

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0110762

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. DATA WERE OBTAINED TO DET. THE SENSITIVITY OF A THERMAL N DETECTOR WITH SPHERICAL POLYETHYLENE MODERATORS (P EQUALS 0.94 G-CM PRIME3) OF DIFFERENT DIMENSIONS (4.86-24.1 G-CM PRIME2) IN THE N ENERGY RANGE FROM THERMAL TO 10 MEV. THE MEASUREMENTS IN THE LOW ENERGY REGION WERE CONDUCTED IN A PULSATING FAST REACTOR ACCORDING TO TIME OF FLIGHT AND IN THE HIGH ENERGY REGION IN A VAN DE GRAEFF ACCELERATOR. OPTIMUM DIMENSIONS WERE SELECTED FOR THE MODERATORS BASED ON THESE MEASUREMENTS. FACILITY: INST. BIOFIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669:532.72

POVOLOTSKIY, D. YA., ROSHCHEV, V. YE., and KEYS, A. N., Chelyabinsk

"Diffusion of Titanium and Zirconium in Liquid Iron"

Moscow, Izvestiya Akademii Nauk SSSR -- Metally, No 5, 1970, pp 222-223

Abstract: This article contains a description of the results of an experiment to determine the diffusion constants of titanium and zirconium in molten iron containing different amounts of oxygen. By the experimental curves for the temperature dependence of the diffusion coefficients of titanium and zirconium in iron on the amount of oxygen from 0.003 to 0.010 % O<sub>2</sub> the following expressions were derived:

$$D_{Ti} = 83.3 \exp(-50,600/RT)$$

$$D_{Zr} = 5.58 \exp(-36,100/RT)$$

It was also discovered that varying the oxygen content in the iron causes variation of the diffusion coefficient and activation energy of the reducing elements. The oxygen dissolved in iron increases the binding energy of titanium and zirco-

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USSR

POVOLOTSKIY, D. YA., et al, Izvestiya Akademii Nauk SSSR -- Metally, No 5, 1970, pp 222-223

nium and, obviously, other reducers in the quasi-crystalline lattice of the melt. High activation energy is required to bring the particles of these elements from the state of equilibrium preceding the transition to vacant sites with an increase in the oxygen content in the iron. From the table of diffusion coefficients of titanium and zirconium in iron it is apparent that for sufficiently high oxygen and reducing agent concentration, the oxygen and reducing agents are consumed for the formation of oxide inclusions and the apparent diffusion coefficient of the reducing agent decreases.

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- 65 -

USSR

KEYS, I. (Cybernetics Institute of the Estonian Academy of Sciences)

"Concerning Controls Equivalent to Some Class of System Transformation"

Tallin, Izvestiya Akademii Nauk Estonskoy SSR: Fizika, Matematika; July-September 1973, pp 258-66

**ABSTRACT:** The paper deals with the question of the existence of a one-parameter class of controls for which the corresponding controlled systems are shown to be smooth homeomorphic mappings of a class of generatrices of an uncontrolled system. Equations are obtained which determine the desired class of controls in the nonspecial as well as in the degenerate cases of mapping. The form of the transformation between invariants (integral curves) of the generatrices and controlled systems for the class of controls considered is established. The form of the correspondence is simplified for nonautonomous systems of dimension  $n$  possessing  $n-2$  autonomous invariants. Two classes of systems having this property are obtained, the constructive definition of the class of mappings considered is given, and a lemma concerning the necessary conditions placed on groups allowed by the autonomous system is presented.

The article includes 69 equations. There are eight bibliographic references.

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USSR

KEYS, I.

"Invariants of Motion of Hydrostatic Systems"

Izvestiya Akademii Nauk Estonskoy SSR, Fizika, Matematika, Vol. 19, No. 4, 1970, pp. 484-486

Abstract: This work, a continuation of an earlier investigation, presents an expression for a new invariant from the equations of motion of hydrostatic systems, the center of mass of which describes a circle of arbitrary radius about an attracting center which is considered equivalent in its action on the hydrostatic system to a certain set of material points with newtonian attraction. The conditions of existence of this invariant established in the work allow it to be used along with other invariants in the study of stability and optimal stabilization of certain solutions of the equations of motion for hydrostatic systems.

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USSR

UDC 669.18.046.558

USHAKOV, S. T., CHERNYAKOV, V. A., VOINOV, S. G., KEYS, N. V., and PRONICHKIN, A. A., Chelyabinsk Metallurgical Plant and Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Improving the Properties of Kh18N10T Steel From 100-ton Electric Furnaces by Refining the Steel in the Ladle with Liquid Synthetic Slag"

Moscow, Stal', No 3, Mar 73, pp 230-232

Abstract: Two variants of refining 100-ton melts of Kh18N10T stainless steel with liquid synthetic aluminaceous-lime slag were tested at the Chelyabinsk Metallurgical Plant: 1) Simultaneously with titanium alloying (in the form of 70% ferrotitanium on sponge titanium briquettes), and 2) After alloying, introduction of 30% or 70% ferrotitanium into the furnace. The contents of O, N, S, and nonmetallic inclusions in the steel, the degree of Ti-adaption in the alloying process, and some technological properties of the metal were investigated. The experimental metal of the first variant possessed higher anticorrosive and plastic properties, and is characterized by lower S- and O-contents and lower nonmetallic inclusions. The introduction of the first variant into industrial production contributed to an increase of technological plasticity and to an improvement of the surface quality of slabs, tubes, and sheets. Three figures, one table, two bibliographic references.

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USSR

UDC 669.15'27-194

STROGANOV, A. I., PYL'NEV, Yu. A., CHERNYSHEV, E. Ya., KEYS, N. V., PAKULEVA, V. S., DONETS, I. D., KHOLODOV, Yu. A., and GERMELIN, P. A., Chelyabinsk Polytechnical Institute; Chelyabinsk Metallurgical Plant

"Tungsten Losses in the Production of High-Speed Steel"

Moscow, Metallurg, No 1, Jan 71, pp 21-23

Abstract: Data are presented on seven melts of R18, R12, and R6M3 high-speed steels, an analysis is made of tungsten electric steelmelting and forge conversion processes, and methods are presented for utilizing scrap of tungsten-bearing steels. From the study the following conclusions can be made: as the tungsten content in the steel is increased, its assimilation decreases. A decrease in the proportion of tungsten through the ferroalloys as well as a decrease in the consumption of oxygen for blowing facilitate a more complete assimilation of tungsten by the metal. A substantial portion of tungsten is lost with the scrap and reguli in the slag (0.34%), the emery dust, and scale during forging. A thorough extraction of tungsten from slag and scale is suggested. Means for reducing tungsten losses in the process of heating castings and ingots in the furnaces include

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USSR

STROGANOV, A. I., et al, Metallurg, No 1, Jan 71, pp 21-23

a nonoxidizing atmosphere, more rapid heating, and application of a protective coating to ingots prior to heating. To decrease decarburization and scale formation, the Chelyabinsk Metallurgical Plant has recently been using coatings comprising refractory clay (20%), M40 carborundum powder (6%), fine graphite (6%), commercial borax (3%), and liquid glass (65%).

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USSR

UBC 609.187.2

USHAKOV, S. T., TULIN, N. A., PRONICHKIN, A. M., and KRETS, N. V., Chelyubinsk Metallurgical Plant

"Stainless Steel Decarburization During Melting in a 100-Ton Electric Furnace"

Moscow, Stal', No 10, Oct 70, pp 907-909

Translation: In a 100-ton electric furnace the stable and high indicators of decarburization are attained at an oxygen pressure above 9 atm and an ultimate consumption of 30 m<sup>3</sup>/hr for 1 t of steel. A further increase in the intensity of oxygen feed leads generally to a higher oxidation of chrome rather than carbon. The rate of chrome oxidation does not depend on the oxygen pressure and increases proportionally to the intensity of oxygen feed, while remaining at the same level over the entire period of blowing. Exhaustion of the regime of oxidation of the molten bath during melting of stainless steel makes it possible to obtain a ready metal with lower and more stable carbon content, to reduce the period of blowing, to reduce chrome oxidation, and to considerably increase the technological effectiveness of the process.

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1/3 022 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--8-MM BAND RADIOMETER WITH PARAMETRIC AMPLIFIER -U-

AUTHOR--YEFANOV, V.A., KEYS, YE.M., KLICH, S.M., MOISEYEV, I.G.,  
CHESNOKOV, A.A.  
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, MAR 70, PP 627-629

DATE PUBLISHED----MAR70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--RADIOMETER, PARAMETRIC AMPLIFIER, RADIO TELESCOPE, RADIO  
ASTRONOMY/(U)RT22 RADIOTELESCOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/1673

STEP NO--UR/0109/70/000/003/0627/0629

CIRC ACCESSION NO--AP0104895

UNCLASSIFIED

2/3 022

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104895

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER PRESENTS THE CHARACTERISTICS AND SOME RESULTS OF THE USE FOR RADIOASTRONOMICAL OBSERVATIONS OF A 8-MM BAND RADIOMETER WITH A SEMICONDUCTOR PARAMETRIC AMPLIFIER AT THE INPUT. THE OBSERVATIONS WERE MADE ON THE RT-22 RADIO TELESCOPE OF THE CRIMEAN ASTROPHYSICAL OBSERVATOR OF THE ACADEMY OF SCIENCES, USSR. THE MEASURED CHARACTERISTICS OF THE RADIOMETER WITH THE SEMICONDUCTOR PARAMETRIC AMPLIFIER (PA) ARE: 1) NOISE TEMPERATURE OF THE PA, INCLUDING LOSSES OF THE CIRCULATOR, SIMILAR TO 540DEGREES K; 2) SINGLE CHANNEL AMPLIFICATION FACTOR OF THE PA, INCLUDING LOSSES OF THE CIRCULATOR, SIMILAR TO 16 DB; 3) TRANSMISSION BAND OF PA AT THE 3 DB LEVEL, 150-190 MHZ; 4) NOISE TEMPERATURE OF THE MIXER, INCLUDING THE NOISE OF THE I F AMPLIFIER, 4400DEGREES K; 5) TRANSMISSION BAND OF THE I F AMPLIFIER, CONGRUENT TO 20 MHZ; 6) LOSSES OF THE WAVEGUIDE CHANNEL UP TO THE PA, INCLUDING FERRITE MODULATOR AND RECTIFIER, 2 DB; 7) LOSSES OF THE WAVEGUIDE CHANNEL BETWEEN THE PA AND THE MIXER, INCLUDING THE FERRITE RECTIFIER AT THE OUTPUT OF THE PA, 3 DB; 8) OVER ALL NOISE TEMPERATURE OF THE RADIOMETER (INCLUDING THE NOISE OF THE RADIOTELESCOPE ANTENNA), MEASURED AT DIFFERENT TIMES, TAU SUBOVERALL EQUALS 1300-1700DEGREES K; AND 9) FLUCTUATION SENSITIVITY OF RADIOMETER MEASURED UNDER THE SAME CONDITIONS AS TAU SUBOVERALL (WITH A TIME CONSTANT OF THE LOW FREQUENCY CIRCUIT TAU EQUALS 1 SEC), DELTATAU EQUALS 0.5 - 0.7DEGREES K.

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PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104895

ABSTRACT/EXTRACT--THE RADIOMETER DESCRIBED, BUT WITHOUT THE PA HAD, ACCORDING TO CERTIFIED DATA, TAU SUBOVERALL EQUALS 7500-9000DEGREES K, DELTATAU CONGRUENT TO 3DEGREES K WITH TAU EQUALS 1 SEC, AND WITH THE BEST ADJUSTMENT OF THE ELEMENTS OF THE RECEIVING CHANNEL IT WAS POSSIBLE TO ATTAIN TAU SUBOVERALL EQUALS 5000DEGREES K AND DELTATAU EQUALS 2DEGREES K. A COMPARISON OF THESE DATA WITH THOSE PRESENTED ABOVE SHOWS THAT USE OF THE PA EVEN WITH ITS NONOPTIMUM USE, AS OCCURED IN THE WORK, LEAD TO AN INCREASE OF THE RADIOMETER'S SENSITIVITY BY FOUR TIMES. 2 FIGS. 8 REF. RECEIVED BY EDITOR: 22 JAN 69.

UNCLASSIFIED

USSR

UDC 523.164

YEFANOV, V. A., ~~KEYS, Ye. M.~~, KLICH, S. M., MOISEYEV, I. G.,  
CHESNOKOV, A. A. (Deceased), and ESMAN, A. P.

"Radiometer in the 8-mm Range With a Parametric Amplifier"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 3, 1970,  
pp 627-629

Abstract: Although parametric amplifiers have been successfully used in centimeter-wave radiometric receivers, no information has hitherto appeared in the literature concerning similar use of these amplifiers in the millimeter range. This brief communication gives the characteristics and some of the results of a radiometer used in the 8-mm wavelength range with a semiconductor parametric amplifier at its input. The observations were made with the radiotelescope RT-22 in the Crimean Astrophysical Observatory. The amplifier in question is a single tuned-circuit type with a circulator and ferrite valve at the input for additional decoupling, connected to the modulation radiometer with no change in the latter. Observations using

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USSR

YEPANOV, V. A., et al, Radiotekhnika i Elektronika, Vol 15,  
No 3, 1970, pp 627-629

Abstract: this device were made of the planets Jupiter and Venus, and of discrete sources such as 3C273, 3C279, etc. The use of this amplifier improved the sensitivity of the radiometer and the reliability of the operations.

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USSR

UDC 632.95

KALMYKOVA, R. G., KEYSER, L. S.

"Thin Layer and Gas-Liquid Chromatography of Gardona"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, korrov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Fodder and Environment), Tallin, 1971, pp 151-154 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N45)

Translation: A sample of plant material (corn, potatoes, tomatoes, fruit) is shaken for 2-3 hours with an organic solvent (pentane, petroleum ether, hexane,  $CHCl_3$ ); the extract is purified on a column with  $Na_2SO_4$  or a mixture of three grams of celite 545 and 1.5 grams of KAD carbon or AR-3; it is eluted with 150 ml of acetone, and the chromatographic analysis is run on a reinforced layer of silicic acid in the n-hexane-acetone system (4:1); it is developed with an ammonia solution of  $AgNO_3$  in acetone with irradiation by ultraviolet light. The sensitivity of the analysis was 5%. For quantitative analysis of gardona, the gas-liquid chromatographic method was used with an electron capture detector. The adsorbent was chromosorb W (80-100 mesh) silanized and impregnated with 5% silicon SF-30. The gas carrier was  $H_2$ .

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1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT71  
TITLE--EXPERIMENTAL HOMOTRANSPLANTATION OF THE URINARY BLADDER -U-  
AUTHOR--(02)-SYTENKO, V.B., KEYSEVICH, L.V.  
COUNTRY OF INFO--USSR  
SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 3, PP 22-25  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ORGAN TRANSPLANT, HOMOTRANSPLANTATION, GENITOURINARY SYSTEM,  
EXPERIMENTAL SURGERY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/2011 STEP NO--UR/0606/70/000/003/0022/0025  
CIRC ACCESSION NO--AP0120654  
UNCLASSIFIED



2/2 017

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PERFORMED HOMOTRANSPLANTATION OF THE URINARY BLADDER IN 51 RABBITS AND 35 DOGS. SUBTOTAL RESECTION OF THE URINARY BLADDER WAS FOLLOWED BY CROSS HOMOTRANSPLANTATION OF THE BLADDER, OR BY TRANSPLANTATION OF A FRESHLY PRESERVED BLADDER, OR OF A BLADDER OF SACRIFICED ANIMALS PRESERVED AT A TEMPERATURE MINUS 79DEGREES C IN A SPRESERVATIVE. RABBITS WERE KILLED AT PERIODS RANGING UP TO 90 DAYS, AND DOGS, UP TO 370 DAYS. FOUR DOGS ARE STILL UNDER OBSERVATION. INSTRUMENTAL, ROENTGENOLOGICAL AND MORPHOLOGICAL STUDIES WERE CARRIED OUT. SATISFACTORY RESULTS OBTAINED POINTED TO THE EXPEDIENCY OF FURTHER INVESTIGATIONS, BOTH UNDER EXPERIMENTAL AND CLINICAL CONDITIONS. FACILITY: OTDEL OPUKHOLE I LUCHEVOY TERAPII KIEV. N-I INSTITUTA ZABOLEVANIY POCHK I MOCHEVYKH PUTEY AND LABORATORIYA KONSERVATSII I TRANSPLANTATSII TKANEY I ORGANOV KIEV. N-I INSTITUTA GEMATOLOGII I PERELILIVANIYA KROVI.

UNCLASSIFIED

USSR

RUDYKH, O. D., and KEYSEVICH, L. V., candidates of medical sciences

"Theoretical Aspects of Cryobiology"

Kiev, Vestnik Akademii Nauk Ukrain's'koy SSR, Vol 34, No 12, Dec 70, pp 38-50

Abstract: Research on cryobiology conducted abroad and in the USSR is briefly reviewed. The three most important aspects of the problem are discussed: anabiosis from a frozen state; the biological effect of low temperatures on the organism; and the effect of protective solutions on the process of freezing and thawing. Certain conclusions can be drawn. The basic principles of the potentials of cryobiology have been already formulated. Unsolved problems concern the effect of the freezing process on tissues and cells. Slow freezing kills tissues because of disruption of fine metabolic processes, and the considerable accumulation of salts as a result of the freezing of water. Rapid freezing, on the other hand, leads to intracellular ice formation and the rupture of intracellular membranes. Furthermore, the freezing period does not depend so much on the temperature of the freezing agent as on the ability of the agent to cool the object; that is, it is to a large degree dependent on the size

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USSR

RUDYKH, O. D., and KEYSEVYCH, L. V., Vestnik Akademii Nauk Ukrain's'koy SSR, Vol 34, No 12, Dec 70, pp 38-50

of the object, its water content, and some other factors. This, therefore, makes it necessary to experimentally determine in each case the appropriate regimen for the freezing of a given object. At the same time it is also important to determine the proper thawing regimen, taking into account the colloidal nature of cell protoplasm. Rapid thawing may cause the tissues to swell because of the excessive inflow of water. Another important factor is the necessity of maintaining after freezing a temperature equal to that used in the freezing, for any temperature fluctuation (such as a rise) may cause the recrystallization of the formed ice crystals and result in damage to tissues and cells. Cryophylactic processing with a solution to determine the low temperature which will sustain the vital activities of the tissues and cells without damaging them may be of considerable help. Little as yet is known of the possible toxic effects of the freezing solutions, and a search for safe cryophylactic solutions must be conducted. An objective study of the available literature data and results of the authors' investigations suggest that during the process of preservation of frozen tissues, changes occur in the cells which lead to their biological aging. It must

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USSR

RUDYKH, O. D., and KEYSEVYCH, L. V., Vestnik Akademii Nauk Ukrain's'koy SSR, Vol 34, No 12, Dec 70, pp 38-50

be regretfully said that the number of publications carrying material on the problem of cryobiology has considerably decreased during the past few years, and the material that is published is of little practical value.

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USSR

UDC 552.1:552.321

BORUKHOV, M. Yu., KEYTLIN, L. G., KATSOYEVA, F. N., LIKHOYDOV, G. G.,  
KHAMRABAYEV, I. Kh.

"Behavior of Rock During Heating in a Vacuum (Part II. Phase Composition  
and Physical-Mechanical Properties)"

Uzbekskiy Geologicheskii Zhurnal, No 6, 1971, pp 16-22.

ABSTRACT: The influence of vacuum treatment on the composition of the crystallizing phases of three petrographic types of basic and ultrabasic rocks was studied using nine samples from Western Uzbekistan and Kanchatka. The possibility was established in principle of using the method of crystallization "from the bottom" for satisfactory identification of the crystalline phases formed. It was demonstrated that vacuum heat treatment has a significant influence on the composition of the crystallizing phases. The results of the work performed indicate a method for production of high-quality structural material. Apparently, optimal modes of production of crystalline structures and glasses can be found for each type of mineral raw material, considering changes in the material occurring during heat treatment in a vacuum. High iron and titanium contents of the initial raw material provide high light-protection characteristics of cast products.

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USSR

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UDC: 61.615.47:621.33

PUPKO, I. D., KOLGOV, V. K., KEYVER, A. R., Leningrad Institute of Precision Mechanics and Optics

"An Electrocardiogram Simulator"

Leningrad, Izvestiya VUZov Priborostroyeniye, Vol 15, No 6, 1970, pp 19-23

Abstract: Methods are considered for constructing devices to imitate the bio-electric activity of the myocardium. Two modifications of the EKG simulator are described: 1) a simplified modification which provides a fairly wide range of both normal and pathological forms of EKG, and also permits continuous variation of any parameters of the EKG over broad ranges close to those encountered in clinical practice; 2) a more complex modification which satisfies these requirements and also provides for calibration of EKG rhythms to a precision of the order of 20 msec, automatic variation of EKG parameters according to a preset program, and simulation of arrhythmia. The simplified imitator is used chiefly for adjusting EKG amplifiers, while the second version may be used for adjusting and testing automatic EKG analyzers.

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USSR

UDC 615.916:264-31.06:617.001.28-092.9

KUSTOV, V. V., TIUNOV, L. A., VASIL'YEV, G. A., KEYZER, S. A., and IVANOVA, F. A., Moscow

"Combined Effects of Carbon Monoxide and Ionizing Radiation in a Chronic Experiment"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1971, pp 36-38

Abstract: Exposure of rats to carbon monoxide (0.012 mg/L) for 85 days inhibited the animals' growth, increased their resistance to hypoxia, and decreased the weight of the lungs and liver. Exposure of other rats to the same amount of CO and ionizing radiation (0.05 rem/day) for the same length of time had no effect on the animals' growth or resistance to hypoxia, but it decreased the weight not only of the lungs and liver but of the testes as well. In a second experiment, exposure of rats to ionizing radiation but at a lower dose of CO (0.005 mg/L) did not have any specific adverse effects, for in hematologic, biochemical, and morphologic respects the experimental animals virtually indistinguishable from the controls.

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USSR

UDC 591.1

KEZELI, A. R., Institute of Physiology, Academy of Sciences Georgian SSR

"Effect of Visual Deprivation on the Learning Process and on Long-Term Conditioned Memory Reflex in White Rats"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 59, No 2, Aug 70, pp 437-440

Abstract: Learning and conditioned memory were studied in eight white rats blinded by enucleation of the eyeball and in 10 normal white rats. It was determined that the blind rats required fewer attempts than the normal rats before correctly traversing a maze (an average of 44.3 as opposed to 67.5 attempts) and less time to learn the correct path through the maze (an average of 27.0 as opposed to 40.9 minutes). On the other hand, the normal rats remembered the correct path for an average of 23.1 days, while the blind rats remembered it for only 2.7 days. The first observation is explained by the fact that normal rats shun open, illuminated spaces, and their exploratory activity under these conditions is consequently slight; the blind rats, on the other hand, were active in exploration from the start. The blind rats also had fewer distractions because of their lack of visual information. The phenomenon of compensation or intensification of receptor functions in the blind rats is also a factor in the results.

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USSR

KEZELI, A. R., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 59, No 2, Aug 70,  
pp 437-440

The significantly shorter memory span of the blind rats can be explained by the fact that the reproduction and retention of an image of the environment are disrupted when there is a complete lack of visual information.

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USSR

BALAKIN, V. YE., BUKIN, A. D., KURDADZE, L. M., ONUCHIN, A. P., PAKHTUSOVA, YE. V., SEREDNYAKOV, S. I., SIDOROV, V. A., and KHABAKHPASHEV, A. G., Institute of Nuclear Physics of the Siberian Department of the Academy of Sciences USSR

"Observation of Double  $e^+e^-$ -Pair Production"

Moscow, Yadernaya Fizika, Vol 16, No 4, 1972, pp 729-733

Abstract: The article describes results of the first experiments (in 1969 and 1970) on the observation of the process of the double pair production of the electron-positron pairs  $e^+e^- \rightarrow e^+e^- + e^+e^-$  on a VEPP-2 positron-electron accelerator ring. Papers on this work were presented in 1971 at international conferences in Amsterdam and Cornell. The cross-section of the process for large angles of emission for the produced particles was measured. The experimental results were found to be in agreement with the theoretical calculations of V. N. BAYYER and V. S. FADIN.

The authors thank V. N. BAYYER and V. S. FADIN for discussions.

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6679 (SLAC-Trans-105) PRELIMINARY RESULTS OF A  
 STUDY OF THE  $\rho$ -MESON RESONANCE USING COLLIDING  
 ELECTRON-POSITRON BEAMS. Balakin, V. E.; Budker, G. I.;  
Korehunov, Yu. V.; Mishnev, S. I.; Pakhtusova, E. V.; Pectov,  
Yu. N.; Sidorov, V. A.; Skrinshil, A. N.; Tumeikin, G. I.; Khabakh-  
rashev, A. G. (Akademiya Nauk SSSR, Novosibirsk, Institut  
 Yadernoi Fiziki). Translated by T. Watt for Stanford Linear  
 Accelerator Center, Calif., from Russian Preprint No. 327. 12p.  
 Dep. CFSTI.

The results are reported of a preliminary analysis of approxi-  
 mately 100,000 photographs from a spark-chamber study of the  $\rho$ -  
 meson, using the electron-positron storage ring VEPP-2. The  
 measurements were carried out for nine energy values between  
 508 and 514 MeV. Two types of events were analyzed: elastic  
 electron-positron scattering and charged kaon pair production. A  
 least-squares fit of the results to the Breit-Wigner curve yielded  
 the following values for the resonance parameters:  $\Gamma = 4.1 \pm 0.5$   
 MeV and  $\sigma_0 = 2.3 \pm 0.3 \mu\text{b}$ . The total resonance cross section for  
 the formation of the  $\rho$ -meson was found to be  $\sigma_p = 4.8 \pm 0.6 \mu\text{b}$ .  
 (L.B.S.)

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USSR

UDC 531.383

LUNTS, Ya. L., KHABALOV, V. V.

"Measurement of Angular Velocity of a Flight Vehicle by Linear Accelerometers"

Priborostroyeniye, No 12, 1971, pp 73-76.

ABSTRACT: This article presents the equations of motion of the sensing masses of accelerometers moving in relationship to a system of coordinates coupled to a flight vehicle. Algorithms for calculation of components of the angular velocity of the apparatus are produced from the equations of motion. The accuracy of measurement of kinematic parameters depends essentially on the nature of changes in the components of angular velocities and accelerations. High accuracy can be achieved if these quantities are slowly changing functions of time.

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KHABAROV, E.N.

SPRS 59208

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KHABAROV, E.N.

- 133 -

XI-4. STUDY OF THE PROCESS OF EPITAXIAL GROWTH OF SOLID INAs-CdTe SOLUTIONS  
Article by G. L. Nazhupova, E. N. Khabarov, I. A. Khevdobidze, I. I. Sirova,  
I. M. Prokopenko, N. A. Sineva, Poluprovodnikovskiy Khranilishchey i Pioner, Rus-  
siany, 12-17 June 1972, p. 159

MonocrySTALLINE layers of the InAs-CdTe solid solution were obtained by the method of liquid epitaxy from the solution-well in indium. The growth conditions and their relation to the physical properties of the grown solid solutions of InAs-CdTe were investigated.

Beginning with the results of micro-structural analysis it is stated that the layers of solid solution of InAs-CdTe grow with variable composition and are enriched with tellurium. This coincides with the results of measuring the x-ray-magnetic properties of the investigated solid solutions. According to the distribution data with respect to the composition, the segregation coefficients of the solid solution of InAs-CdTe were calculated, the growth of epitaxial layers. A comparison was made with the results obtained by the diagram of state of the quaternary system.

The optical absorption edge of the layers is characterized by the anomalously steep course of the spectral dependence by comparison with the materials obtained by crystallization from the stoichiometric melt. The fraction spectra are measured, and the data on the minima are used to calculate the parameters of the conduction electrons.

KHABAROV, V.N.

KHAB ?

SPRS 59208  
C-73

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XI-3. OBTAINING THE MATERIALS OF A<sub>3</sub>S<sub>5</sub>-A<sub>2</sub>S<sub>6</sub> SOLID SOLUTIONS CLOSE TO CHARACTERISTIC

Article by Ye. N. Kuzmina, V. I. Korshov, V. N. Korozov, A. A. Petrov, N. A. Semakulova, L. A. Stropkova, V. K. Fildorova, V. A. Khabarov, Z. N. Khabarov, I. K. Novikova, I. I. Simoniya, M. P. Khabarov, V. A. Khabarov, S. I. Polupov, N. K. Khabarov, I. I. Simoniya, M. P. Khabarov, V. A. Khabarov, P. 1981

A study was made of the conditions of the crystallization of semiconductor solid solutions of InAs-CdTe and InSb-CdTe. The distribution of the composition of the solid solutions along the ingot corresponds to a diagram of state of pseudobinary systems.

It was discovered that all the crystals grown from the aperiodic melt have limiting and constant concentration of the conduction electron by the peculiarities of the crystallization process of solid solutions of the A<sub>3</sub>S<sub>5</sub>-A<sub>2</sub>S<sub>6</sub> type. The segregation coefficients of the A<sub>2</sub> and A<sub>3</sub> elements for crystallization of the solid solutions are found in the same ratios as pure A<sub>3</sub>S<sub>5</sub> compounds.

Studies were made of the possibility of obtaining materials with different concentration of the current carriers by varying the degree of stoichiometry of the investigated compounds. Studies were made of the optical and thermoelectric properties of the characteristic solid solutions on the materials obtained.

KHABAROV, E.N.

SPRS 5/20/68  
6-73

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XI-5. OBTAINING COPRECIPITATED MATERIALS IN THE MERCURY TELLURIDE AND CADMIUM TELLURIDE SYSTEM

Article by N. V. Vindictov, Ye. V. Kalashnikova, V. I. Korov, G. A. Kory-  
mina, V. N. Morozov, A. A. Byazintsov, H. A. Selikhonova, E. N. Khabarov,  
I. Kuznetsov, Novosibirsk, III Symposium on Precipitation, Kemerovo, 1967, p. 120.  
Novaya Khrustallov i Plinov, Kemerovo, 1967, p. 120.

In this paper a study is made of the possibility of obtaining materials with maximum compensation of the characteristic electrically active sites.

The large crystalline and monocrystalline bars were obtained by the Bridgman method, determination of the composition along the bar permitted some refinement of the position of the solidus line on the diagram of state.

A study was made of the compensation of electrically active centers by alloying in a melt and by annealing the crystals in the vapors of the components. The properties of the materials obtained were determined both by optical and by galvanomagnetic measurements.

There is a detailed discussion of the problems of determining the position of solid solutions by different methods.

KHABAROV, E. A.

SPES 59308  
6-73

XI-8. T-X PROJECTION OF THE PHASE DIAGRAM OF THE INAs-CdTe SYSTEM

Article by Ye. A. Palgunova, G. I. Lazhenova, A. A. Puzantsev, E. A. Khabarov, Irkutsk; Novosibirsk; Ill Simpozium no Povedeniam Kvantal Sinteza Poluprovodnikov Kristallov i Pismok, Ruzdom, 12-17 June 1972, p 159

The method of differential thermal analysis was used to construct the T-X projection of the diagram of state of the InAs-CdTe system. The system is of the simple eutectic type. The eutectic point corresponds to a composition of 30 mole CdTe at 874 ± 2°C. The solid solution region reaches 874 mole CdTe at the eutectic temperature. By using the liquidus curve values determined from the Bridgman method, it is possible to determine the position of the solidus in the system. The composition of the solid phase along the solidus curve for the given liquidus temperature period gives the point on the solidus curve for the given liquidus temperature. In addition, the results of x-ray phase analysis and determination of the microhardness of the solidus curve are given within the limits of the experiment.



AP0040888

V.S.

REF. Code  
KHABAROV 1032

PRIMARY SOURCE: Avtomatika i Telemekhanika, 1970, Nr 1, pp 105-11.

CONSTRUCTION OF AUTO-OSCILLATORY ADAPTIVE SYSTEM  
WITH VARIABLE STRUCTURE

A. D. ALEKSANDROV, L. S. VALKOV, M. G. GAVRILIN,  
L. YA. MALEN'KIY, N. V. SABUROV, V. S. KHABAROV

One of the methods of constructing an adaptive system of control in the class of systems with variable structure is considered. There is suggested a method of the synthesis of the algorithm of the re-adjustment of the adapting device for an autooscillatory system, the re-adjustment based on the application of the method of harmonic linearization. The results of the theory are illustrated with examples.

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USSR

UDC 669.721.725.018.9

TAYTS, A. Yu., ALEKSANDROVSKIY, S. V., ABROSIMOVA, Ye. N., PETROVA, F. A.,  
KHABAROVA, N. P.

"Study of the Process of Production of Magnesium Alloy, Alloyed With Beryllium"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 144-149. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G201 by the authors).

Translation: A technology is described for production of a casting alloy in the Mg-Al-Zn-Mn system (type Mg55) with Be added. Due to the addition of Be, the oxidation of the alloy during melting and pouring is sharply reduced, allowing a decrease in the consumption of S and flux, and the losses of alloy with the bottom sediment are also decreased. Due to the poor solubility of Be in Mg, a 2 or 3 times excess quantity must be introduced to the charge. The influence of slight ( $5 \cdot 10^{-4}$ - $15 \cdot 10^{-4}$ ) additions of Be on the structure, and mechanical and corrosion properties of the alloys is studied. The introduction of up to 0.008% Be to the Mg alloy does not result in significant enlargement of the grain, the mechanical properties are not reduced, and the corrosion properties are even increased. The production of Mg alloy with addition of Be has been undertaken on the commercial scale. 3 figs; 1 table; 5 biblio refs.

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USSR

UDC 669.721.4

TAYTS, A. Yu., PODZOROV, B. N., KHABAROVA, N. P.

"State and Prospects for Development of Techniques of Refining and Casting of Magnesium and its Alloys"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 56-62. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G200 by the authors).

Translation: The problem of development and introduction of a technology for refining primary Mg in new, highly productive continuous apparatus is studied. The experience of the industrial operation of continuous Mg refining furnaces has shown their technical and economic effectiveness. A plan has been developed for a highly productive crucibleless furnace for the production of Mg alloys. Continuous furnaces and highly productive crucibleless apparatus for the production of alloys may be one of the main links in a continuous line for production of commercial Mg. At the present time, a plan has been developed for mechanized continuous line processing of ingots. The introduction of this line to production will solve the problem of complete mechanization and automation of the production of refined Mg and its alloys. 1 table, 5 biblio refs.

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*KHABAROVA, V.A.*

*SPRS 59208  
6-73*

*9*

KI-1) OBTAINING THE MATERIALS OF  $A_2B_3-A_2B_6$  SOLID SOLUTIONS CLOSE TO CHARACTERISTIC

Article by Ye. V. Kalashkova, V. I. Korzhov, V. N. Kozlov, A. A. Petrov, E. A. Sankolodnov, L. A. Tikhonovskaya, V. K. Fiodorova, V. A. Khabarova, Z. N. Khabarov, I. A. Novolbitnik, Ill Simoniya, Ya. A. Khabarova, S. I. Sidorov, A. P. Polupromishlennykh, Kristallizov I. P. Prud, Kuznetsov, 12-17 June 1972, p 181

A study was made of the conditions of the crystallization of semiconducting solid solutions of InAs-CdTe and InSb-CdTe. The distribution of the composition of the solid solutions along the ingot corresponds to a diagram of azeotropic systems.

It was discovered that all the crystals grown from the stoichiometric melt have a certain and constant concentration of the conduction electron ( $n = 1.10^{15} \text{ cm}^{-3}$ ) for InAs-CdTe and  $n = 5 \cdot 10^{16} \text{ cm}^{-3}$  for InSb-CdTe) which is caused by the peculiarities of the crystallization processes of solid solutions of the  $A_2B_3-A_2B_6$  type. The segregation coefficients of the  $A_2$  and  $B_6$  elements for crystallization of the solid solutions are found in the same ratios as pure  $A_2B_3$  compounds.

Studies were made of the possibility of obtaining materials with different concentration of the current carriers by varying the degree of stoichiometry of the investigated compounds. Studies were made of the optical and the galvanomagnetic properties of the characteristic solid solutions on the materials obtained.

USSR

UDC 577.4

TENENGOL'TS, G. M., KHABELASHVILI, G. I.

"An Algorithm for Determining the Distance of Cyclic Codes Correcting Arithmetic Errors"

Tr. In-t prikl. mat. Tbilis. un-ta (Works of the Institute of Applied Mathematics of Tbilisi University), 1972, No 2, pp 285-300 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V444)

Translation: On the basis on the method of finding cycle representatives, an algorithm is presented for determining the distance of cyclic codes which correct arithmetic errors. Tables are presented which characterize the weighted spectrum for AN-codes for which  $\Lambda = (2^e - 1)/p$  where  $e \neq p - 1$  (Table

1) or  $\Lambda = (2^{p_2-1} - 1)/p_1 p_2$  and 2 is the primitive root modulo  $p_i$  ( $i = 1, 2$ ),  $(p_1 - 1)/(p_2 - 1)$  (Table 2).

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USSR

UDC 681.142.35

DZODZUASHVILI, A.G. and KHABELASHVILI, G.I.

"Correction Codes for the Exchange of Information Among Computers"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 60, No 2, Nov 1970,  
pp 273-276

Abstract: Two basic kinds of error can occur during the transmission and processing of information in complex, computer-based information systems: 1) errors made in the computers themselves; and 2) errors made during the exchange of information among computers. Certain linear,  $q$ -fold codes are available for correcting errors of the second type, but unfortunately they involve division of polynomials, which requires a great deal of machine time. The authors of the present article propose two codes, comparatively easy to implement by means of computer programs, which correct arbitrary errors in a machine word and one adjacent word and in a machine word and two adjacent words, respectively. They briefly describe the type of coding and decoding utilized in both cases and conclude with a numerical example.

1/1

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USSR

UDC 612.143-06:612.592.1

DVURECHENSKAYA, G. YA., NAYDICH, B. G., and KHABENSKIY, B. YA., Department of Normal Physiology, Kemerovo Medical Institute, and Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology, Academy of Medical Sciences, Moscow

"Dynamics of Arterial Pressure, Pressure and Metabolic Reactions to Norepinephrine During Adaptation to Cold"

Moscow, Kardiologiya, No 9, 1971, pp 58-63

Abstract: Rats were exposed 6 hours daily for 45 days to temperatures ranging from 6 to 9° and 0 to 5° C. Although arterial pressure was considerably higher at the end of the experiment, each daily exposure to cold lowered it to the pre-experimental level. There was no difference between the experimental animals and the controls in the metabolic test (oxygen consumption) before or after the injection of norepinephrine on day 15 of exposure. On days 30 and 45 there was also no difference in oxygen consumption before the injection of norepinephrine, but oxygen consumption increased significantly after it in both groups. Pressor reactions to norepinephrine intensified on day 15 and then weakened as adaptation proceeded.

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- 72 -

USSR

UDC 621.372.852.1

VOROB'YEVA, V. G., RUBASHKINA, R. G., STRETENSKAYA, G. G., KHABI, V. S.

"A Filter for Suppressing Spurious Emissions of High-Power Amplifier Klystrons"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1971, vyp. 3, pp 136-137 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7B154)

Translation: The paper describes a waveguide filter for suppressing spurious emissions from high-power amplifier klystrons with a passband of two percent. Attenuation of the power of spurious emissions is 30 dB or more throughout the entire range of operation of the waveguide. Klystron power losses in the filter on the average frequency of the working band come to one percent. Four illustrations, bibliography of one title. Resumé.

1/1



USSR

UDC: 621.385.624

PAVLOV, O. I., PASMANNIK, V. I., KHABI, V. S.

"A Klystron"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277116, Class 21, filed 28 Feb 68, p 63

Abstract: This Author's Certificate introduces: 1. A klystron which contains resonators with distributed interaction made up of a housing and drift tubes fastened at the center to the housing by means of radial metal rods. As a distinguishing feature of the patent, the operating stability and efficiency of the klystron are improved by connecting the metal rods to the housing through coaxial matched SHF loads which are fastened to the housing of the resonators. 2. A modification of this klystron distinguished by the fact that the coaxial matched SHF loads are made in the form of a long line coiled into a semicoaxial structure in which the outer and inner conductors are covered with a conducting paste.

1/1

USSR

UDC 632.954:635.656

KHABIBRAKHMANOV, KH. KH., Kazan' Agricultural Institute

"Resistance of Peas to Symazine as Related to the Method of Application of the Herbicide and the Depth at Which the Seeds are Planted"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70, pp 52-53

Abstract: The article is a report on tests conducted in 1966 and 1967 at the Kazan' Agricultural Institute to determine the resistance of peas to symazine for various types of seed treatment and various planting depths. It was found in vegetative and field experiments that pea plants are most resistant to symazine when the herbicide is applied to the surface of the soil without cultivation immediately after planting. The danger of crop damage is increased when the herbicide is applied during planting to a soil layer 0-6 cm deep or 10-20 cm deep. Planting depth also has an effect on the resistance of peas to zymazine. In the case of shallow planting (2 cm), plant growth is suppressed by even doses of herbicide, while doses of 1-2 kg/hectare have no effect on seed planted at a depth of 4-8 cm.

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USSR

UDC 534-8

MAKHKAMOV, S., SHARIPOV, Sh., IVANOV, A. A., DAVIDOVICH, L. A.,  
KHALIULIN, M. G., Khabibullayev, P. K.

"Concerning the Acoustical Relaxation Mechanism in Certain Pure Fluids and Their Solutions"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes of Tashkent State Pedagogical Institute), 1970, Vol. 90, pp 35-45 (from RZh-Fizika, No 10, Oct 72, Abstract No 10Zh609)

Translation: The acoustical properties of the following low-viscous liquids were investigated: carbon sulfide, carbon tetrachloride, chloroform, methylene chloride, methylene boride, benzene, pyridine, thiophene, cyclohexane, acetic acid and its solutions in pyridine. The amplitude coefficient of the absorption was measured at frequencies from 285 kHz to 5 MHz by the substitution method with an accuracy of 7-10% and in the range from 5 MHz to 3 GHz by the pulse method with an accuracy of 3-5% at low frequencies and 7-10% at high frequencies. The speed of sound was measured by the phase method with an accuracy up to 0.1%. The results are discussed from the aspect of vibrational and structural relaxation and their mutual effect. V. Ye. Gordeyev.

1/1

- 21 -

1/2 020

UNCLASSIFIED

PROCESSING DATE--02JCT70

TITLE--KINETICS OF CONCENTRATION FLUCTUATIONS IN N-AMYL ALCOHOL  
NITROMETHANE SOLUTIONS WITH AN UPPER CRITICAL POINT OF DISSOLUTION -U-  
AUTHOR--(03)-KHABIBULLAYEV, P.K., ALIYEV, S.S., PARPIYEV, K.

COUNTRY OF INFO--USSR

K

SOURCE--VESTN. MOSK. UNIV., KHIJ. 1970, 11(1), 121-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ACOUSTIC PROPERTY, NITROMETHANE, ALCOHOL, DISSOLUTION,  
ULTRASONIC FREQUENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0258

STEP NO--UR/0189/70/011/001/0121/0122

CIRC ACCESSION NO--AP0106914

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--020CT70

CIRC ACCESSION NO--APO106914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACOUSTICAL PROPERTIES WERE STUDIED OVER A WIDE RANGE OF FREQUENCIES, CONCNS. AND TEMPS. TO DET. THE KINETICS OF THE CONC. FLUCTUATIONS. THE COEFF. OF SOUND ABSORPTION ALPHA WAS DETD. AT 20-1000 MHZ AND THE PROPAGATION RATE OF SOUND WAS DETD. BY A PHASE METHOD. THE ACOUSTICAL RELAXATION IN AMYL ALC. IS DUE TO STRUCTURAL RELAXATION, I.E., PROCESSES FOR THE REARRANGEMENT OF THE ASSOCD. COMPLEXES BECAUSE OF H BONDS. THE EXPTL. VALUE FOR THE RELAXATION TIME FOR AMYL ALC. IS SIMILAR TO 7.44 TIMES 10 PRIME NEGATIVE 11 SEC. THE VOL. AND SHEAR VISCOSITY RELAX SIMULTANEOUSLY IN AMYL ALC. IN THE AMYL ALC. MEND SUB2 SOLNS. FOR FREQUENCY SMALLER THAN 10 PRIME 9 HZ-ALPHA-F PRIME 2 INCREASES SHARPLY AND PASSES THROUGH A MAX. FOR A MOLE FRACTION OF AMYL ALC. EQUAL TO THE CRIT. CONC. THUS, A NEW REGION OF ACOUSTICAL DISPERSION EXISTS RELATED TO THE RELAXATION OF THE CONC. FLUCTUATIONS. THIS REGION IS CHARACTERIZED BY THE FOLLOWING FEATURES: A NEW REGION OF RELAXATION, ALPHA-F PRIME 2 AND AN INCREASE IN THE ATTENUATION OF THE SOUND ASSOCD. WITH IT IS OBSERVED AT LOW ULTRASONIC FREQUENCIES; THE RELAXATION TIME SPECTRUM MUST BE INTRODUCED TO DESCRIBE THE FREQUENCY DEPENDENCE OF THE ATTENUATION COEFF.; THE ALPHA-F PRIME 2 RELAXATION IS NOT ACCOMPANIED BY ANY SIGNIFICANT CHANGES IN THE SPEED OF SOUND.

UNCLASSIFIED

1/2 027

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--ALKYLATION OF TOLUENE BY PROPYLENE ON FLUORINE CONTAINING CATALYSTS

-U-

AUTHOR--(03)--KHABIBULLAYEVA, E., TRESHCHOVA, YE.G., ANTIPINA, T.V.

COUNTRY OF INFO--USSR

SOURCE--NEFTEKHIMIYA 1970, 10(1), 34-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKYLATION, TOLUENE, PROPYLENE, FLUORINE, ALUMINUM OXIDE, CATALYST, ISOMER, GAS CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1372

STEP NO--UR/0204/70/010/001/0034/0036

CIRC ACCESSION NO--AP0112852

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--02OCT70

GIPC ACCESSION NO--AP0112852

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TOLUENE AND PROPYLENE AT 3:1 MOLAR RATIO WERE PASSED 1 HR AT ATM. PRESSURE AND A TOLUENE SPACE VELOCITY OF 0.3 HR PRIME NEGATIVE1 OVER AL OXYFLUORIDE CONTG. 56.5PERCENT F (I), FLUORINATED AL SUB2 O SUB3 (6.4PERCENT F) (II), AND COM. HOUNDRY CATALYST (III). MAX. YIELDS OF MIXED CYMENES, BASED ON TOLUENE, WERE: I, 20 WT. PERCENT AT 240DEGREES; II, 21PERCENT AT 280DEGREES; III, 18PERCENT AT 260DEGREES. MAX. WT. YIELDS OF THE O, M, AND P ISOMERS, DETD. BY GAS LIQ. CHROMATOG. WERE AS FOLLOWS AT THE TEMP. GIVEN: (I), 30, 220; 60, 330; 50, 240; (II) 25, 220, 60, 300, 50, 240; (III), 30, 240; 40, 280; 60, 240.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--VAPOR PHASE OXIDATION OF 4,5-DIMETHYLPHTHALIC ANHYDRIDE -U-  
AUTHOR--(04)-SHARIPOV, A.KH., MUKHTARULLINA, F.A., BEKSHENEVA, N.M.,  
Khabibullin, M.F.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 715-17  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--GAS STATE, OXIDATION, PHTHALIC ANHYDRIDE, VANADIUM OXIDE,  
MALEIC ANHYDRIDE, PYROMELLITIC ACID, ANHYDRIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1995/1462 STEP NO--UR/0080/70/043/003/0715/0717  
CIRC ACCESSION NO--AP0116899  
UNCLASSIFIED



2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116899

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER OPTIMUM CONDITIONS DETD.  
WITH FUSED V SUB2 O SUB5 PARTICLES IN A CONTINUOUS REACTOR,  
4,5-DIMETHYLPHTHALIC ANHYDRIDE (I) WITH 58-74 PARTS BY WT. OF AIR AT  
430-40DEGREES AND A VOL. RATE OF THE I VAPOR AIR MIXT. OF 5500-5700 HR  
PRIME NEGATIVE1 GIVES 58PERCENT PYROMELLITIC ANHYDRIDE BASED ON I ADDED  
AND 90PERCENT BASED ON I CONSUMED. OTHER PRODUCTS ARE MALEIC ANHYDRIDE  
AND CO SUB2.

UNCLASSIFIED

USSR

UDC: 681.3

KHABIBULLIN, N. F., KHAFIZOV, F. I.

"Reliability of Data on Magnetic Tapes in the 'Minsk-22' Digital Computer"

Tr. N.-i. i proyekt. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo  
(Works of the Scientific Research and Design Institute on Introducing  
Computer Technology Into the National Economy), 1970, vyp. 5, pp 102-107  
(from RZh-Matematika, No 11, Nov 71, Abstract No 11V787)

Translation: A mathematical model is proposed for determining the probability of undetected errors on magnetic tape in the "Minsk 22" computer with simultaneous use of two check methods: modulo-2 check and the method of check summation. The probability of error for a data block in general form is equal to  $P = lmkp_0p_1$ , where  $l$  is the number of sweeps of a portion of the data block through the tape transport channel during solution of the problem;  $k$  is the number of combinations of possible errors;  $p_1$  is the probability of appearance of a 1, and  $p_0$  is the probability of appearance of a 0. V. Mikheyev.

1/1

- 60 -

USSR

UDC: 8.7

KIR'YANOV, B. F., MARCHENKO, T. V., SKREBNEV, A. A., KHABIBULLIN, N. F.

"On the Problem of Generating Pseudorandom Numbers by a Shift Register With Logic Feedback"

Tr. n.-i. i proyekt. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo (Works of the Scientific Research and Design Institute on Introducing Computer Technology Into the National Economy), 1971, vyp. 8, pp 94-101 (from RZh-Kiber-netika, No 6, Jun 72, Abstract No 6V501)

[No abstract]

1/1

USSR

UDC: 681.3

KHABIBULLIN, N. F., KHAFIZOV, F. I.

"Reliability of Magnetically Taped Data on the 'Minsk-22' Digital Computer"

Tr. N.-i. i proyekt. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo  
(Works of the Scientific Research and Design Institute on Introducing Computer Technology Into the National Economy), 1970, vyp. 5, pp 102-107  
(from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V787)

Translation: A mathematical model is proposed for determining the probability of undetected errors on the magnetic tape in the "Minsk-22" digital computer with simultaneous use of two checking methods: mod-2 check and the addition check method. The probability of error for a data block, in general form, is equal to  $P = lmkp_0p_1$ , where  $l$  is the number of sweeps of a portion of the block across the tape transport channel during solution of the problem;  $k$  is the number of combinations of possible errors;  $p_1$  is the probability that a one will show up;  $p_0$  is the probability that a zero will appear. V. Mikheyev.

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USSR

UDC: 51

ZABOTIN, Ya. I., KHABIBULLIN, R. F.

"Some Classes of Quasiconcave Functions"

V sb. Chisl. metody v tekhn.-ekon. zadachakh (Numerical Methods in Technical and Economic Problems--collection of works), Kazan', Kazan' University, 1971, pp 80-90 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V822)

Translation: Methods are indicated for constructing quasiconcave (quasi-convex) functions and narrower classes of concave (convex) and quasimonotonic functions on some convex set . . . From the introduction.

1/1

USSR

UDC: 51

ZABOTIN, Ya. I., KHABIBULLIN, R. F.

"Quasimonotonic Functions and the Problem of Quasimonotonic Programming"

V sb. Chisl. metody v tekhn.-ekon. zadachakh (Numerical Methods in Technical and Economic Problems), Kazan', Kazan' University, 1971, pp 91-98 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V823)

Translation: Functions are studied which are simultaneously quasiconcave and quasiconvex. Properties of such functions are established which put the problem of mathematical programming with such functions in the category of a direct generalization of the problem of linear programming. The function  $f(x)$  defined on the convex set  $E \subset R_n$  is called quasimonotonic on  $E$  if the inequalities  $\min\{f(x_1), f(x_2)\} < f(\lambda x_1 + (1-\lambda)x_2) < \max\{f(x_1), f(x_2)\}$  for any  $0 < \lambda < 1$  are satisfied for any two distinct points  $x_1, x_2 \in E$ . From the article.

1/1

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USSR

UDC 681.3.06:51

MOSKVIN, D. A., KHABIBULLIN-YUSHMANOV, Yu. I.

"The Increase in Reliability of Information Processing with Repeated Processing"

"Tr. N-i. i Proyechn. In-ta po Vnedreniyu Vychisl. Tekhn. v Nar Kh-vo [Works of Scientific Research and Planning Institute for Introduction of Computer Equipment to the Economy], No 5, 1970, pp 98-101, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V762, unsigned).

Translation: A mathematical model is presented for estimation of the reliability of information processing. The criterion in the evaluation is the probability of fulfillment of the inequality  $\Delta(B, B^*) < \epsilon$ , characterizing the "closeness" of output information B with absolute reliability of the processing unit and output information B\* with the actual reliability of its elements. Problems of increasing reliability of information in the unit by implication of processing are studied.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ACOUSTIC RELAXATION IN NITROBENZENE, HEXANE SOLUTIONS HAVING A  
CRITICAL SOLUTION POINT -U-  
AUTHOR--(02)-KHABIBULLAYEV, P.K., ALIYEV, S.S.  
COUNTRY OF INFO--USSR  
SOURCE--AKUST. ZH. 1970, 16(1), 137-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NITROBENZENE, HEXANE, CRITICAL POINT, SOUND ABSORPTION,  
ACOUSTIC SPEED, VIBRATION RELAXATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1773 STEP NO--UR/J046/70/016/001/0137/0138  
CIRC ACCESSION NO--AP0123570  
UNCLASSIFIED



2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123570

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COEFF. OF THE SOUND ABSORPTION AND THE SOUND VELOCITY WERE MEASURED IN THE C SUB6 H SUB14 PLUS PHNO SUB2 SYSTEM WITH THE VIEW TO CHECK THE SUPPOSED CORRELATION BETWEEN THE ACOUSTIC PROPERTIES AND THE CONC. FLUCTUATIONS IN BINARY SYSTEMS. THE SOUND ABSORPTION WAS MEASURED BY THE PULSE METHOD AT 20-1000 MHZ AND THE VELOCITY BY THE KHABIBULLAEV-KHALIULIM METHOD (1957). THE EXPRESSION ALPHA PER FUNCTION, WHERE FUNCTION IS THE SOUND FREQUENCY, INCREASES RAPIDLY WITH THE DECREASE OF THE MOLE FRACTION OF THE HEXANE AND PASSES THROUGH A MAX. AT THE CRIT. MIXING POINT (0.599 MOLE FRACTION HEXANE AT 20.98DEGREES). THIS REGION OF RELAXATION WAS FOUND AT LOW FREQUENCIES (SMALLER THAN 10 MHZ) AND THEREFORE CAN BE DUE ONLY TO THE FLUCTUATIONS OF THE CONC. BECAUSE, ACCORDING TO SHAKHPARONOV, THE VIBRATIONAL ROTATIONAL RELAXATION CAN OCCUR ONLY A FUNCTION GREATER THAN 10 PRIME9.  
FACILITY: MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ACOUSTIC PROPERTIES OF PYRIDINE CHLOROFORM SOLUTIONS -U-  
AUTHOR--(03)-MUSAYEV, T.N., LANSHINA, L.V., KHABIBULLAYEV, P.K.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK UZB. SSR, SER. FIZ.-MAT. NAUK 1970, 14(1), 83-4  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--PYRIDINE, CHLOROFORM, ULTRASONIC FREQUENCY, ACOUSTIC PROPERTY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1876 STEP NO--UR/0166/70/014/001/0083/0084  
CIRC ACCESSION NO--AP0123664  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123664

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PROPERTIES WERE STUDIED BY AN IMPULSE METHOD AT 20DEGREES. AT THE ULTRASOUND FREQUENCY OF 39 MHZ, THE ABSORPTION COEFFS. ALPHA PER FUNCTION PRIME2 OF PURE C SUB5 H SUB5 N AND CHCL SUB3 ARE 4.10 TIMES 10 PRIME NEGATIVE15 AND 4.78 TIMES 10 PRIME NEGATIVE15 SEC PRIME2 PER CM, RESP.; THE (ALPHA PER FUNCTION PRIME2) TIMES 10 PRIME15 VALUES OF MIXTS. WITH THE C SUB5 H SUB5 N MOLE FRACTION CHI OF 0.18, 0.32, 0.56, AND 0.78 ARE 3.86, 3.69, 3.42, AND 3.80 SEC PRIME2 PER CM, RESP. THE MIN. ON THE ALPHA PER FUNCTION PRIME2 VS. CHI CURVE BECOMES LESS PRONOUNCED ON INCREASING THE ULTRASOUND FREQUENCY FROM 39 TO 1800 MHZ AND THE CURVE IS MONOTONIC WITH HYPERSOUND OF THE FREQUENCY OF (3-5) TIMES 10 PRIME9 HZ. THE EXPTL. DISPERSION OF THE HYPERSOUND VELOCITY IN C SUB5 H SUB5 N-CHCL SUB3 MIXTS. IS LOWER THAN THE THEORETICAL ONE, SUPPOSEDLY BECAUSE PROCESSES OF THE VIBRATION AND STRUCTURAL RELAXATIONS PROCEED SIMULTANEOUSLY. FACILITY: MOSK. GOSUNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 624.042.7

KHABILOV, B. A., Tashkent Polytechnical Institute

"Determination of the Logarithmic Decrement of Attenuation of the Oscillation of Buildings"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Tekhnicheskikh Nauk, No 5, 1970, pp 34-37

Abstract: In the interest of developing earthquakeproof buildings, a study is made of the mechanism of the course of energy dispersion on the basis of full-scale tests of the oscillation of nine-storey buildings of various construction; the logarithmic decrement of attenuation has been adopted as the measure of energy dispersion. 2 figures, 1 table.

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Veterinary Medicine

USSR

UDC 619:615.93.578.082

IBRAGIMOV, Kh. Z., Professor, and KHABIYEV, M. S., Assistant, Samarkand Agricultural Institute

"The Effect of Smut Intoxication on Laboratory Animals"

Moscow, Veterinariya, No 8, 1970, pp 77-78

Translation: In a number of oblasts in the Uzbek SSR, Ustilagotoxicosis is observed in animals which have eaten barley infected with smut (Veterinariya, No 9, 1968). Each year, 10-15% of barley is infected with smut. According to the data of S. Yu. Yunusov (1965), barley smut contains 1.08 to 1.5% water-soluble alkaloids. Investigations have shown that these alkaloids are toxic to warm-blooded animals. Analysis of data concerning the toxicity of barley smut for various animals, especially newly weaned pigs, and the large percentage of sterile animals on farms in the Uzbek SSR led us to study the effects of smut on the embryonic and postembryonic development of laboratory animals. The effects of aqueous extracts of barley smut alkaloids were investigated using 45 female white mice divided into six groups. The first, second, and third groups consisted of 10 mice each, while the fourth, fifth, and sixth groups (controls) consisted of five mice each. In the first three groups, the animals received subcutaneous injections of 0.0005, 0.0025, and 0.005 grams during the period 20 days

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IBRAGIMOV, Kn. Z., et al, Veterinariya, No 3, 1970, pp 77-78

prior to and 20 days after mating. Animals in the fourth group received 0.01 grams for 10 days, and those belonging to the fifth group, 0.01 grams for 15 days after mating. Mice in the control (sixth) group received subcutaneous injections of 0.5 ml of physiological saline for 20 days. The experimental results were recorded as observations of the behavior of mice, periods of pregnancy, the number of mice in one litter and their average weight at the age of 1 month, and the condition of the uterine horns in dead and autopsied mice. One mouse which received 0.0005 grams of the alkaloids prior to mating had a pregnancy prolonged up to 20 days. One mouse which received this dose during pregnancy died on the 28th day after mating. Administration of 0.0025 grams of the alkaloids prior to mating delayed labor up to 20 days in three mice and up to 2 months in one mouse. Administration of the same dose during pregnancy resulted in the death of one mouse on the 32d day after mating, and delayed labor by 14 days in another. Administration of 0.005 grams of barley smut alkaloids prior to mating delayed labor up to 30 days in three mice and caused the death of one mouse on the 18th day. Injections of 0.005 grams during pregnancy resulted in the death of one mouse on the 17th day of the experiment, delayed labor by 2 months in one mouse, and delayed labor by 12 days in two mice. As a result of injecting 0.01 of the alkaloids

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USSR

IBRAGIMOV, Kh. Z., Veterinariya, No 8, 1970, pp 77-78

during the 10 days prior to mating, no mouse gave birth for 2 to 3 months. Autopsy revealed a thickening of the uterine horns and the presence of constrictions in them! After injections of 0.01 for 15 days prior to and 10 days after mating, two mice became infertile for 2 months, while two other mice became ill and died on the 13th and 18th days of the experiment. Dysfunction of the central nervous system and increased respiratory rates were observed in the ill mice. An autopsy performed on the dead mice revealed macerated embryos in the uterine horns and a marked vascular reaction in internal organs, especially in the mesentery. The number of embryos in a litter in the experimental mice was about 32% less than in the control mice. The average weight of 1-month-old mice in the experimental group was 14% less than that in the control group. Experiments on Rabbits. Tests were performed on 30 female rabbits divided into five groups: the first, third, fourth, and fifth groups included five animals each, while the second group included 10 rabbits. The first four groups were experimental, the fifth group was a control. The experimental rabbits were fed 10 per day of crude barley smut mixed with their regular fodder in a ratio of 1:10. The first group was fed this ration for 30 days after mating; the second group, for 15-20 days prior to and 20-30 days after mating; the third group, for 15 days after mating; and the fourth group, for 15 days beginning with the 16th day after mating. The results

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USSR

IBRAGIMOV, Kh. Z., et al, Veterinariya, No 8, 1970, pp 77-78

were recorded in the form of periods of birth, number of rabbits born in one litter, and their general development up to the age of 2 months. The experiments showed that the addition of barley smut to regular fodder during pregnancy causes no clinical disturbances in the pregnancy. However, feeding smut for 20 days prior to mating and during pregnancy disturbed the sexual cycles in two female rabbits and caused the death of two (out of 10): one died on the 17th day after mating (34th day of the experiment) and the other on the 28th day after mating (48th day of the experiment). Autopsy revealed macerated embryos in the uterine horns. The number of rabbits per litter in the experimental group was 34% less than in the control group. In the experimental group, the death rate of rabbits up to the age of 1 month was 2.5 times greater than in the control group. Their body weight was 37% less at the age of 1-2 months, 10% less at the age of 3 months and 9% less at the age of four months than in the corresponding controls.

#### Conclusions

1. In female mice, subcutaneous injections of 0.0005 to 0.01 g of barley smut alkaloids during the 20 days prior to and 20 days after mating induces a chronic

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USSR

IBRAGIMOV, Kh. Z., et al, Veterinariya, No 8, 1970, pp 77-78

intoxication which disturbs the reproductive process (delayed labor) and causes death of offspring, sterility, a reduction in the number of mice per litter, and poor growth of progeny.

2. Smut alkaloids administered to female mice in doses of 0.01 g during the 10 days prior to and 10 days after mating induce a subacute and a chronic intoxication, resulting in death or sterility of the mice.

3. When female rabbits are fed 10 g of barley smut per day for 15-20 days prior to mating and for 20-30 days during pregnancy, their fertility is decreased, the embryos become macerated and die, and the number of rabbits born in a litter is decreased.

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1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--CHARACTERISTICS OF THE CRYSTALLIZATION OF EUTECTICS FOR SLIGHT  
SUPERCOOLINGS -U-  
AUTHOR--(04)-SALLI, I.V., FOMICHEV, O.I., SAKHNO, G.A., KHABLO, T.V.  
COUNTRY OF INFO--USSR  
SOURCE--IZVEST. V.U.Z. TSVETNAYA MET., 1970, (2), 126-130. K  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--LEAD ALLOY, TIN ALLOY, CRYSTALLIZATION, EUTECTIC MIXTURE,  
SUPERCOOLING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/1502 STEP NO--UR/0149/70/000/002/0126/0130  
CIRC ACCESSION NO--AT0130431  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0130431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHYSICAL NATURE OF THE PROCESSES UNDERLYING THE FORMATION AND SOLIDIFICATION OF EUTECTICS IN VARIOUS ALLOYS (E.G. PB, SN) IS DISCUSSED IN THE LIGHT OF THE LATEST THEORETICAL AND EXPERIMENTAL DATA, WITH SPECIAL REF. TO THE PART PLAYED BY THE DEGREE OF SUPERCOOLING INVOLVED. THUS, FOR EXAMPLE, THE FORMATION OF AN ESSENTIAL EUTECTIC COLUMN ONLY BECOMES POSSIBLE FOR FAIRLY SUBSTANTIAL SUPERCOOLINGS AND SUPERSATURATIONS. BEFORE THESE CONDITIONS ARE ACHIEVED THERE IS A TENDENCY FOR TWO 'PSEUDO PRIMARY' PHASES TO SEPARATE, AND ONLY LATER DOES TRUE EUTECTIC SOLIDIFICATION SET IN.

UNCLASSIFIED

USSR

UDC 619:616.9-085.37:576.809.33

AYRAPETYAN, V. G., Professor and KHACHATRYAN, A. B., Candidate of Veterinary Sciences, Armenian Scientific Research Institute of Animal Husbandry and Veterinary Science

"Immunogenic Properties of Vaccines Prepared from Viruses Grown on Tissue Cultures"

Moscow, Veterinariya, No 9, Sep 70, pp 42-44

Abstract: The following vaccines were prepared: an inactivated aluminum hydroxide formol vaccine against Aujeszky's disease from a virus grown on a kidney tissue culture from 5-15 day old rabbits; a crystal-violet vaccine against hog cholera from a virus grown on a fetal pig kidney tissue culture; a hog cholera virus strain attenuated by passage through transplanted PP cells; dry virus vaccines against poultry pseudopest from strains B<sub>1</sub>, H, and La Sota grown on chick fibroblasts tissue cultures and fetal pig kidneys; and type A poultry pseudopest virus attenuated by passage through chick fibroblasts tissue cultures and fetal pig kidneys. Animal experiments showed that these vaccines had immunogenic properties as good as those of vaccines prepared from virus-containing blood and organs, and also that they did not produce reactions.

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USSR

AYRAPETYAN, V. G. and KHACHATRYAN, Veterinariya, No 9, Sep 70, pp 42-44

The inactivated vaccine against Aujeszky's disease and the dry virus vaccines against poultry pseudopest were approved by the Scientific and Technical Council of the Ministry of Agriculture USSR. The approved vaccines are now being produced by the Kherson and Stavropol' Biological Plants and are undergoing field tests.

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USSR

UDC 576.858

KHACHATRYAN, A. B., and POGOSYAN, A. A., Armenian Scientific Research Institute of Animal Husbandry and Veterinary Medicine

"Immunobiological Characteristics of Epizootic Newcastle Disease Virus Attenuated in Tissue Culture"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 7, 1970, pp 71-75

Abstract: A virulent strain of Newcastle disease virus isolated from infected poultry was grown in monolayer cultures of primary trypsinized cells (chick embryo fibroblast, fetal pig kidney, and rabbit kidney; 110, 107, and 125 passages, respectively). Virulence remained unchanged for chick embryos but decreased for chicks with an increasing number of passages on chick embryo fibroblasts and fetal kidney cultures. Virulence did not decrease in the cultures of rabbit kidney cells, even after 125 passages. In a farm test, 1340 previously unvaccinated 80-day-old chicks were injected intramuscularly with dried cultural virus of the 77th passage on chick embryo fibroblasts. None of the animals exhibited symptoms of Newcastle disease during the following 3 months. Two and 3 months after immunization, 32 of the vaccinated chicks and 10 nonvaccinated controls were brought to the laboratory and inoculated with a virulent strain of Newcastle disease virus. All of the control chicks, but only one of the vaccinated chicks, died.

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USSR

UDC: 538.56:555

LEDENEV, V. I., SUKHORUKOV, A. P., KHACHATRYAN, A. M.

"Concerning the Change in Structure of the Focal Region With a Change in Spatial Self-Focusing of Short Pulses"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 90-94

Abstract: The authors discuss the effect of tripling of the number of focal points during self-focusing of short pulses. The condition is found which must be satisfied by the ratio between pulse duration and initial beam convergence (linear focus) for this effect to appear. Nonlinear focus motion figures are given together with the distribution of intensity in media with instantaneous or lagging nonlinear response. Three illustrations, bibliography of ten titles.

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USSR

UDC: 538.56:535

SUKHORUKOV, A. P., FEL'D, S. Ya., KHACHATRYAN, A. M., SHUMILOV, E. N.

"Stationary Thermal Self-Focusing of Laser Beams"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 53-61

Abstract: The paper deals with some problems in the theory of thermal self-focusing of continuous laser emission. A theoretical geometric optics equation is found for a nonlinear absorbing medium which can be used to plot the aberration pattern of thermal self-focusing. An analysis is also made of the structure of the focal region, and the behavior of the field at the focus is discussed for a wide range of variation in the absorption of the medium and in the input power. The stability of stationary thermal self-focusing is investigated, and it is shown that thermal self-focusing of actual high-power beams takes place without breakdown into separate filaments. Four illustrations, bibliography of nine titles.

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Phytology

USSR

UDC 633.11.582.285.2

BABAYAN, A. A., and KHACHATRYAN, G. A., Armenian Scientific Research Institute of Plant Conservation

"ON Factors Influencing the Germination of Uredospores of Stem Rust of Wheat (*Puccinia graminis f. tritici*)"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 25, No 1, 1972, pp 60-68

Abstract: Experiments were conducted to study factors affecting germinating capacity of uredospores in the period of development of uredopustules in plants and in artificial media. Infected wheat shoots were separated when formation of uredopustules became apparent. Some were placed under bell jars, humidity 83-90%, other were left open, humidity 28-44%. Average germination of uredospores in the first group was 59%, in the second, 0.8%. Uredospores were submitted to 50° temperature for 30 minutes, then 4 hours in a moist chamber. Results of this test show that germination of uredospores is significantly increased by warm temperatures and high humidity; however, germinating capacity of uredospores subjected to heat only was not stimulated. Readiness of germination of uredospores is stimulated in diluted cell liquid of leaves of plants in the family Gramineae, and in Berberidaceae and Chrysanthemum, but not in such plants as rose, apple, apricot, and tomato.

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USSR

BABAYAN, A. A., and KHACHATRYAN, G. A., *Biologicheskii Zhurnal Armenii*,  
Vol 25, No 1 1972, pp 60-68

Readiness of germination of uredospores of *P. graminis* is also stimulated by a 0.01% solution of 2,4 dichlorophenoacetic acid, a 0.005% concentration of NRV [petroleum growth stimulator], and others. The controlling factor in the germination of uredospores in nature is relative humidity of the atmosphere.

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USSR

UDC 577.15

KHACHATRYAN, G. S. and SUDZHYAN, Ts. M., Yerevan State Medical Institute,  
Yerevan

"Activity of Various Forms of Glycogen Synthetase in the Brain Under the  
Effect of Psychotropic Substances and of Physiological Influences"

Yerevan, Biologicheskij Zhurnal Armenii, Vol 5, No 8, Aug 72, pp 3-11

Abstract: Earlier research showed that the activity of brain glycogen synthetase is affected by monoaminooxidase (MAO) inhibitors, which produce an antidepressant effect. The effects of functional states of the brain and of the MAO inhibitors iprazid/iproniazid/, transamine, and isoniazid on the glucose-6-phosphate dependent and glucose-6-phosphate independent glycogen synthetase activity in brain tissue (D and I activity, respectively) were studied in experiments on rats. On administration in doses that produced the maximum inhibition of MAO activity, iprazid and isoniazid raised within 4 hrs the D activity without exerting an effect on the I activity, while transamine, which lacks a hydrazine structure, did not alter the glycogen synthetase activity in brain tissue. In 16 hrs both the D and I activity were raised by iprazid and in 10 hrs by isoniazid (apparently iprazid was converted into isoniazid in 6 hrs in rats). In experiments in vitro, iprazid lowered the total glycogen 1/2

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KHACHATRYAN, G. S. and SUDZHYAN, Ts. M., Biologicheskii Zhurnal Armenii, Vol 15, No 8, Aug 72, pp 3-11

synthetase activity in 30 min, while isoniazid increased it during that time, affecting predominantly the I activity within 15 min and the D activity at the end of 30 min. The results in vitro confirmed the conclusion that iprazid exerts its action over the formation of isoniazid. The over-all glycogen synthetase activity was also increased by transamine in experiments in vitro. Nutritional stimulation and conditioned nutritional stimulation increased principally the I activity, while both the D and I activity were increased by conditioned inhibition. The last indicated that the anabolic type of glycogen metabolism predominated in the functional state in question.

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USSR

UDC: 681.326.3

ADZHEMYAN, V. L., GASPARYAN, L. Kh., KHACHATRYAN, G. S., SEMERDZHYAN, M. A.

"A Microprogram Control Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331387, Division G, filed 2 Sep 70, published 7 Mar 72, p 152

Translation: This Author's Certificate introduces a microprogram control device which contains a memory unit, registers, decoders, a cadence signal generator, and logic elements. As a distinguishing feature of the patent, the speed and structural flexibility of the device are increased by including an additional digital place in each field of the information register of the memory unit. The output of each of these digital places is connected respectively to the input of the first AND circuit, through a NOT gate to the input of the second AND circuit, and through the decoder for the given field to the input of the third AND circuit. The second input of the third AND circuit is connected to the output of a circuit for isolating even and odd signals. The inputs of the first and second AND circuits are connected through delay circuits for the given digital place to the reset and set terminals of this additional digital place respectively.

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USSR

UDC 621.375.82

LEDENEV, V. I., SUKHORUKOV, A. P., KHACHATRYAN, A. M.

"On a Change in the Structure of the Focal Region in Three-Dimensional Focusing of Short Pulses"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 2, Moscow, "Sov. radio", 1972, pp 90-94 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D880)

Translation: A tripling of the number of focal points in the self-focusing of short pulses is discussed. The condition for the appearance of the effect imposed on the relationship between the pulse duration and the initial convergence of the beam (linear focus) is obtained. Diagrams of the motion of the nonlinear focus and the intensity distribution in media with instantaneous or inertial nonlinear response are shown. 10 ref. Authors abstract.

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USSR

UDC 621.375.82

SUKHORUKOV, A. P., FEL'D, S. Ya., KHACHATRYAN, A. M., SHUMILOV, E. N.

"Steady-State, Thermal Self-Focusing Laser Beam"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works),  
No. 2, Moscow, "Sov. radio", 1972, pp 53-60 (from RZh-Fizika, No 10,  
Oct 72, Abstract No 10D877)

Translation: Certain problems in the theory of thermal self-focusing of continuous laser radiation are discussed. A ray equation of geometrical optics was obtained for a nonlinear absorption medium; the equation makes it possible to construct an aberration diagram of thermal self-focusing. The structure of the focal region is analyzed, and the behavior of the field at the focus is analyzed over a wide range of change in the absorption medium and the input power. The stability of steady-state, thermal self-focusing is investigated, and it is shown that thermal self-focusing of actual beams of high power occurs without their decay into separate rays. 9 ref. Authors abstract.

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USSR

UDC 542.91+547.873+632.938

DOVLATYAN, V. V., and KHACHATRYAN, N. KH. Armenian Agricultural Institute  
(Yerevan)

"Synthesis of Pesticides. 2-Chloro(methoxy, methylmercapto)-4-[ $\alpha$ -alkyl  
(alkenyl, alkynyl)- $\beta$ -acylhydrazino]-6-alkyl(dialkyl)aminosymm-triazines"

Yerevan, Armyanskiy Khimicheskii Zhurnal, Vol 25, No 8, 1972, pp 697-701

Abstract: Alkylation of 2-chloro-4-( $\alpha$ -metal- $\beta$ -acylhydrazino)-6-alkyl  
(dialkyl)amino-symm-triazines yields 2-chloro-4-[ $\alpha$ -alkyl(alkenyl, alkynyl)- $\beta$   
acylhydrazino]-6-alkyl(dialkyl)amino-symm-triazines. Reacting 2-chloro-4-  
( $\alpha$ -ethyl- $\beta$ -acylhydrazino)-6-alkyl(dialkyl)amino-symm-triazines with sodium  
methoxide yields 2-methoxy-4-( $\alpha$ -ethyl- $\beta$ -acetylhydrazino)-6-alkyl(dialkyl)  
amino-symm-triazines. When the reaction is carried out with thiourea -- the  
products are thiuronium salts which can be methylated with dimethyl sulfate  
to yield methylmercapto derivatives of parent compounds. Preliminary evalua-  
tion showed that compounds with an ethyl radical at the  $\alpha$ -nitrogen atom  
of the hydrazine group have the highest herbicidal activity.

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USSR

UDC 542.91+547.873+632.938

DOVLATYAN, V. V., and KHACHATRYAN, N. KH., Armenian Agricultural Institute (Yerevan)

"Synthesis of Pesticides. 2-Chloro-4-( $\alpha$ -methyl- $\beta$ -acylhydrazino)-6-alkyl(dialkyl)amino-symm-triazines"

Yerevan, Arsyanskiy Khimicheskiy Zhurnal, Vol 25, No 7, 1972, pp 613-619

Abstract: Searching for more selective herbicidal agents, an attempt was made to convert 2-chloro-4-( $\beta$ -acetylhydrazino)-6-alkyl(dialkyl)-amino-symm-triazines (I) to respective 2-methoxy derivatives by reacting (I) with sodium or potassium methoxide. However, instead of the expected product, the reaction yielded 2-chloro-4-( $\alpha$ -sodium(potassium)- $\beta$ -acylhydrazino)-6-alkyl(dialkyl)amino-symm-triazine. Methylation of these compounds with methyl iodide or dimethyl sulfide yielded 2-chloro-4-( $\alpha$ -methyl- $\beta$ -acylhydrazino)-6-alkyl(dialkyl)-amino-symm-triazines. The structures of these compounds have been confirmed by independent syntheses.

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Pesticides

USSR:

UDC 542.91+547.872

DOVLATYAN, V. V., and KHACHATRYAN, N. Kh., Armenian Agricultural Institute, Yerevan.

"Pesticide Synthesis. Synthesis and Reactions of sym-Triazine Derivatives"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 1, 1971, pp 51-55

Abstract: The reaction of 2,4-dichloro-6-alkyl(dialkyl)amino-sym-triazines (I) with maleic hydrazide yielded 2-chloro-6-alkyl(dialkyl)-amino-4-(pyridazone-6'-yl-3)-hydroxy-sym-triazines. When acetylhydrazine reacted with (I), the products were 2-chloro-4-(8-acetylhydrazino)-6-alkyl(dialkyl)amino-sym-triazines which were converted into the corresponding thiuronium salts. Treatment of the later with KOH followed by methylation with dimethyl sulfate gave 2-methylthio-4-(8-acetylhydrazino)-6-alkyl(dialkyl)amino-sym-triazines. The compounds were synthesized to be tested as herbicidal agents, but no biological data have been reported.

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SECOND Page Missing

USSR

UDC 542.91+547.87

DOVLATYAN, V. V., KHACHATRYAN, N. Kh., Armenian Agricultural Institute, Yerevan

"Synthesis of Pesticides. XXIX. Synthesis and Conversion of 2-chloro-4-hydra-  
zino-6-alkyl(dialkyl) amino-symm-triazines,

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol XXIV, No 2, 1971, pp 167-173

Abstract: In connection with the absence of data on substituted derivatives of symm-triazine containing hydrazine radicals and chlorine atoms, and the fact that in a number of herbicides with the symm-triazine ring, the 2-chlor<sup>o</sup>-bis-alkylamino-symm-triazines are the most active, a study was made of the reaction of 2,4-dichloro-6-alkyl (dialkyl) amino-symm-triazines with hydrazine hydrate. This interaction leads to the formation of 2-chloro-4-hydrazino-6-alkyl(dialkyl) amino-symm-triazines. The potassium salts of  $\beta$ -[2-chloro-6-alkyl(dialkyl) amino-symm-triazinyl-4-dithiocarbamic acids are obtained by interaction of hydrazino-triazines with carbon disulfide, and by condensation with maleic anhydride, 2-chloro-4-maleichydrazino-6-alkyl(dialkyl) amino-symm-triazines are obtained. The latter are converted into the corresponding thiuronic chlorides which are split and subsequently methylated by dimethyl sulfate to form 2-methylmercapto-4-hydrazino-6-alkyl(dialkyl) amino-symm-triazines. By condensation of the latter with maleic anhydride, 2-methylmercapto-4-maleichydrazino-6-alkyl

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Acc. Nr. **AP0053897** Abstracting Service:  
- CHEMICAL ABST. 6-70

Ref. Code  
**UR0076**

117158k Heating of a convection current during the anodic dissolution of metals. Fedorova, N. S.; Khachatryan, O. B. (Mosk. Khim.-Tekhnol. Inst. im. Mendeleeva, Moscow, USSR). *Zh. Fiz. Khim.* 1970, 44(1), 231-2 (Russ). Heating of the convection current obsd. in many electrochem. processes can lead to inversion of the direction of the convection current during electrolysis. Based on exptl. data the amt. of heat consumed in heating of the convection current to the point of inversion,  $Q_{inv}$  is calcd. for various electrode processes. In concn.-polarization limited processes, the amt. of heat required for the inversion of the convection current considerably exceeds  $Q_{inv}$  for processes with chem. polarization. With increasing d. of the soln.  $Q_{inv}$  decreases, esp. in processes the rate of which is detd. by diffusion. With increasing values of the c.d. at which the inversion takes place,  $Q_{inv}$  increases and considerably exceeds the Faraday straight line. With increasing diln. of the soln. the c.d. increases at which the inversion takes place. It is assumed that the excess energy of discharging particles which they possess for surmounting the effective energy of the activation of the electrode process is also transformed into heat and thus heats the convective current.

L. Holl

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USSR

UDC 632.95

YESAYAN, G. T., DAERUBIYAN, G. A., KHACHATRYAN, K. M., MASAYAN, A. A.,  
KHACHATRYAN, V. S., Institute of Organic Chemistry, Academy of Sciences  
Armenian SSR

"A Method of Preparing 3-Nitro-4-oxybenzyl Ether of 2,4-Dichlorophenoxyacetic  
Acid"

USSR Authors' Certificate No 248657, filed 24 Jun 68, published 26 Feb 70  
(from Referativnyy Zhurnal Khimiya, No 17, 10 Sept 70, Abstract No 17 1643 P)

Translation: 3-Nitro-4-oxybenzyl ether of 2,4-dichlorophenoxyacetic acid (I)  
is excess of formalin, and a 500-1000% excess of hydrochloric acid at 85-  
100°C with subsequent condensation of the resultant 3-nitro-4-oxybenzylchloride  
(III) with the sodium salt of 2,4-D at 90-100°C for 12 hrs in PhMe or xylene.  
600 gm II, 600 gm 34% Cl<sub>2</sub>O, and 3600 ml 35% hydrochloric acid are heated to  
90-95°C with agitation for 12 hrs, then poured into a beaker for crystalliza-  
tion; the excess acid is removed by decanting, and the product is washed in  
water to produce 750 gm III. 187 gm of unpurified compound III, 315 gm of  
the sodium salt of 2,4-D and 100 ml PhMe are heated at 100°C for 12 hrs; after  
water filtering, the product is dried in air. The result is 357 gm I with a  
yield of 95.9%, melting point 95°C (CCl<sub>4</sub>). I has herbicidal properties against  
weeds in corn, potatoes, and grapes.

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A. F. Prokof'yeva

USSR

UDC 632.954:631.5/9:581.1

LADONIN, V. F., KHACHATRYAN, S. M., and GAL'PER-BLICHENKO, Ye. M., All Union Scientific Research Institute of Fertilizers and Agricultural-Soil Science, Moscow

"Effect of Monuron and Linuron on Some Physiological-Biochemical Processes in Plants"

Moscow, Agrokhimiya, No 3, Mar 73, pp 103-112

Abstract: Mechanisms of the intake, distribution and detoxication of the phenylalkylurea derivatives monuron and linuron in various plants have been discussed. On the basis of various degrees of accumulation of these herbicides and similar activity and effectiveness against weeds shown in field trials, an assumption has been made that their toxic activity is not directly related to the inhibition of photosynthetic processes alone. The effect of monuron and linuron on the metabolism of nucleic acids, proteins and free aminoacids in the plants has been demonstrated. It has been assumed that the phytotoxicity of monuron and linuron relates directly to the metabolism of proteins and nucleic acids.

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USSR

UDC 632.95

YESAYAN, G. T., DABIBYAN, G. A., KHACHATRYAN, R. M., PABAYAN, A. A.,  
~~KHACHATRYAN, V. S.~~, Institute of Organic Chemistry, Academy of Sciences  
Armenian SSK

"A Method of Preparing 3-Nitro-4-oxbenzyl Ether of 2,4-Dichlorophenoxyacetic Acid"

USSR Authors' Certificate No 248657, filed 24 Jun 68, published 26 Feb 70  
(from Referativnyy Zhurnal Khimiy, No 17, 10 Sept 70, Abstract No 17 11643 P)

Translation: 3-Nitro-4-oxbenzyl ether of 2,4-dichlorophenoxyacetic acid (I) is excess of formalin, and a 500-1000% excess of hydrochloric acid at 85-100°C with subsequent condensation of the resultant 3-nitro-4-oxbenzylchloride (III) with the sodium salt of 2,4-D at 90-100°C for 12 hrs in PhMe or xylene. 600 gm II, 600 gm 34% CH<sub>2</sub>O, and 3600 ml 35% hydrochloric acid are heated to 90-95°C with agitation for 12 hrs, then poured into a beaker for crystallization; the excess acid is removed by decanting, and the product is washed in water to produce 750 gm III. 187 gm of unpurified compound III, 315 gm of the sodium salt of 2,4-D and 100 ml PhMe are heated at 100°C for 12 hrs; after water filtering, the product is dried in air. The result is 357 gm I with a yield of 95.9%, melting point 95°C (CCl<sub>4</sub>). I has herbicidal properties against weeds in corn, potatoes, and grapes.

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A. F. Prokof'yova

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--NEW EFFICIENT PHOTOCATHODES FOR THE 900-150 A SPECTRAL REGION -U-  
AUTHOR--(02)-MELANID, A.YE., KHACHATRYAN, ZH.KH. K  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIIA NAUK ARMIANSKOI SSR, DOKLADY, VOL. 50, NO. 1, 1970, P.  
23-37  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ALUMINUM ALLOY, MAGNESIUM ALLOY, SILICON ALLOY, BRONZE ALLOY,  
BERYLLIUM CONTAINING ALLOY, STRONTIUM ALLOY, PHOTOCATHODE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1083 STEP NO--UR/0252/70/050/001/0023/0027  
CIRC ACCESSION NO--AT0119942

UNCLASSIFIED



2/2 027


UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119942

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATION OF THE SPECTRAL CHARACTERISTICS OF A GROUP OF SECONDARY EMISSION ALLOYS (AL-MG-SR, AL-MG-SI, BERYLLIUM BRONZE, TUNGSTEN, AND TWO UNSPECIFIED ALLOYS) USED AS THE MATERIAL FOR PHOTOCATHODES IN OPEN TYPE RADIATION DETECTORS. IT IS FOUND THAT THESE MATERIALS CAN BE EFFECTIVELY USED FOR PHOTOCATHODES IN THE MEASUREMENT OF ABSOLUTE EXTRA ATMOSPHERIC RADIATION INTENSITIES AT WAVELENGTHS FROM 900 TO 1500 A. FACILITY: BIURAKANSKAIA ASTROFIZICHESKAIA OBSERVATORIIA, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED

172 044 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--VISION IN SPACE -U-  
AUTHOR--(02)-IVANOV, YE., KHACHATURYANTS, L.   
COUNTRY OF INFO--USSR  
SOURCE--KRASNAYA ZVEZDA, JUNE 17, 1970, P 4, COLS 3-7  
DATE PUBLISHED--17JUN70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, SPACE TECHNOLOGY  
TOPIC TAGS--VISION, VISUAL PRECEPTION, MANNED SPACECRAFT/(U)VOSKHOD 1  
SPACECRAFT, (U)SOYUZ 9 MANNED SPACECRAFT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/0896 STEP NO--UR/9008/70/000/000/0004/0004  
CIRC ACCESSION NO--AN0107425  
UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AN0107425

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FIRST SOVIET EXPERIMENTS AIMED AT THE STUDY OF HUMAN VISION UNDER CONDITIONS OF SPACE FLIGHT WERE CONDUCTED IN THE "VOSKHOD-1" SHIP. THE DATA DERIVED DURING THAT FLIGHT AND SUBSEQUENT FLIGHTS HAVE SHOWN THAT THE RESOLUTION OF HUMAN VISION WAS PRACTICALLY UNAFFECTED 5-7 PERCENT LOWER THAN ON THE GROUND. HOWEVER, THE RELIABILITY OF THE OPERATIONAL VISUAL CAPABILITY WAS REDUCED BY 26 PERCENT EVEN IN A ONE DAY FLIGHT. IT IS BEING ANTICIPATED THAT A LONG FLIGHT, SUCH AS THAT OF THE "SOYUZ-9", WILL BE INSTRUMENTAL IN THE ADAPTATION OF HUMAN VISION TO SPACE CONDITIONS. THE REDUCTION IN BRIGHTNESS OF SIX BASIC COLORS WAS ON THE ORDER OF 25 PERCENT.

UNCLASSIFIED

USSR

UDC 539.56

BELOUS, O. A., DANILOVTSEVA, O. G., KUZNETSOVA, V. A., MAL'TSEV, M. V.,  
MINAKOV, V. N., TREFILOV, V. I., KHACHATUROV, A. A., SHCHUKIN, A. A.,  
Moscow, Kiev. VNIITS (All-Union Scientific Research Institute of Hard  
Alloys); Institute of Metallophysics. Academy of Sciences, Ukrainian SSR

"An Investigation of the Influence of Admixtures of Carbon and Zirconium  
Carbide on the Cold Brittleness of Cast Molybdenum"

Kiev, Problemy Prochnosti, No. 6, 1971, pp 97-101

Abstract: An investigation is made of the influence of carbon and zirconium carbide upon the structure of cast molybdenum alloys; and of the relationship of the structure to the temperature of transition to a brittle state. It is found that even for alloys which have a complex structural state, the rules governing the change of the cold-brittleness temperature may be explained if account is taken of the composition of the solid solution, its structural state, and the nature of the formation of excess phases on the grain boundaries. 5 figures, 1 table, 11 references.

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USSR

KOL'TSOV, V. I., KHACHATUROV, A. A., YAKOVLEV, Ye. I.

"Properties of Continuity of a Sampling Correlation Function and Errors in its Definition"

Tr. Mosk. Avtomob.-Dor. In-ta [Works of Moscow Institute of Motor Vehicles and Highways], 1972, No 41, pp 55-60 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V242, by V. Yurinskiy).

Translation: For large T, approximate formulas are produced for the dispersions

$$\bar{k}(\tau) = \frac{1}{T} \int_0^T x(t)x(t+\tau) dt$$

and the first and second differences  $\bar{k}$ . Process  $x(t)$  is a Gaussian stable process.

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USSR

UDC 621.371.332.4

FILIPP, N. D., PATOKOV, L. F., NASYROV, A. M., and KHACHATUROV,  
A. I.

"Scattering of UHF Waves by  $H_E$  Heterogeneities"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 518-522 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A350)

Translation: Scattering of UHF (at frequencies of 44 and 74 MHz) by  $H_E$  nonuniformities is analyzed over a range of 1300 km. Two types of amplitude-time dependences of  $H_E$  reflections are detected: flash and quasi-continuous. It is assumed that the flash signals are of meteoric origin. The nature of the quasi-continuous signals remains vague. Five illustrations, bibliography of four. A. I.

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172 024 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--SYNTHESIS AND STRUCTURE OF ADDUCTS OF ETHOXYCARBONYLCARBENE WITH  
CIS, AND TRANS,1,3,PENTADIENE -U-  
AUTHOR-(04)-LISHANSKIY, I.S., POMERANTSEV, V.I., TURKOVA, L.D.,  
~~KHACHATUROV, A.S.~~  
COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 918023

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, MALEIC ANHYDRIDE, IR SPECTRUM, NUCLEAR  
MAGNETIC RESONANCE, ISOMER, ETHOXY COMPOUND, CYCLOPROPANE, AMINE  
DERIVATIVE, ALKYNE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--3006/1336

STEP NO--UR/0366/70/006/005/0918/0923

CIRC ACCESSION NO--AP0135010

UNCLASSIFIED

272 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APC135010

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. TECH. PIPERYLENE WAS TREATED WITH MALEIC ANHYDRIDE TO COMPLEX TRANS,1,3,PENTADIENE (I) AND LEAVE PURE CIS,1,3,PENTADINE (II). I WAS OBTAINED PURE BY TREATING THE ISOMER MIXT. WITH SO SUB2 AND DECCPPG. I SULFONE. THE ACTION OF N SUB2 CHCO SUB2 ET ON I GAVE ET CIS,3,METHYL,TRANS, 2,VINYLCYCLOPROPANECARBOXYLATE (III), TRANS,E,METHYL,CIS, 2,VINYL ANALOG OF III, ET TRANS,2,(TRANS,PROPYLENE)CHCLOPROPANECARBOXYLATE (IV), AND CIS,2,(TRANS PROPYLENE) ANALOG OF IV. SIMILARLY, II REACTED WITH N SUB2 CHCO SUB2 ET TO GIVE TRANS,3,METHYL, TRANS,2,VINYL III ANALOG, CIS,3,METHYL,CIS,2,VINYL ANALOG OF III, TRANS,2,(CIS PROPYLENE) ANALOG OF IV, AND CIS,2,(CIS PROPYLENE) ANALOG OF IV. THESE COMPOS. WERE IDENTIFIED BY IR AND NMR SPECTROSCOPY. FACILITY: INST. VYSCKMCL SOEDIN., Leningrad, USSR.

UNCLASSIFIED



USSR

UDC: 621.317.72

ROZHDESTVENSKAYA, T. B., KHACHATUROV, B. M.

"A Wide-Band Phase Shifter of the Tracking Type"

Tr. Metrol. in-tov SSSR (Works of Metrology Institutes of the USSR), 1970, vyp. 117 (177), pp 29-37 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A323)

Translation: The principle of construction of a wide-band phase shifter of the tracking type is considered and theoretical and experimental data are given. It is shown that the use of a controllable thermistor in the phase shifting circuit expands the frequency range of the phase shifter. The amplitude and phase errors of the phase shifter are experimentally determined, and methods are proposed for reducing these errors. It is concluded on the basis of experimental studies that the proposed phase shifter can provide automatic equality of voltage quadrature vectors within 0.1-0.3 percent with equal phase shift between them within 3-15' over a wide frequency range. Five illustrations, bibliography of eleven titles. Resumé.

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*KHACHATUROV, G.S.*

*med*

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VOYENNO-MEDITSINSKIY ZHURNAL, NO. 5, 1970, pp. 51-52  
INTERPRETATIONS OF A PHYSICIAN WITH A SICK COLLEAGUE

G.S. Khachaturov, Major of Med. Serv.

In their practical activities physicians should steadfastly follow the principles of medical ethics, deontology, psychology, since the word and the behavior of the physician can play a major role in the treatment of a patient. In leaving him in a vital moment and no one else, let's in the interpretations of a physician with a sick colleague these principles do not always get a sufficient precise observation.

It is well known that every patient has his own special doctor. He himself got the opinion of a sick physician regarding special importance because of his professional knowledge, often, sick physicians do not evaluate their conditions correctly at all; sometimes their diagnosis does not agree with the diagnosis of the treating physician. All this frequently brings about that they employ an incorrect attitude in regard to the therapeutic measures of their own ailments. In connection with this, the psychological and social effect of the physician upon the perception of the patient is a special character which considers the perception of the patient's own experiences. My attention started with collecting pairs in the abdomen which gradually became stronger. By their character they were by other accompanying symptoms I supposed a developing acute infectious disease. In spite of this, in two days I did not go to the physician, believing that the ordinary conservative measures would cope with my ailment. On the third day the pain worsened, and a relatively "soft" state developed; however, there was extreme weakness and somnolence. Only then was I forced to visit the physician. The surgeon and other specialists who examined me found in the abdominal cavity a firm formation of about 2-3 cm. It should be mentioned that at the discussion of the contents, I was also an active participant. As a result of the consultation of doctors, the conclusion was made that I have an infectious abscession which formed after an appendectomy that was done two years ago, and that an emergency operative treatment is necessary.

To have an idea about the course of the operation, I prepared to do it under local anesthesia, having refused an intraperitoneal general anesthesia. My request was granted. Therefore, as usual, the local anesthesia in the peritoneal cavity was opened, the surgeon and the present physicians present, they started to whisper, and suggested to prolong the operation under general anesthesia. The colleagues, who strong quiet of the physician made me suspect that the firm formation felt in me is nothing else, but a malignant tumor which they want to remove from me. I was surprised and generally after which -- as it later appeared -- the tumor was removed for observation which developed on the ground of a serous-parietal diverticulum.

After the operation I was freely convinced that a malignant tumor is in me. This then was helped by a number of circumstances such as my own experience with the work of surgeons, when it happened that a neoplasm was found in patients who had been operated before for various ailments of the peritoneal cavity;

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On this problem further studies should include the search for the physiological characteristics of speech and hearing, and the improvement of the quality of radio connection in peripheral areas in wilderness, in particular with the use of special devices and additional means of communication.

Examinations of speech formation in a helium-oxygen medium, which we examined together with Yu.V. Kiyov, V.S. Kuznetsov, and others, showed that the filling of resonators (maxillary, frontal, nasal, and oral cavities) with helium-oxygen mixture causes changes in the entire articulation of the function of speech apparatus, and of the speech of exhalation. The distinctness of speech was reduced and its rhythm disturbed. The speech range changed to higher frequencies by 0.7 octave. Further study of speech formation characteristics in changed external conditions is possible to set the requirements for correcting technical means of communications under these conditions.

By making a few summations, it should be remarked that in spite of the large amount of work devoted to problems of physical acoustics the pathophysiology of the ear effect of noise upon the auditory analyzer has still not been satisfactorily studied. There is no unity of opinions on the mechanism of the failure of hearing development, including also the problem of the primary localization of changes in the auditory analyzer. Auditory fatigue and, as its sequel, reduction of hearing capacity is the most important problem of physiological acoustics. It is connected with prolonged auditory stress, the problem of which exceeds the boundaries of physiological science, and becomes a general medical problem.

The most important prerequisite of an effective solution of the mentioned tasks in the field of physiological acoustics is a further improvement of the methods of acoustic and physiological examinations, the creation and securing of investigations with modern measuring and recording apparatus with impact noise meters, noise meters with a great dynamic range for the measurement of noises in the 200 db order, instruments for the measurement, recording and reproduction of infra and ultrasonic vibrations, and with other instruments and technical appliances.

The study of the acoustic characteristics of modern aircraft, the determination of the characteristics of the etiological factors of auditory disorders and the elaboration of a broad complex of preventive measures -- these are the tasks which stand before aviation medicine in this period.