONES ON
GRAPHITIZED CARBON BLACK FROM SOLUTIONS -U- ^{correct}
AUTHOR--(03)--VORCNTSOV, V.V., KUZNETSOVA, L.P., ELTEKOV, YU.A.
COUNTRY OF INFO--USSR
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 354-359
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ADSORPTION, ORGANIC NITRO COMPOUND, BENZENE DERIVATIVE,
HYDRAZONE, ACETONE, CARBON BLACK, ISOTHERM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1600 STEP NO--UR/0069/70/032/003/0354/0359
CIRC ACCESSION NO--AP0125222
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSIGN NO--AP0125222
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADSORPTION OF
2,4,DINITROPHENYL HYDRAZONES OF ACETONE (2,4,DNPHA) AND
METHYLPROPYLKETONE (2,4,DNPH MPK) HAS BEEN STUDIED ON GRAPHITIZED
CHANNEL BLACK FROM SOLUTIONS IN C SUB2 H SUB5 OH AND CCL SUB4 AT 0, 20
AND 40DEGREES. FROM THE COMPARISON OF THE ADSORPTION ISOTHERMS OF THESE
SUBSTANCES AND OF 2,4,DINITROPHENYL HYDRAZONE OF METHYLETHYLKETONE
(2,4,DNPH MEK) STUDIED EARLIER IT HAS BEEN CONCLUDED THAT HORIZONTAL
SECTIONS OF ISOTHERMS OR INFLECTION POINTS CORRESPOND TO LOOSER PACKING
OF MOLECULES OF 2,4,DNPHA AND 2,4,DNPH MPK AS COMPARED TO 2,4,DNPH MEK.
THIS VARIATION OF THE ADSORPTION CHARACTERISTICS FOLLOWS THAT OF THE
MELTING POINTS AND SOLUBILITIES OF HYDRAZONES IN C SUB2 H SUB5 OH AND
CCL SUB4. COMPARISON OF THE ISOTHERIC ADSORPTION HEATS OF THE HYDRAZONES
STUDIES (4-9 KCAL-MOLE) SHOWS THAT THEIR DECREASE WHEN PASSING FROM C
SUB2 H SUB5 OH TO CCL SUB4 IS DUE TO INCREASING COMPETITION OF THE
SOLVENT. FACILITY: INSTITUT FIZICHESKOY KHIMII AN SSR, MOSCOW.

UNCLASSIFIED

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UDC: 541.183:678.046.2

VORONTSOV, V. V., KUZNETSOVA, L. P., and EL'TEKOV, YU. A., Institute of Physical Chemistry, Moscow, Academy of Sciences USSR

"Comparative Study of the Adsorption of 2,4-Dinitrophenylhydrazones on Graphitized Carbon Black from Solutions"

Moscow, Kolloidnyy Zhurnal, Vol 32, No 3, May-Jun 1970, pp 354-359

Abstract: The adsorption of acetone 2,4-dinitrophenylhydrazone (I) and methylpropylketone 2,4-dinitrophenylhydrazone (II) on graphitized channel black from EtOH and CCl₄ solutions at 0, 20, and 40° was studied. Comparison of the area per adsorbed molecule of I and II in dense monolayers with that for methylethylketone 2,4-dinitrophenylhydrazone (III), the adsorption of which had been investigated earlier, showed that the packing of molecules was looser for I and II than for III. The adsorption increased with decreasing solubilities, which diminished in the order III > I > II for either solvent, and were greater for all three substances in EtOH than in CCl₄. The adsorption characteristics were also related to the melting points of the substances, which were 116, 126, and 145° for III, I, and II, respectively. For every hydrazone studied, the heat of

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VORONTSOV, V. V., et al, Kolloidnyy Zhurnal, Vol 32, No 3, May-Jun 1970, pp 354-359

adsorption decreased on transition from an EtOH solution to one in CCl_4 . This was due to a corresponding difference in the capacity of molecules of the solvent to compete in adsorption with those of the hydrazones. The authors thank YU. S. SHABAROV for synthesizing the 2,4-dinitrophenylhydrazones.

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- 2 -

Pesticides

USSR

UDC 632.95

fiz. ekstr.

EL'TSBERG, R. A., KANDALINTSEVA, T. F., and LEVIN, E. D.

"Preparation and Group Composition of Biologically Active Oils"

V sb. Fizika, Khimiya i khim. tekhnol. (Physics, Chemistry and Chemical Technology -- Collection of Works), Krasnoyarsk, 1969, pp 257-259 (from RZh-Khimiya, No 20 (II), 25 Oct 70, Abstract No 20 N540)

Translation: This work is devoted to an investigation of the group composition of biologically active oils obtained as a result of secondary pyrolysis of lignin resin in a mixture with pine chips. The investigations conducted showed that oils of secondary pyrolysis possess the greatest biological activity. When used as herbicides, they destroy up to 71% of weeds.

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USSR

UDC 521.3:629.783

EL'YASBERG, P. YE., KUGAYENKO, B. V.

"Influence of Day-Night Effect in the Distribution of Atmospheric Density on the Retardation of Artificial Earth Satellites"

V sb. Mat. metody modelir. v. kosmich. issled. (Mathematical Methods of Modeling in Space Research -- Collection of Works), Moscow, "Nauka", 1971, pp 73-105 (from RZh-62. Issledovaniye kosmicheskogo prostranstva, No. 4, Apr 72, Abstract No. 4.62.285)

Translation: The influence of day-night effect in the distribution of atmospheric density on changes in the period of rotation and the eccentricity of an artificial earth satellite is investigated. Approximate formulas are obtained for determining these changes. It is shown that if the parameters of the upper atmosphere are determined on the basis of the retardation of satellites using formulas obtained without considering the influence of the day-night effect considerable errors may occur. An estimate of these errors is given. 5 ref. Resume.

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- USSR

UDC 521.3:629.783

KUGAYENKO, B. V., EL'YASBERG, P. YE.

"Long-Range Prediction of the Motion of an Artificial Earth Satellite in Almost Circular Orbits Considering an Arbitrary Number of Zonal Harmonics"

V sb. Mat. metody modelir. v kosmich. issled. (Mathematical Methods of Modeling in Space Research -- Collection of Works), Moscow, "Nauka", 1971, pp 106-119 (from RZh-62. Issledovaniye kosmicheskogo prostranstva, No. 4, Apr 72, Abstract No. 4.62.286)

Translation: A system of analytical relationships are obtained for determining the long-range changes in elements of almost circular orbits of artificial earth satellites. With these relationships one can determine the elements in the ascending nodes of the orbits as a function of the number of the loop. One can then study the effect of an arbitrary number of zonal harmonics in the expansion of the earth gravity potential and the effect of gravitational perturbations from the moon and sun and of air resistance. It is shown that the effect of these higher zonal harmonics (beginning with the 5th) can be studied with the aid of six congruence parameters which enter into the calculation as corrections to the values of the coefficients at the third and fourth harmonics. These parameters, which are functions of the elements of the orbit, can be found either

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KUGAYENKO, B. V., EL'YASBERG, P. YE., Mat. metody modelir. v kosmich. issled., Moscow, "Nauka", 1971, pp 106-119

theoretically on the basis of given values of the expansion coefficients of the gravity potential or on the basis of observations on the motion of the satellite by matching the results of the calculation with experimental data. 7 ref.
Resume.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CHOICE OF OPTIMAL STRATEGY OF DEFINING ORBITS -U-
AUTHOR-(02)-BAKHSHIYAN, B.TS., ELYASBERG, P.YE.
COUNTRY OF INFO--USSR *probably correct*
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 3, PP 16-24
DATE PUBLISHED-----70
SUBJECT AREAS--SPACE TECHNOLOGY
TOPIC TAGS--ORBIT CALCULATION, ARTIFICIAL SATELLITE ORBIT, COMPUTER
CALCULATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/1559 STEP NO--UR/0103/70/000/003/0016/0024
CIRC ACCESSION NO--AP0106305
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0106305

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF A PRIORI SELECTION OF A SET OF PARAMETERS WHICH ARE BEING DETERMINED AND MEASURED, PROVIDING AN OPTIMAL IN ACCURACY PREDICTION OF A SPECIFIED, DEPENDING ON SPACECRAFT TRAJECTORY VALUE, IS CONSIDERED. FOR THE CASE OF WORST CORRELATION BETWEEN MEASUREMENT ERRORS A COMPLETE SOLUTION OF THE STATED PROBLEM IS OBTAINED AND AN EFFICIENT CALCULATION ALGORITHM IS DEVELOPED. FOR THE CASE OF UNCORRELATED MEASUREMENTS IT IS SHOWN THAT FOR A GIVEN SET OF PARAMETERS WHICH ARE BEING DETERMINED THE OPTIMAL CONTENT OF PARAMETERS WHICH ARE BEING MEASURED CONCIDES WITH THE CORRESPONDING CONTENT FOR THE CASE OF WORST CORRELATION BETWEEN MEASUREMENT ERRORS.

UNCLASSIFIED

USSR

UDC:669.293

IVANOVA, M. I., ELYUTIN, A. V.

"Behavior of Impurities in Niobium During Vacuum Smelting"

Moscow, Tsvetnyye Metally, No. 11, Nov 70, pp. 48-51

Abstract: Vacuum smelting of refractory metals and in particular electron beam melting of metals have become widely used in recent years. There is considerable interest in the selection of criteria for the behavior of impurities in the process of vacuum smelting. A distribution coefficient is suggested, which is a refinement of the earliest distribution coefficient, calculated as the ratio of concentrations of the impurity in the melt and in the gas phase. Experimental results have confirmed the correctness of the calculation formula. The experimental results can be used to calculate the composition of charge materials for electron beam smelting of niobium-based alloys.

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EMANUEL, N. M.

Chemistry

AGING AND STABILIZATION OF POLYMERS

Article by Academician N. M. Emanuel, and Doctor of Chemical Sciences B. Ya. Zaitsev, Moscow, Geotekhnicheskii Zhurnal SSSR, Russian, Vol 42, No 2, April 1972, pp 109-112]

SPNS Section
2-3 11 Aug 70

Conference in Moscow

In its scope and representative character the Third Conference on Aging and Stabilization of Polymers" substantially surpassed the two preceding conferences. This is quite natural -- interest in that problem is steadily rising, especially in the light of the tasks posed before scientists and workers of the chemical and petrochemical industries by the decisions of the 24th Party Congress.

The Conference, which was organized jointly by the AS USSR, the Ministry of Chemical Industry USSR and the Ministry of Petroleum-Refining and Petrochemical Industry USSR, was held in Moscow on 22-26 November 1971. In the plenary and sectional sessions participated about 750 persons -- representatives of 101 organizations from 54 cities of the Soviet Union. Sides by able specialists, representatives of other branches of science and industry participated actively in the work of the conference: machine-building, electrical engineering, instrument-making, construction, radio engineering, medicine, etc. Eight plenary, 12 plenary-sectional, and 238 sectional reports were presented.

In his address of greeting the chairman of the Scientific Council for High-Molecular Compounds of the AS USSR, K. A. Andrianov, pointed out the importance and urgency of the problem under discussion, noting that it is precisely in the area of investigation of the processes of aging of polymers and methods for ways to stabilize them that fundamental and applied research are closely interrelated; the results of purposeful complex work have a direct yield in practice.

In a report entitled "Main directions and prospects of investigations in the area of the aging and stabilization of polymers," N. M. Emanuel gave a general characterization of the state of the problem and

Oncology

USSR

UDC 616-006

KORMAN, D. B., BULAYEVSKIY, N. L., and EMANUEL, N. M., Institute of Chemical Physics, Academy of Sciences, USSR

"On the Evaluation of the Efficacy of Antitumor Chemotherapy by Patient Survival"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1971, pp 596-606

Abstract: The paper examines the quantitative evaluation of the efficacy of patient treatment on the basis of the supposition that the survival of a patient is determined by the formula $t_m = \tau \gamma$, where t_m is the duration of life from the beginning of therapy until death, τ is the time when the tumor is doubled, and γ is the tumor's growth factor which depends on the size of the tumor at the beginning of therapy and at the time of death. It is assumed that effective therapy prolongs life by destroying part of the tumor cells. Two plans of treatment were considered. With a one-time therapy course the following quantitative parameters were determined: number of patients sensitive to the preparation; number of patients cured as a result of its use; number of patients whose life was prolonged as a result, and the extent of such

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USSR

KORMAN, D. B., et al., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1971, pp 596-606

prolongation; and the average decrease in size of the tumor from the effect of the therapy. The second plan of treatment (therapy continuous up to time of death) makes it possible by comparing the survival of treated and control patients to determine the proportion of tumor cells destroyed by the preparation at any instant and to establish the time of onset of resistance to the preparation. Investigation by comparison consists of several stages: 1) forming a test group and control group of patients, selected with a similar extent of the process; 2) determination of a reliable difference in the survival in these groups; 3) determination of quantitative characteristics of the direct effect of the preparation on the tumor. Survival of a group of patients is characterized by three parameters: number of cured patients, mean logarithm of period of survival, and standard deviation of the log-normal distribution of such period. There are as yet not enough data on survival of patients treated with chemotherapy, but its widespread use should soon yield the necessary data for evaluation of its effectiveness.

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- 52 -

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--KINETIC STUDY OF THE ANTITUMOR ACTIVITY OF N-NITROSALKYLUREA IN
EXPERIMENTS -U- *correct*
AUTHOR--(04)-EMANUEL, N.M., VERMEL, YE.M., OSTROVSKAYA, L.A., KUKHARENKO,
YU.A. **E**
COUNTRY OF INFO--USSR
SOURCE--INST. CHEM. PHYS., MOSCOW, USSR
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTINEOPLASTIC DRUG, UREA DERIVATIVE, NITROSO COMPOUND, DRUG
DOSAGE RESPONSE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/2043 STEP NO--UR/0506/70/016/003/0046/0054
CIRC ACCESSION NO--AP0117286
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117286

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NITROSOMETHYLUREA, NITROSOETHYLUREA, OR NITROSOPROPYLUREA GIVEN S.C. TO MICE WITH ASCITES SARCOMA 180 OR EHRLICH TUMORS CHANGED THE PARAMETERS OF THE KINETIC EQUATIONS GOVERNING TUMOR GROWTH. NITROSOETHYLUREA WAS THE MOST EFFECTIVE, AND NITROSOPROPYLUREA THE LEAST EFFECTIVE, IN REDUCING THE GROWTH RATE. ALL 3 COMPOS. GREATLY INCREASED THE DOUBLING TIME OF THE TUMOR CELL POPULATION. A LARGE DOSE OF A DRUG GIVEN ONCE WAS MORE EFFECTIVE THAN MULTIPLE DOSES GIVEN IN SMALLER AMOUNTS. FACILITY: INST. CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--PARTICIPATION OF INHIBITOR RADICALS IN CHAIN PROPAGATION DURING
ETHYLBENZENE OXIDATION IN THE PRESENCE OF N-PHENYL BETA NAPHTHYLAMINE
AUTHOR--(04)-KARPUKHINA, G.V., MAYZUS, Z.K., MESKINA, M.YA., EMANUEL, N.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(6), 1377-82

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ETHYLBENZENE, OXIDATION, AROMATIC AMINE, ALKYLPHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----F070/605012/F07 STEP NO--UR/0070/70/044/005/1377/1382

CIRC ACCESSION NO--AP0140337

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140337

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE INHIBITORY ACTIVITY OF N-PHENYL BETA NAPHTHYLAMINE (I) IN THE OXIDN. OF PHET AT 60DEGREES DECREASED WITH INCREASING I CONC. THE CONC. OF PEROXY RADICALS IN THE REACTION MIXT. BECAME GREATER THAN THE VALUE CALCD. FROM THE RATES OF RADICAL INITIATION, AND OF REACTION OF PEROXY RADICALS WITH INHIBITOR, OR FROM THE CONC. OF THE INHIBITOR. THIS WAS DUE TO THE GENERATION OF ADDNL. PEROXY RADICALS BY THE REACTION OF PHET WITH RADICALS DERIVED FROM I. UPON INTRODUCTION OF 2,6-DI-TERT-BUTYLPHENOL, WHICH REACTED WITH THE AMINE RADICALS, THE RATE OF THE SIDE REACTION DECREASED, AND THE CONC. OF PEROXY RADICALS APPROACHED THE CALCD. VALUE.
FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

Pathology

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USSR

concept

UDC: 577.3

KLOCHKO, E.V., KOVAL'CHUK, L.V., KRUGLYAKOVA, K.YE., SEYTS, I.F., LUGANOVA, I. S., BLINOV, M.N., and EMANUEL', N.M., Academician, Institute of Chemical Physics, Academy of Sciences USSR

"Free Radicals and Metabolism in Leukocytes During Leukoses"

Moscow, Doklady Akademii Nauk, Vol 190, No 2, 1970, pp 476-479

Abstract: The content of free radicals in leukocytes from chronic lymphatic leukemia and chronic myeloid leukemia patients was studied after the cells were incubated with various metabolic poisons - monobromoacetate, sodium fluoride, 2,4-dinitrophenol, and oligomycin. The concentration of free radicals decreased by 50% after "leukemic" leukocytes were exposed to 2,4-dinitrophenol, an uncoupler of oxidative phosphorylation in the early stages. The use of oligomycin, an uncoupler of oxidative phosphorylation in the later stages, did not have an appreciable effect on the level of free radicals. The incubation of healthy leukocytes with 2,4-dinitrophenol or oligomycin likewise had no effect on the concentration of free radicals. The level of free radicals in the leukocytes of both leukotic patients and healthy persons was not affected either during inhibition of glycolysis with sodium fluoride or stimulation during anaerobiosis. Monobromoacetate, which blocks glycolysis, had a more pronounced effect. It would appear that the high content of free radicals in leukocytes during leukemia signifies a disturbance of oxidative phosphorylation.

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1/2 040 UNCLASSIFIED PROCESSING DATE--0900:70
 TITLE--FORMATION AND TRANSFORMATION OF RADICALS IN MYOINOSITOL UNDER THE
 INFLUENCE OF GAMMA RADIATION -U-
 AUTHOR-(05)-NIKITIN, I.V., SHARPATYI, V.A., KUDRYASHOV, L.I., KOCHETKOV,
 N.K., EMANUEL, N.M. *correct*
 COUNTRY OF INFO--USSR *E*

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EMANUEL

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(3), 635-8

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY, NUCLEAR SCIENCE
 AND TECHNOLOGY
 TOPIC TAGS--FREE RADICAL, CYCLOHEXANE, HYDROXYL RADICAL, EPR SPECTRUM,
 GAMMA RADIATION, RADIATION EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1992/2024

STEP NO--UR/0020/70/190/003/0635/0858

CIRC ACCESSION NO--AT0112979

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--090CT70

CIRC ACCESSION NO--AT0112979

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADICALS FORMED BY EXPOSURE OF MYO INOSITOL TO GAMMA RADIATION WERE CHARACTERIZED BY THEIR EPR SPECTRA AND THE SPECTRAL DATA WERE REPORTED IN DETAIL. THE RADICALS WERE PRODUCED AT 77DEGREESK IN DRY AND HYDRATED MODES OF INOSITOL. THE EXISTENCE OF THE STABILIZED ELECTRON WAS EVIDENT FROM DEVELOPMENT OF COLOR IN THE SPECIMENS CONTG. H SUB2 O AND FROM THE FORM OF THE EPR SPECTRA. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 541.67

PIRNAZAROVA, F. N., POLTORAKOV, A. P., and EMANUEL', N. M., Tashkent
Polytechnical Institute, Institute of Chemical Physics, Academy of Sciences,
USSR

"Cation-Radicals of the Phenothiazine Type of Psychopharmacological Preparations"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 5, 1970, pp 62-65

Abstract: Biological activity of phenothiazine (PT) type of compounds is related to their being in the cation-radical state, which can be achieved by one electron oxidation of PT. A series of PT derivatives and some parent tricyclic structures were investigated by EPR spectroscopy. Analysis of spectral data led to a conclusion that the ability of PT-compounds to form stable cation radicals in acid media is related to the electron donor properties of PT nucleus. Transformation of the PT nucleus or the presence of an electron-accepting carbonyl group in α -position to the nitrogen lowers the electron donating activity of the PT system and consequently their ability to form cation radicals.

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Acc. Nr: **AP0044383**

Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1, pp 3-8

KINETIC CHARACTERISTICS OF CHEMILUMINESCENCE APPEARING IN REACTION OF DNA WITH N-ACETYLETHYLENEIMINE
Zybina, D. L.; Volokitina, K. S.; Kruglyakova, K. Ye.;

Emanuel, N. M.
Institute of Chemical Physics, Academy of Sciences, USSR, Moscow

Chemiluminescence was revealed in the course of reaction of DNA with N-acetyleneimine. Kinetic curve for the chemiluminescence indicated that intermediate products did appear in the system. The dependence was found of the intensity and the rate constant of chemiluminescence upon the concentrations of reagents and temperature. The chemiluminescence was shown to be due to oxidation processes. The decrease in the chemiluminescence intensities under the action of free-radical reaction inhibitors made it possible to suggest the radical nature of the chemiluminescence occurring in the course of the reaction between DNA and N-acetyleneimine.

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Acc. Nr: APO047223

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Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, 1970, Nr 1, pp 87-92

Emanuel', N. M.; Dronova, L. M.;
Yerokhin, V. N.; Belich, Ye. I.

INFLUENCE OF SOME ANTITUMOR SUBSTANCES
OF A DEVELOPED SCHWÉZ ERYTHROMYELOSIS IN RATS

Institute of Chemical Physics, Academy of Sciences, USSR

Regressions of developed subcutaneous tumor in rats suffering from the Schwéz erythromyelosis proceeds with the same speed when either eloxene (5 mg/kg) or sarcolysine (1 mg/kg) are injected on the 4th-7th day after inoculation. A correlation between the variation of the tumor diameter and the erythrocytes number in the blood was shown.

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UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--STATISTICAL BASIS OF THE KINETIC EVALUATION OF THE EFFECTIVITY OF ANTICANCER INFLUENCES IN THE COURSE OF THE EXPERIMENT -U-

AUTHOR--(04)-EMANUEL, N.M., KUKHARENKO, YU.A., DRONOVA, L.M., YEROKHIN, V.N.

COUNTRY OF INFO--USSR

E

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2, PP 224-228

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STATISTIC ANALYSIS, ANTITUMOR DRUG EFFECT, TUMOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0949

STEP NO--UR/0216/70/000/002/0224/0228

CIRC ACCESSION NO--AP0109106

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109100

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

ABSTRACT. A MATHEMATICAL BASIS FOR THE CRITERION OF EFFECTIVITY OF ANTITUMOR INFLUENCES AS WELL AS A METHOD OF CONSTRUCTION OF CONFIDENTIAL INTERVALS IN ORDER TO OBTAIN MEAN VALUES REGARDING TWO NORMAL AGGREGATES ARE PROPOSED. THE FORMULAS OBTAINED ARE APPLIED FOR THE ANALYSIS OF EXPERIMENTAL KINETIC CURVES DESCRIBING TUMOR GROWTH. THE RESULTS ARE COMPARED WITH THOSE OBTAINED BY MEANS OF A TRANSFORMATION METHOD PROPOSED EARLIER. THE LIMITS OF APPLICATION OF THE LATTER ARE DISCUSSED. FACILITY: INSTITUTE OF CHEMICAL PHYSICS, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

1/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--ACTION OF DROTIC ACID HYDRAZIDE ON THE GROWTH OF NEUROSPORA CRASSA AND EHRLICH ASCITE TUMOR -U-

AUTHOR--(03)-GOLOGINSKIY, YE., EMANUILOV, E., MARKOV, G.G.

COUNTRY OF INFO--USSR

~~probably correct~~

F

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 293-295

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FUNGUS, MICROORGANISM, DROTIC ACID, AZIDE, ANTINEOPLASTIC DRUG, ASPARTIC ACID, BIOSYNTHESIS, INHIBITON, TUMOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0146

STEP NO--UR/0301/70/016/003/0293/0295

CIRC ACCESSION NO--AP0120846

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0120846
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS SHOWN THAT THE OROTIC ACID
HYDRAZIDE INHIBITS THE GROWTH OF NEUROSPORA CRASSA. THE INHIBITORY
EFFECT OF OROTIC ACID HYDRAZIDE IS PARTIALLY REVERSED BY OROTIC ACID AND
ALSO BY SOME PRECURSORS OF ITS BIOSYNTHESIS (ASPARTIC ACID AND
UREIDOSUCCINIC ACID). THE INHIBITORY EFFECT COULD ALSO BE REVERSED IN
A LESS DEGREE BY URACIL THYMINE AND CYTOSINE. THE EFFECT OF OROTIC
ACID HYDRAZIDE ON THE GROWTH OF EHRLICH ASCITE TUMOR OF MICE WAS
INVESTIGATED. IT WAS SHOWN THAT THE OROTIC ACID HYDRAZIDE POSSESSES A
SLIGHT ANTITUMOR ACTION IN DOSES NEARLY TO LETHAL. FACILITY:
BIOCHEMICAL RESEARCH LABORATORY, BULGARIAN ACADEMY OF SCIENCES, SOFIA,
BULAGRIA.

UNCLASSIFIED

USSR

UDC 616.981-718.078.737

convert F
MARTYNYUK, Yu. V., ~~EMDINA, I. A.~~, TITOV, M. B., OBOLENSKAYA, G. I., KRUKIYER, M. D.,
SUPRUNOVICH, M. S., ZABNINA, S. G., and MOSKAL'CHUK, Z. A., L'vov Institute of
Epidemiology and Microbiology

"Specificity of the Complement Fixation Reaction in the Diagnosis of Q Fever"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1970, pp
55-59

Abstract: Study of the immunological structure of the L'vov population with respect to Q fever, using the complement fixation reaction with antigen from *Rickettsia burneti*, revealed the highest number of positives (18-21%) among livestock handlers, meat plant workers, etc., as compared with 10.7% in the population at large. Serological examination of 429 hospitalized patients with cardiovascular, respiratory, liver, kidney, gastrointestinal, endocrine diseases, etc., 1730 febrile patients suffering from typhoid, influenza, meningoencephalitis, and other infectious diseases, and 158 cancer patients showed that about 12% had complement-fixing antibodies to the specific Q-fever antigen, or about the same rate as in the general population. There was no increase in the level of specific complement-fixing antibodies in any of the patients with diseases
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USSR

MARTINUK, Yu. V., et al, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,
No 4, 1970, pp 55-59

of non-Q-fever etiology. Even when the sera were stored for as long as 3-4
months (at 4°C) no nonspecific reactions were observed.

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1/2 028 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--SPECIFICITY OF THE COMPLEMENT FIXATION REACTION IN DIAGNOSIS OF Q
FEVER -U-
AUTHOR--(05)--MARTYNYUK, YU.V., EMDINA, I.A., TITOV, M.B., UBLENSKAYA, G.I.,
KRUKIYER, M.D.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4,
PP 55-59
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--Q FEVER, BLOOD SERUM, ANTIBODY, ANIMAL DISEASE THERAPEUTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1990/1539

STEP NO--UR/0016/70/000/004/0055/0059

CIRC ACCESSION NO--AP0109599

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109599

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE SPECIFICITY OF THE COMPLEMENT FIXATION REACTION IN EXAMINATION OF THE SERA OF 429 PATIENTS FROM THE THERAPEUTIC DEPARTMENTS, 1,730 PATIENTS WITH FEBRILE CONDITIONS OF VARIOUS ETIOLOGY, AS WELL AS OF 158 PATIENTS SUFFERING FROM CARCINOMA AND LYMPHOGRANULOMATOSIS. BESIDES, SERA PRESERVED FOR A PROLONGED PERIOD OF TIME WERE SUBJECTED TO EXAMINATION. THE RESULTS OBTAINED POINTED TO THE HIGH SPECIFICITY OF THE MENTIONED REACTION IN DIAGNOSIS OF Q FEVER. NOT IN A SINGLE CASE WAS THERE NOTED ANY ELEVATION OF SPECIFIC COMPLEMENT FIXATING ANTIBODIES IN DISEASE OF NON Q RICKETTSIAL ETIOLOGY, THE PERCENTAGE OF ANAMNESTIC REACTIONS REVEALED IN THE LATTER PATIENTS APPROACHED THAT OBTAINED IN STUDYING THE IMMUNOLOGICAL STRUCTURE OF THE HEALTHY POPULATION. NEVER WERE NONSPECIFIC RESULTS OBTAINED WHEN THE SERA WERE PROPERLY PRESERVED.

UNCLASSIFIED

Acc. Nr. **AP0036334**

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code
UR 0068

E

69809z Welding conditions and corrosion resistance of welded seams. Klochkov, A. I.; Emel'yanova, V. P.; Dobrovolskii, I. P.; Koval, A. B.; Gribanov, L. F.; Grigor'ev, N. P.; Klishevskii, G. S.; Shtchapova, V. V. (Chelvabinsk. Politekh. Inst., Chelvabinsk. USSR). *Koks Khim.* 1970, (1), 50-2 (Russ). The corrosion resistance of welds depends on the type of the welding process applied, on the electrode type, on the compn. of additives, on addnl. thermal treatment, and on the cooling of the seam. For min. corrosion in connections and app. for sulfate plants the following procedure is recommended: in arc welding the A-type electrode (C 0.11, Mn 0.9-1.5, Si 0.6-1.1, Cr 16.5-19.5, Ni 7.8-10.0, Mo 1.7-1.5, S 0.02 and P 0.03%) should be preferentially used with Mo as additive. The max. current intensity is 110 A for the welding in Ar atm. with addnl. rod of 1Kh18N9T steel (C ≤ 0.12, Mn 1-2, Si ≤ 0.80, Cr 17-19, Ni 8-9.5, Ti (C -0.02) × 5-0.7, S ≤ 0.02, P ≤ 0.035%).

Z. Sterbacek

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REEL/FRAME
19721172

USSR

UDC 547.836:542.942.4

PROSTAKOV, N. S., GAYVORONSKAYA, L. A., URBINA, G. A., EMEKOVA, P. D., and NAKANISI, T., Friendship Between Peoples University imeni Patris Lumumba, Moscow

"2- ω -Hydroxyalkyl-3-Methylindano[2,1-c]Piperidine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 666-668

Abstract: In order to obtain physiologically active preparations of partially hydrogenated azafluorenes for systematic stereochemical studies, investigations were commenced on sodium reduction of 3-methyl-2-azafluorene (I) in an alcoholic solution. Of the four possible isomers of 3-methylindano[2,1-c]piperidine (II) that could have been expected, only two were actually formed: one isomer was a liquid (IIa) with a b.p. of 115°C, and the other a crystalline substance (IIb) with a m.p. of 81.5-83°C. IR spectra confirmed the structure of II and indicated hydrogen bonding between the molecules involving the -NH group. This mixture of the II isomers was employed for the synthesis of 2- ω -hydroxyalkyl-3-methylindano[2,1-c]piperidines which are of pharmacological interest. Ethylene and butylene chlorohydrins were used for the alkylation of II in the presence of KI and K₂CO₃, and chromatographic analysis of the products revealed the formation of 2- β -hydroxyethyl-3-methyl-indano[2,1-c] piperidine (III) and 2- δ -hydroxybutyl-3-methylindano[2,1-c]piperidine, respectively.

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USSR

PROSTAKOV, N. S., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 666-668

Each of the latter two compounds existed in the form of two isomers which apparently corresponded to the two isomers of II. The IR spectra of III showed a wide absorption band at 3420 cm^{-1} which represents the involvement of the -OH group in intermolecular hydrogen bonds, and an intense absorption at 1600 cm^{-1} corresponding to the C-O bond of the primary alcohol. Subsequent communication shall deal with the stereochemistry of the geometric isomers of II.

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- 41 -

USSR

UDC: 681.3

KORSHUNOV, Yu. M., STEPASHKIN, A. I., VAKARIN, I. A., IOFA, A. L.,
MOLCHADSKIY, L. I., STEPANENKO, V. N., EMIKH, L. A.

"A Digital Spectral Analyzer"

Tr. Ryazan. radiotekhn. in-ta (Works of the Ryazan Radio Engineering
Institute), 1970, vyp. 29, pp 158-168 (from RZh-Kibernetika, No 9,
Sep 71, Abstract No 9V554)

Translation: The paper describes a model of a specialized digital com-
puter device designed for studying the frequency make-up of random
signals. Expressions are presented for estimating the basic parameters
of the device under various operating conditions. Authors' abstract.

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- 53 -

USSR

UDC 65.012.012.2.622.276

AZIMOV, Corresponding Member (sic) B. A., RAGIMOV, Sh. M., and EMINOV, I. T.

"Using Mathematical Programming Methods for a Problem in the Control of a Water-Oil Contact"

Baku, Doklady Akademii Nauk Azerbaydzhanskoj SSR, No 2, 1973, pp 11-16

Abstract: Taken as a whole, the problem of controlling the displacement of a water-oil contact involves insuperable mathematical difficulties. In this theoretical article, therefore, the authors consider the problem under the condition that the shift of the apertures is known. It is assumed that the horizontal layer is uniform, the viscosities of the oil and water are equal, and that the motion of the liquid in the layer obeys the linear law of filtration under water-pressure conditions. The problem is formulated in the following way: at every moment in time, the output of the operating apertures is chosen such that the nonviscosity function ξ is brought as close to zero as possible at all points. The method of its solution is to determine the norm for ξ as a function of the polar coordinate angle θ in the sense of a normalized

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USSR

AZIMOV, B. A., et al, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 2, 1973, pp 11-16

spatial functional and then minimize the norm of the nonviscosity function under the limitations specified. This article is based on an earlier book (B. A. Azimov, et al, Primeneniye matematicheskikh metodov i EVM k resheniyu nekotorykh zadach razrabotki nef-togazovykh mestorozhdeniy -- Applications of Mathematics and the Electronic Computer in the Solution of Some Problems of Development of Oil and Gas Sources -- Baku, 1969).

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USSR

UDC 612.8.015:591.543.42

1986 correct
EMIRBEKOV, E. Z. and L'VOVA, S. P., Dagastan State University imeni V. I. Lenin, Makhachkala

"Biochemical Shifts in the Brain During Hibernation"

Moscow, Uspekhi Sovremennoy Biologii, Vol 70, No 2, Sep/Oct, pp 276-285

Abstract: Pronounced biochemical shifts take place in the blood, liver, kidneys, heart, muscles, and other organs and tissues during hibernation. These and many other shifts in hibernating mammals are very closely related to functional modifications in the activity of the nervous system. The authors review the literature and present the results of their own studies on the content of metabolites in the brain of homeothermic animals during hibernation and after awakening. They conclude that carbohydrate-phosphorous and nitrogenous metabolites are actively involved in the metabolic processes in the brain that are stimulated by a lowering of the body temperature.

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1/2 029 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THE CONTENT OF AMMONIUM GLUTAMINE AND UREA IN THE CEREBRAL TISSUES
OF SUSLIKS (CITELLUS PYGMEUS PALLAS) IN A STATE OF HIBERNATION -U-
AUTHOR--(02)-EMIRBEKOV, E.Z., MUKAILOV, M.I.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 4, PP 64-66
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--UREA, BRAIN, HIBERNATION, EXPERIMENT ANIMAL, CEREBELLUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/1583

STEP NO--UR/0219/70/069/004/0064/0066

CIRC ACCESSION NO--AP0106329

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106329

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING HIBERNATION IN CITELLUS PYGMEUS PALLAS (BODY TEMPERATURE 3-5DEGREESC) THE CONTENT OF AMMONIUM IN THE LARGE CEREBRAL HEMISPHERES AND CEREBELLUM SHARPLY RISES, THE LEVEL OF UREADECLINES (FIVE DAY OBSERVATION). THE CONTENT OF GLUTAMINE IN THE LARGE CEREBRAL HEMISPHERES AND CEREBELLUM INCREASES FROM THE SECOND DAY OF HIBERNATION.

UNCLASSIFIED

89

USSR

UDC: 632.384.66

probably correct as is

BORISOV, D. G., GRYZLOV, A. I., PRUDNIKOV, I. A., EMIROV, E. Kh.

"A Method of Modulating the Energy of a Flow of Charged Particles"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 10, Apr 71, Author's Certificate No 270918, Division H, filed 4 Dec 68, published 11 Mar 71, p 238

Translation: This Author's Certificate introduces a method of modulating the energy of a flow of charged particles by sending particles grouped into bunches and accelerated to relativistic energy through an iris traveling-wave waveguide. As a distinguishing feature of the patent, the method is designed to produce a line spectrum in short time intervals. Electromagnetic oscillations are excited in the iris waveguide with a period which does not coincide with the prf of the relativistic bunches of accelerated charged particles.

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1/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--MORPHOLOGICAL STRUCTURES OF MEDIUM PRESSURE POLYETHYLENE ARISING
DIRECTLY DURING POLYMERIZATION -U-
AUTHOR-(04)-EMIROVA, I.V., YERMAKOV, YU.I., NEVYANTSEV, I.A., RATNER, I.D.
COUNTRY OF INFO--USSR **E**
SOURCE--VYSOKOMOL. SOEDIN, SER. B 1970, 12(1), 23-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYETHYLENE, POLYMERIZATION, POLYMER STRUCTURE, ELECTRON
MICROSCOPY, CROMIUM OXIDE, CRYSTALLINE POLYMER, SPHERULITE, MOLECULAR
WEIGHT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/0925 STEP NO--UR/0460/70/012/001/0023/0024
CIRC ACCESSION NO--AP0055623
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--13SEP70

CIRC ACCESSION NO--AP0055623

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON MICROSCOPY OF MODERATE PRESSURE POLYETHYLENE (I) OBTAINED BY THE POLYMMN. OVER CRO SUB3 ON SILICA GEL OR ALUMINOSILICATE SUPPORTS IN GAS PHASE, LIQ. PHASE, OR IN A SOLVENT SHOWED THAT THE CRYST. FORM IS GOVERNED PREDOMINANTLY BY THE MOL. WT. OF I. IN THE GAS PHASE SMALL SPHERULITES OR LENTICULAR CRYSTALS, IN SOLNS. SPHERULITES, AND IN THE LIQ. PHASE LARGE NEEDLE SHAPED CRYSTALS WERE OBTAINED.

UNCLASSIFIED

USSR

UDC: 621.438.056.:533.6

GORBUNOV, G. M. and EMIL', M. V.

"Twisted Flows Behind Annular Blade Vortex Generators in the Combustion Chamber of a Gas Turbine Engine"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1972, vyp.248, pp 84-92 (from RZh-49. Turbostroyeniye. No 4, Apr 73, Abstract No 4.49.122)

Translation: The authors study the effect of twisting and structural parameters of the front design of the flame tube of the combustion chamber of a gas turbine engine on the radial dimensions of the back flow zone under conditions of isothermal flow. Original article: 4 illus. and 5 bibl.

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USSR

UDC 621.43.011:533;621.5:533

GORBUNOV, G. M. and EMIL', M. V.

"Twisted Jets Behind Annular Bladed Swirlers in a Gas-Turbine Engine Combustion Chamber"

Moscow, Tr. Mosk. aviats. in-ta (Transactions of the Moscow Aviation Institute)
Vyp 248, 1972, pp 84-92 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973,
Abstract No 4B393 by Yu. F. Dityakin)

Translation: The method and results of an experimental investigation of the influence of air twist and constructional parameters of the frontal arrangement of a burner-can combustion chamber of a gas turbine engine on the radial dimensions of the zone of reverse flows in combustion chambers are stated. A short review of the work connected with this investigation of zones of reverse flow in combustion chambers is presented. The investigations were conducted on a model chamber with a changeable front arrangement, in which the angles of the transitional cone and the adjustment angles of the swirler blades were varied. The velocity vector was measured with the aid of a semi-spherical, five-hole attachment and a alcohol micromanometer. The velocity fields and the boundaries of the reverse flow zone were obtained. It is demonstrated that the radius and the angle of the blade swirler, as well as the subangle of the
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GORBUNOV, G. M. and EMIL', M. V., Tr. Mosk. aivats. in-ta, Vyp 243, 1972, pp 84-92

transitional cone of the chamber, influence the behavior of the flow in the chamber. In the absence of a transitional cone and with decreasing twist angle (65° instead of 75°) the radius of the zone of reverse flow sharply decreases. The use of a frontal arrangement, projected by the calculation of a hyperboloid rotation, in the chamber leads to the reduction of the maximal value of the zone of reverse flow. The results of the experiments were verified on a full-scale combustion chamber of identical dimensions with the model. (5 bibliographic entries)

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UDC 621.43.011:533;621.5:533

EMMIL', M. V.

"Twisted Jets Behind Annular Bladed Swirlers"

Moscow, Tr. Mosk. aviats. in-ta (Transactions of the Moscow Aviation Institute), Vyp 248, 1972, pp 93-100 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4B392 by Yu. F. Dityakin)

Translation: The method and results of an experimental investigation of the characteristics of the distribution of free isothermal strongly twisted jets formed by annular bladed swirlers are presented. In the experiments the external radius of the bladed swirlers and the angles of the blade arrangement were varied. The velocities of air were measured with a five-hole semi-spherical attachment. Patterns of lines of flow in the circulation zone, and cross sections of axial and radial velocity were obtained. The results of the measurements were processed in the form of a dimensionless cross section of axial velocity. The universality of this cross section is established in the zone of mixing of direct and reverse jet flow behind the annular bladed swirler. With the aid of thermocouples the influence of flow twist on the intensity of the agitation in the jet was investigated. Air was heated to 50° by this action. The dependence of the dimensionless temperature in the jet on the length of the jet was plotted. Increasing the twist leads to an increase in the angle of jet opening. (6 bibliographic entries)

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USSR

UDC 536.46.621.454

GORBUNOV, G., PESHKOV, A. V., KHRISTOFOROV, I. L., ^{correct}EMMIL', M. V.

"Air Flow Behind the Vane Swirler in the Fire Tube of the Combustion Chamber of a Gas Turbine Engine"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Aviatsionnaya Tekhnika, No 1, 1971, pp 63-68

Abstract: A study is made of some of the characteristic features of the whirling flow in the forward section of the combustion chamber pertaining to the shape of the jet leaving the swirler, the static pressure distribution and the turbulence intensity. Comparison of the calculated and the experimental data shows that in the presence of proper agreement of the parameters of the vane swirler and the transition cone, a smooth continuous whirling flow is observed along the generatrix of the transition cone. The profile of the distribution of the turbulence intensity in the forward section of the chamber essentially depends on the aerodynamics of the flow which are determined by the shape of the frontal structure.

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USSR

UDC 536.46:629.7.036

GORBUNOV, G. M., PESHKOV, A. V., KHRISTOFOROV, I. L., and
EMMIL', L. V.

"Investigation of the Turbulence Intensity in the Region of
Inflow of Secondary Air Jets Into a Gas Turbine Combustion
Chamber"

Kazan', IVUZ Aviatsionnaya Tekhnika, No 4, 1971, pp 38-43

Abstract : The intensity of the turbulent mixing process by in-
flow of a system of round jets into the drifting flow is deter-
mined not only by parameters of the jet and the depth of its pe-
netration but to a considerable extent also by the turbulence in-
duced by the jet wake. Experimental results of measuring turbulen-
ce intensity in the inflow region of a single jet into the drif-
ting flow and behind jets of secondary air in the combustion cham-
ber of a gas turbine engine are presented. The measurements were
made with the electro-hot-wire anemometer ETA-5A, of P. V. Cheby-
shev's design. The experiments demonstrated that by the use of
cross jets with optimum relative pitch of holes (by specific
depth of their penetration into the drifting flow), in combusti-
on chambers of gas turbine engines a high degree of turbulence
($\epsilon_{max} = 25-30\%$) can be obtained, thus ensuring an active mi-
xing of fuel with air and a forced thorough combustion of the
mixture. Six illustr., seven biblio. refs.

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ENGINEERING

USSR

Aeronautical and Space

ENDER, I. A., ENDER, A. YA., Leningrad

"A Method of Solving the Boltzmann Equation in the Presence of Strong Deviations from Maxwell Distribution "

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 12-22

Abstract: This article contains an investigation of the distribution function as a set of all possible Maxwell distributions with arbitrary temperatures and mean velocities. The basic results are obtained for the case where the distribution function depends only on the velocity modulus. In this case, the expansion is carried out with respect to Maxwell distributions with different temperatures. Simultaneously with the distribution function, reexpansion is carried out with respect to the selected base and the collision integral of two Maxwell distributions. This part of the problem is solved analytically, and as a result the calculation of the collision integral is simplified appreciably. Thus, a detailed study of temperature relaxation in gases turns out to be possible.

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USSR

ENDER, I. A., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 12-22

There are no reliable methods of solving the Boltzmann kinetic equation for strong deviations from equilibrium. The basic methods are applicable in practice only for sufficiently small deviations from Maxwell distribution. In the present paper it is proposed that the distribution function $f(v, r, t)$ be represented in the form of an integral of the Maxwell distributions with all possible temperatures and mean velocities where each distribution is taken with a defined weight, that is,

$$f(v, z, t) = \int_0^{\infty} \int_{-\infty}^{+\infty} M(\alpha, v, u) \phi(\alpha, u, r, t) d\alpha du$$

$$M(\alpha, v, u) = (\alpha/\pi)^{3/2} e^{-\alpha(v-u)^2}, \quad \alpha = m/2kT$$

This representation requires use of generalized functions since even when $f(v, r, t)$ is Maxwell distribution, $\phi(\alpha, u)$ is a δ -function. The method consists in the fact that the equation for ϕ is derived; a procedure for solving this equation is proposed; f is constructed by the ϕ found using the above equation.

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USSR

ENDER, I. A., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 12-22

The method is investigated in detail in the example of a simple kinetic problem. The following simplifications are assumed: the problem is assumed spatially homogeneous, and the distribution function at the initial point in time is assumed to depend only on the velocity modulus (the function is called spherically symmetric). These simplifications permit expansion of the distribution function with respect to Maxwell distributions with arbitrary temperatures and zero mean velocities.

It is noted that a representation of the distribution function as a set of Maxwell distributions is known in the literature [H. Mott-Smith, "The Solution of the Boltzmann Equation for a Shock Wave," Physics Review, Vol 82, No 6, 1951; F. Weitzsch, "A New Method for the Treatment of Gas Dynamics Problems for Cases of Large Deviation from Thermodynamic Equilibrium," Ann. Physik, Vol 7, No 7/8, 1961, page 403-417]. However, in the most general form this expansion was carried out with respect to a finite number of Maxwell distributions with indeterminate weights, temperatures and mean velocities. In determining these parameters the corresponding number of moment equations were written out. In this case the problem turns out not to be standardized,
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ENDER, I. A., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 12-22

and addition of new moment equations is connected with additional awkward calculations. The problem of investigating the accuracy of the solution obtained is quite difficult by this method. In the paper presented here an essentially different approach is investigated in that the collision integral is expanded along with the distribution function with respect to Maxwell distributions.

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