

USSR

UDC: 538.566

DEMCHENKO, V. V., DOLGOPOLOV, V. V., and ~~OMELICHENKO, A. Ya.~~

"Effect of a High-Frequency Potential on the Distribution of Fast TM Waves Along a Plasma Layer"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, vol 17, No 2, 1972, pp 203-209

Abstract: The authors, members of the Physico-technical Institute of the Ukrainian SSR Academy of Sciences in Kharkov, theoretically investigate the effect of a high-frequency potential on fast TM wave distribution when a plane-parallel plasma layer is placed between ideally conducting plates. The case of high amplitudes, in which the pressure of the high-frequency field is much greater than the gas kinetic plasma pressure, is considered. Expressions are obtained for the dielectric permeability at the plasma-vacuum interface and for the dispersion. A connection between the frequency of the TM wave and the wave number is found. The opposite case for low amplitudes, when the high-frequency field pressure is much lower than the plasma gas kinetic pressure, is also investigated. It is found that while the electromagnetic field

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DEMCHENKO, V. V., et al., Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 2, 1972,  
pp 203-209

does not penetrate the plasma due to the skin effect, in the linear approximation the high-frequency field may result in such penetration. Acknowledgment of the assistance of K. N. Stepanov is given.

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UNCLASSIFIED  
 TITLE--ON THE NATURE OF COLLISIONLESS ATTENUATION OF ELECTROMAGNETIC WAVES  
 IN REGIONS OF STRONG INHOMOGENEITY OF A COLD PLASMA -U-  
 AUTHOR--(02)--DOLGOPOLOV, V.V., OMELCHENKO, A.YA.

PROCESSING DATE--23OCT70

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,  
 NR 4, PP 1384-1394  
 DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE DISPERSION, LOW TEMPERATURE PLASMA,  
 SURFACE WAVE, PLASMA DENSITY, INHOMOGENEOUS PLASMA, PLASMA OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--1988/1724

STEP NO--UR/0056/70/058/004/1384/1394

APPROVAL NO--AP0106455 UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTROMAGNETIC OSCILLATIONS DUE TO AN INITIAL PERTURBATION AT THE BOUNDARY OF A SEMI INFINITE PLASMA AND VACUUM ARE INVESTIGATED BY TAKING INTO ACCOUNT FINITENESS OF THE TRANSITION ZONE BETWEEN THE HOMOGENEOUS PLASMA AND VACUUM AND ALSO IN A NONUNIFORM PLANE PARALLEL PLASMA LAYER IN THE CASE WHEN THE WAVELENGTH OF THE WAVE MOVING ALONG THE LAYER IS MUCH GREATER THAN THE LAYER WIDTH.

IT IS SHOWN THAT FOR A PERIOD DEFINED BY THE WIDTH OF INHOMOGENEOUS REGION, THE SURFACE WAVES PRODUCED BY THE INITIAL DISTURBANCE COMPLETELY CHANGE INTO LANGMUIR OSCILLATIONS ALONG THE DIRECTION OF THE PLASMA DENSITY GRADIENT; THE OSCILLATIONS ARE CONCENTRATED IN THE VICINITY OF THE POINT OF PLASMA RESONANCE FOR THE SURFACE WAVE FREQUENCY. THIS REGION COMPRISES A SMALL PART OF THE INHOMOGENEOUS REGION OF THE PLASMA.

IF THE INHOMOGENEITY REGION WIDTH OF THE MEDIUM IS COMPARABLE WITH THE WAVELENGTH, OSCILLATIONS OF A GIVEN FREQUENCY IN GENERAL WILL NOT EXIST AT DIFFERENT POINTS OF THE INHOMOGENEOUS MEDIUM. IN THE GENERAL CASE (FOR AN ARBITRARY RATIO BETWEEN THE WAVELENGTH AND CHARACTERISTIC DIMENSION OF THE INHOMOGENEITY) LANGMUIR OSCILLATIONS (WITH DIFFERENT FREQUENCIES AT VARIOUS POINTS OF THE INHOMOGENEOUS MEDIUM) WILL REMAIN AS A RESULT OF DEVELOPMENT OF THE INITIAL PERTURBATION. THE EFFECTIVE WAVE VECTOR OF THE OSCILLATIONS ALONG THE PLASMA DENSITY GRADIENT INDEFINITELY GROWS WITH TIME. FACILITY: FIZIKO TEKHNICHESKIY INST., AN UKR. SSR.

NOT RECORDED

USSR

UDC 621.316.721

OMEL'CHENKO, B.D.

"Device for Stabilization of Direct Current"

USSR Author's Certificate No 258441, Filed 29/06/68, Published 14/04/70  
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 12, 1970, Abstr ct No 12 A292P by V. Sh.)

Translation: In the stabilizer circuit suggested, the difference between the voltages of a standard element and the feedback element is modulated by a mechanical converter which is connected directly to the power supply of a rectifier made of thyristors and thyatrons. The signal is then amplified with multiplication of the carrier frequency in a phase-sensitive AC amplifier and fed to a phase-sensing detector controlling a rectifier which excites a DC generator. The rectifier is made using a saturation choke which is connected into the circuit in series with a power transformer supplying a silicon power rectifier. The power supply of the modulator increases the reliability of the device.

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Plant Pathology

USSR

UDC 633.15:632

OL'CHENKO, L. I.

"Amino Acids in Infectious Drops of Wheat Leaves and Their Effect on the Sprouting of Uredospores of Stalk Rust"

Immunitet i Pokoy Rasteniy (Immunity and Plant Dormancy), Moscow, Nauka, 1972, p 263

Translation of Russian Abstract: One of the factors which causes the varying degrees of sprouting of uredospores of stalk rust in infectious drops of wheat leaves is the presence of different amount of glycine.

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USSR

UDC 582.285.22:581.14

GESHELE, E. E., and OMEL'CHENKO, L. I., Selection and Genetics Institute,  
Odessa

"Germination of Uredospores of Puccinia Graminis Pers. F. Sp. Tritici Eriks.  
Et E. Henn. in Inoculation Drops on Leaf Surface of Different Wheat Varieties"

Leningrad, Mikologiya i Fitopatologiya, Vol 7, No 1, 1973, pp 16-22

Abstract: Uredospores suspended in distilled water and sprayed on wheat leaves germinate to various degrees. In most cases, the more susceptible is the wheat strain to stem rust, the higher is the percentage of germinating spores: about 30 in resistant strains, 35 in moderately resistant strains, and up to 100 in susceptible strains. In addition to containing substances produced by the spores, the inoculation drops collected from resistant wheat strains also contain relatively large quantities of phytoncides (protective substances normally diffusing from the leaves to the surface) and phytoalexins (protective substances whose production by the plant and diffusion to the surface is induced by the spores). However, wheat strains Kavkaz and Avrora are conspicuous exceptions to this rule, since the spores germinate in large numbers on them, and yet the strains are resistant to stem rust by virtue of an internal defense mechanism. Chemical analysis of the compounds present in the inoculation drops yields no clue as to the nature of the protective substances.

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1/2 C17 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--INFLUENCE OF STRUCTURE OF INITIAL COMPONENTS OF RADIATION CURING OF  
UNSATURATED OLIGOESTERS AND OLIGOESTERURETHANES --U-  
AUTHOR--(05)--CHELCHERKO, S.I., VIDENINA, N.G., MATYUSHOVA, V.G.,  
CHERVETSOVA, I.N., PYARKOV, G.N.  
COUNTRY OF INFO--USSR

SOURCE--IND. ENG. CHEM., PROD. RES. DEVELOP. 1970, 9(2), 143-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RADIATION POLYMERIZATION, OLIGOMER, MALEIC ANHYDRIDE,  
ETHYLENE, ETHYLENE GLYCOL, PHTHALIC ANHYDRIDE, ADIPIC ACID, SEBACIC  
ACID, ETHYL CARBAMATE, THERMAL STABILITY, CHEMICAL RESISTANCE, POLYMER  
STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1144

STEP NO--US/C000/70/009/002/0143/0146

CIRC ACCESSION NO--AP0126566

UNCLASSIFIED



2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128566

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE IRRADN. COPOLYMN. OF UNSATD. OLIGOESTERS AND OLIGOESTER URETHANES WAS INVESTIGATED. THE UNSATD. OLIGOESTERS WERE SYNTHESIZED FROM MALEIC ANHYDRIDE, C SUB2 H SUB4, AND DIETHYLENE GLYCOL, PHTHALIC ANHYDRIDE, AND ENDOMETHYLENTETRAHYDROPHTHALIC ANHYDRIDE, ADIPIC AND SEBACIC ACIDS BEING USED AS MODIFIERS. UNSATD. OLIGOESTER URETHANES OF VARIOUS FREE ISOCYANATE GROUP CONTENTS WERE PRODUCED BY INTERACTION OF OLIGOETHYLENE, OLIGODIETHYLENE, AND OLIGETRIETHYLENE MALEATES WITH TOLYLENE, DIPHENYLMETHANE, AND HEXAMETHYLENE DIISOCYANATES. THE RELATIVE CURING RATE DEPENDS ON THE STRUCTURE OF THE OLIGOMERS, ESP. THE MONOMERS. IN THE CASE OF UNSATD. OLIGOESTER URETHANES, ISOCYANATE GROUPS PARTICIPATE IN THE CURING REACTION. IN IRRADN. COPOLYMN., BOTH THE YIELD OF INSOL. FRACTION AND CONVERSION OF DOUBLE BONDS ARE HIGHER THAN IN THE PRESENCE OF PEROXIDES. PHYS. AND MECH. PROPERTIES, THERMAL STABILITY, AND H SUB2 O AND CHEM. RESISTANCE ARE, AS A RULE, HIGHER FOR POLYMERS OBTAINED DURING HIGH ENERGY IRRADN. FACILITY: INST. HIGH MOL. CHEM., KIEV, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--COPOLYMERIZATION OF OLIGOESTER MALEATE URETHANES -U-

AUTHOR--(02)-OMELCHENKO, S.I., MATYUSHOVA, V.G.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(5), 377-80

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--COPOLYMERIZATION, ORGANIC ISOCYANATE, ETHYL CARBAMATE,  
STYRENE, IR SPECTROSCOPY, POLYURETHANE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/0956

STEP NO--UR/0460/70/012/005/0377/0380

CIRC ACCESSION NO--AP0136386

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2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF OCNRNCO (R IS (CH  
 SUB2) SUB6, (P,C SUB6 H SUB4) SUB2 CH SUB2, OR 2,4,TOLYLENE) WITH H(O(CH  
 SUB2 CH SUB2 O) SUBN COCH:CHCO) SUBM (OCH SUB2 CH SUB2) SUBN OH (N  
 EQUALS 1, 2, OR 3) IN STYRENE SOLN. IN THE PRESENCE OF PEROXIDES GIVES  
 OLIGOPOLYURETHANES, OCNRNHCO(O(CH SUB2 CH SUB2 O) SUBN COCH:CHCO)(OCH  
 SUB2 CH SUB2) SUBN O SUB2 CNHRNCO (I), WHICH THEN ARE COPOLYMD. WITH  
 STYRENE. IR SPECTROSCOPY SHOWED THAT I REACTS WITH STYRENE TO GIVE SOME  
 GROUPS RESULTING FROM STYRENE ADDN. TO N. THIS RESULT WAS CONFIRMED BY  
 DTA OF A I-STYRENE MIXT. AND 2,4,TOLYLENE DIISOCYANATE, STYRENE  
 COPOLYMERS, WHICH HAVE II UNITS. FACILITY: INST. KHEM.  
 VYSOKOMOL. SOEDIN., KIEV, USSR.

UNCLASSIFIED

USSR

DZAGUROV, S. G., SHCHEKOCHIKHINA, Ye. A., and OMEL'CHENKO, T. N., State Control Institute for Biomedical Preparations imeni L. A. Tarasevich, Ministry of Health USSR

"Principles of Lyophilization of Enteroviruses. I."

Moscow, Voprosy Virusologii, No 5, 1971, p 622

Abstract: The stability of attenuated poliomyelitis type 1 virus (LSc2ab strain) was studied. The use of mixtures of peptone and glucose or cow's milk and glucose proved to be ideal for lyophilizing poliomyelitis virus, although other stabilizers were somewhat effective in this respect. These stabilizers can be useful in obtaining a lyophilized preparation with an adequate titer capable of surviving exposure to a broad range of temperatures (4 to 50°C).

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1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--DETECTION OF ANTIBODY TO ONCOGENIC VIRUSES AND CERTAIN ADENOVIRUSES  
IN GREEN MONKEY SERA -U-  
AUTHOR--(05)-DGDONOVA, N.N., OMELCHENKO, T.N., VASILYEVA, N.N., TSETLIN,  
YE.M., ALTSHIEYN, A.D.  
COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 308-312

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADINOVIRUS, MONKEY, ANTIBODY, ANTIGEN, HEMAGGLUTININ

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/1844

STEP NO--UR/0402/70/000/003/0308/0312

CIRC ACCESSION NO--AP0125455

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SERA OF HEALTHY GREEN MONKEYS FROM ANIMAL HOUSES OF THE MOSCOW INSTITUTES WERE TESTED FOR ANTIBODY TO SOME ONCOGENIC AND NON ONCOGENIC ADENOVIRUSES OF MONKEYS IN NEUTRALIZATION TEST, HI TEST AND CFT. NEUTRALIZING ANTIBODY TO HIGHLY ONCOGENIC ADENOVIRUSES SV20 AND SA7(C8) WAS FOUND IN 16PERCENT OF THE MONKEYS, AND FOR ADENOVIRUSES SA7(C626) AND SA7(B105) IN 2-4PERCENT OF THE MONKEYS. ANTIHEMAGGLUTININS FOR SV23(M2) AND SV32(M3) ADENOVIRUSES WERE FOUND IN 26-28PERCENT, AND FOR SV15(M4), SV37 AND SA7(B105) ADENOVIRUSES IN 10, 15 AND 6PERCENT OF MONKEYS, RESPECTIVELY. ONE MONKEY CAN POSSESS ANTIBODIES IN TWO, THREE, LESS FREQUENTLY FOUR ADENOVIRUSES. COMPLEMENT FIXING ANTIBODY FOR ADENO GROUP SPECIFIC ANTIGEN WAS FOUND IN 16PERCENT OF THE MONKEYS. THESE DATA INDICATE WIDESPREAD DISTRIBUTION OF ONCOGENIC AND NONONCOGENIC VIRUSES IN GREEN MONKEYS. FACILITY: GOSUDARSTVENNYY KONTROL'NYY INSTITUT MEDITSINSKIKH BILOGICHESKIKH PREPA4ATOV IMENI L. A. TARASEVICH, MOSKVA.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--A HEMAGGLUTINATING ADENO ASSOCIATED SIMIAN VIRUS -U-  
AUTHOR--(05)-KRAVCHENKO, A.T., OMELCHENKO, T.N., DODONOVA, N.N.,  
KHETAGUROVA, A.K., ALTSHTEYN, A.D.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 301-308  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ADENOVIRUS, HEMAGGLUTINATION, ANTIBODY, MONKEY  
CCNTRCL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/1469 STEP NO--UR/0402/70/000/003/0301/0308  
CIRC ACCESSION NO--AP0125097

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125097

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HEMAGGLUTINATING ADENO ASSOCIATED VIRUS (AAV) WAS RECOVERED FROM A STRAIN OF SIMIAN ADENOVIRUS SV15. ITS MORPHOLOGY AND CAPACITY TO BE ACTIVATED BY DIFFERENT SIMIAN ADENOVIRUSES WAS STUDIED. HIGHLY ONCOGENIC SIMIAN ADENOVIRUSES SV20 AND SA7(C8) DID NOT ACTIVATE THE STRAINS OF AAV UNDER STUDY, UNLIKE 14 OTHER SEROTYPES OF SIMIAN ADENOVIRUSES. A METHOD FOR TITRATION OF THE INFECTIOUS ACTIVITY OF AAV WAS DEVELOPED. FORMATION OF AAV HEMAGGLUTININS WAS SHOWN TO BE ONLY PARTIALLY INHIBITED BY 5, IODO, DEOXYURIDIN AND ALMOST COMPLETELY INHIBITED BY 5, FLUORO, 2, DEOXYURIDINE. PROPERTIES OF HEMAGGLUTININS AND CONDITIONS FOR PERFORMING HA TEST AND HI TEST WITH AAV WERE STUDIED, AS WELL AS PROPERTIES OF HEMAGGLUTINATION INHIBITORS IN MONKEY SERA. SEVENTY FOUR PER CENT OF GREEN MONKEYS IMPORTED TO MOSCOW ANIMAL HOUSES WERE SHOWN TO HAVE ANTIBODY FOR THE HEMAGGLUTINATING AAV STRAIN. NO ANTIBODY FOR AAV WAS FOUND IN HUMAN SERA. FACILITY: GOSUDARSTVENNY KONTROLYNYY INSTITUT MEDITSINSKIKH. FACILITY: BIOLOGICHESKIKH PREPARATOV IMENI L. A. TARASEVICH, INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII IMENI N. F. GMALEI, MOSKVA.

UNCLASSIFIED



USSR

UDC 621.317.757

OMEL'CHENKO, V. A.

"Spectral Analysis of Signals in Real Time Scale -- VII. Interference Analysis of Higher Complexity Signals"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekh. sb. (Radiotekhnika. Republic Interagency Thematic Scientific-Technical Collection of Articles), 1972, vyp. 21, pp 3-9 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A234)

Translation: The author studies the interference analysis of signals where the analysis is based on spectra synthesis in the form of a partial Fourier series sum. The use of two synthesis algorithms is studied. The two algorithms significantly expand the capabilities of the analyzers without significant increase in the difficulty of realization. Original article: one illustration and four bibliographic entries. Resume.

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UDC 621.317.757.08

OMEL'CHENKO, V. A.

"Spectral Analysis of Signals in Real Time Scale -- VIII. Resonance Analysis of Higher Complexity Signals"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radiotekhnika. Republic Interagency Thematic Scientific-Technical Collection of Articles), 1972, vyp.21, pp 9-15 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A233)

Translation: The author studies the resonance analysis of signals where the analysis makes it possible to synthesize the spectra of the signals in real time in the form of a partial sum of a Kotel'nikov series. Synthesis algorithms are used which make it possible to expand the capabilities of the analyzers without significant increase in the difficulty of realization. Original article: three illustrations and three bibliographic entries. Resume.

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USSR

UDC 621.373.826:621.396

KABANOV, M. V., PKHALAGOV, Yu. A., and ONTIKOVA, N. M.

"Experimental Investigation into the Intensity Fluctuations of  
Narrow Light Beams in Precipitation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.  
(Tenth All-Union Conference on the Propagation of Radio Waves;  
Report Theses--collection of works) "Nauka," 1972, pp 165-169 (from  
RZh--Radiotekhnika, No 10, 1972, Abstract No 10D393)

Translation: A report is given of the results of measuring the  
fluctuations of light beams in snowfalls for the purpose of inves-  
tigating the dependence of the light fluctuations on the para-  
meters of the receiver system as well as the optical width and  
microstructure of the precipitation. It is established that the  
nature of the light fluctuations is determined by the statistical  
processes in aerosol dispersion. The signal fluctuations are in-  
terpreted as the screening effect of the light beam by the dis-  
persion system. Three illustrations, bibliography of three. A. L.

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OMEL'CHENKO, V. I.

JPRS 55972  
12 May 1972

UDC 620.178.38:620.197  
INVESTIGATION OF THE INFLUENCE OF OXIDATION-RESISTANT COATINGS ON THE FATIGUE STRENGTH OF HEAT-RESISTANT ALLOY

Article by V. I. Omel'chenko, V. I. Shchepanov, B. N. Shtanovskiy, A. D. Zolotarev, S. S. Sidorov, N. I. Reshtik (Kiev, Zaporozh'ye); Kiev, Prirodnyy Prochnost', Russian, No 10, 1971, signed to press 8 February 1971, pp 76-81

The use of heat-resistant alloys with good strength properties increases the service life of gas turbine engines.

Service life can be increased even further by certain design and technological measures, one of which is the use of oxidation-resistant coatings for protecting parts from oxidation. This is particularly important in connection with high working temperatures in an engine. The most reliable results can be obtained from tests of an engine with coated parts. Such tests, however, are extremely expensive and take a long time. Therefore they must be preceded by investigations of specimens and structural components, under laboratory conditions.

A great deal of work has been done on investigation of the structure of coatings, their oxidation resistance in the unstressed state, development of the technology of application of coatings. However, evaluation of the effectiveness of oxidation-resistant coatings according to data on their structure, composition and oxidation resistance is not sufficiently reliable. Without additional determination of the strength properties of materials and structural components with coatings under conditions approximating operating conditions, i.e., under the influence of working stresses and temperatures, real media and other factors [1-5]. Moreover, the use of many heat-resistant materials depends largely on the choice of coating. Consequently the effectiveness of an oxidation-resistant coating is determined largely on the basis of results of investigation of the strength characteristics of heat-resistant materials with coatings. In such investigations great attention should be devoted to evaluation of the effectiveness of the coatings under conditions of variable stresses, when the state of the surface layer plays a particularly important role.

It has been demonstrated [4,7] that the influence of oxidation-resistant coatings on the fatigue strength of heat-resistant materials is

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UDC 620.178.38:620.197

ISHCHENKO, I. I., OMEL'CHENKO, V. I., SINAYSKIY, B. N., POGREBNIYAK, A. D.,  
BANAS, P. S., REZNIK, M. I., Kiev, Zaporozh'ye

"Study of Influence of Heat Resistant Coatings on Fatigue Strength of Re-  
fractory Alloy"

Problemy Prochnosti, No 10, 1971, pp 76-81.

Abstract: This work presents results of studies of the influence of certain types of heat resistant coatings on the fatigue strength of ZhS6K nickel alloy, widely used for aviation engine turbine blades. None of the coatings studied were found to increase fatigue resistance without preliminary heating of the specimens. Preliminary heating without application of the coatings caused a decrease in fatigue resistance. However, the combination of preliminary heating to 950°C for 1,000 hours with application of coatings (nitriding and application of aluminozirconium coatings) caused an increase in fatigue resistance.

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Acc. No. **AP0045010**

Abstracting Service: **5/70**  
INTERNAT. AEROSPACE ABST.

Ref. Code:  
**UR3663**

**D**

[A70-22471 # Certain problems concerning vibration strength of aircraft gas turbine engines with a long service time (Nekotorye voprosy, svyazannye s vibratsionnoĭ prochnost'iu aviatsionnykh gazoturbinnnykh dvigatelei bol'shogo resursa). ~~V. I. Omel'chenko, Problemy Prochnosti, vol. 2, Jan. 1970, p. 95-98. In Russian.~~

Description of the improvements in the strength and gas dynamic characteristics of gas turbine engines AI-20 by decreasing their vibrations. Topics discussed include: (1) vibration decrease of this engine by means of elastic elements, (2) effect of the elastic supports at the bearing nodal points of the rotor on the vibration level, and (3) effect of the interaction between the engine body and the propeller on the vibrations of the engine.

Z.W.

ALS

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REEL/FRAME  
**19771906**

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USSR

UDC 681.327

OMELIN, V. M., OKHOTIN, S. N., ROMANOV, V. V., Engineers, PETRENKO, A. I.,  
Doctor of Technical Sciences, FESECHKO, V. A., Candidate of Technical Sciences

"All-Purpose Graphical Data Input Device for a Digital Computer"

Moscow, Pribory i Sistemy Upravleniya, No 2, February 1971, pp 6-7

**Abstract:** A graphical data conversion device designed for converting graphical documents to code has been developed at the All-Union Scientific Research Institute of Exploration Geophysics jointly with the Department of Technical Electronics of Kiev Polytechnical Institute. Its technical parameters make it possible to read a variety of graphical data including single curves, families of curves, and various sets of outlines. A block diagram of the device, its operating time diagram, data allocation in memory, and basic technical specifications of the device are presented. It is pointed out that in contrast to the Luch and Graffk graphical data input devices based on the same principle of color recognition, the present design achieves parallel color recognition so that it can read six colors simultaneously -- black, red, blue, green, yellow, and one other arbitrary color. The basic units of the device are an electro-mechanical scanner with an optical system and tape drive, a video pulse shaper,

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OMELIN, V.M., et al., Pribory i Sistemy Upravleniya, No 2, February 1971,  
pp 6-7

a color separating unit, encoding and output units, and a monitoring and  
control unit.

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USSR

EAGANOV, M. I. and OMEL'YANCHEK, A. H.

"Uniaxial Antiferromagnetic Close to the Collapse Point"

Leningrad, Fizika Tverdogo Tela, vol. 13, No. 10, October 1971,  
pp 2993-2995

Abstract: Starting from the expression for the energy of a single-axis antiferromagnetic, in which the second anisotropy constant is set equal to zero for the sake of simplicity, the authors consider the characteristics of the antiferromagnetic in a strong magnetic field directed at an angle to the axis of anisotropy and analyze the magnetization of the antiferromagnetic near the collapse point. The motion of the magnetic moments under the action of a varying magnetic field is considered when the field is directed along the constant field, and an expression is found for the longitudinal magnetic susceptibility. An expression is also derived which describes the behavior of the antiferromagnetic close to the collapse field. It is noted that in the derivation of these formulas, the thermal motion and, in particular, the fluctuations that may

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USSR

KAGANOV, M. I., and OMEL'YANCHUK, A. N., Fizika Tverdogo Tela, vol. 13, No. 10, October 1971, pp 2993-2995

turn out to be important at the collapse point were completely neglected. However, the analysis is useful since it predicts the system behavior in the framework of the Landau theory. The authors are with the Institute of Physical Problems, Moscow.

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1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--EFFECTIVE SEPARATION OF NEUTRONS AND GAMMA QUANTA WITH STILBENE  
CRYSTAL -U-  
AUTHOR--OMEL'YANENKO, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 80-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS  
TOPIC TAGS--PULSE ANALYZER, NEUTRON DETECTOR, GAMMA DETECTOR, STIBENE,  
SCINTILLATION COUNTER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1991/1074 STEP NO--UR/0120/70/001/000/0080/0082  
CIRC ACCESSION NO--AP0110764  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CiKc ACCESSION NO--AP0110764

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF COMPARISON OF CHARGES CONTAINED IN THE PULSE COMPONENTS HAS THE HIGHEST POTENTIAL FOR PARTICLE SEPN. ACCORDING TO THE SHAPE OF THE SCINTILLATION PULSE. AN APP. IS DESCRIBED FOR N REGISTRATION WITH EFFECTIVE DISCRIMINATION OF GAMMA QUANTA. THE APP. CONSISTS OF A SCINTILLATION COUNTER (STILBENE, PHOROELECTRONMULTIPLIER 13), A SCHEME FOR SEPN. OF N PULSES (ACCORDING TO P OUTPUT) AND GAMMA QUANTA, AND OF SPECTROMETRIC AND LOGIC BLOCKS COMPOSED OF SEMICONDUCTORS. THE DYNAMIC RANGE OF N REGISTRATION EQUALS 40:1. THE EFFECTIVENESS OF N AND GAMMA QUANTA SEPN. APPROACHES 100PERCENT IN THE CASE OF REGISTRATION ON ONLY N. IN THE PRESENCE OF GAMMA QUANTA AND VICE VERSA. THE DEGREE OF SUPPRESSION OF GAMMA QUANTA EQUALS 10 PRIME3. THE RESOLN. TIME IS GREATER THAN 0.5 MUSEC. FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

USSR

UDC 517.1:615.7/9

OMEL'YANENKO, E. P.

"Change in Some Biochemical Indices Under the Effect of Sodium 2,3-Dimercaptopropanesulfonate and 2,3-Dimercaptopropanol"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1971, vyp. 3, pp 144-147 (from RZh-Biologicheskaya Khimiya, No 18, Sep 71, Abstract No 18F1865)

Translation: An investigation was made of the effect which unithiol (I; sodium 2,3-dimercaptopropanesulfonate) and BAL (2,3-dimercaptopropanol) have on the content of glycogen (II) in cardiac muscle, and on the activity of liver MAO. The dithiols were administered once in concentrations of 80, 200 and 400 mg/kg (for I) and 10.5, 26.25 and 52.5 mg/kg (for BAL) (10, 25 and 50 percent of LD<sub>50</sub> respectively). It is found that compound I increases (and BAL reduces) the concentration of II in cardiac muscle and thus increases (BAL reduces) the energy reserves of the myocardium. Repeated administration of compound I leads to an increase (and of BAL -- to a decrease) in the MAO activity in the mitochondria of rat liver. Protracted administration of compound I in a dose of 10 percent of LD<sub>50</sub> had no effect on the concentration of compound II; protracted hypodermic injection of BAL

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USSR

OMEL'YANENKO, E. P., Fiziol. aktivn. veshchestva. Resp. mezhved. Sb.  
(Physiologically Active Substances. Republic Interdepartmental Collection),  
1971, vyp. 3, pp 144-147 (from RZh-Biologicheskaya Khimiya, No 18, Sep 71,  
Abstract No 18F1865)

doses of 10, 25 and 50 percent of LD<sub>50</sub> reduced the concentration of II in  
the myocardium by 9, 17 and 29 percent respectively. It is concluded that  
a slight change in the structure of a dithiol (substitution of a sulfo  
group for the hydroxyl group) causes a pronounced change in the pharma-  
cological properties of the chemical. D. G.

2/2

Miscellaneous

USSR

UDC 669.14

PROKOPCHENKO, YE. A., OMELIYANENKO, N. T., and CHERVONEV, L. S., Zaporozh'ye Pedagogical Institute

"Temperature Relationship of Magnetic Susceptibility in Fe-Si Alloys Coated With Nickel Films"

Kiev, Metallofizika, No 39, 1972, pp 89-91

Abstract: Results are presented of an investigation into the temperature relationship of maximum differential susceptibility in an Fe-Si alloy coated with films of galvanically deposited nickel. It was established that with increased temperature a third maximum  $\chi$  appears which does not correspond to  $\chi_{\max} \uparrow \downarrow$  and  $\chi_{\max} \uparrow \rightarrow$ . The appearance of the third susceptibility maximum was apparently associated with the decreased volume of columnar domains and the primary increase in the volume of locking domains. 1 figure, 5 bibliographic references.

1/1

USSR

UDC 669.15.018.8:620.196.2

LARIKOV, L. N., and OMEL'YANENKO, V. V., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Intercrystalline and Transcrystalline Failure of Steels and Alloys From the Action of Different Media"

Kiev, Metallofizika, No 40, 1972, pp 3-24

Abstract: A survey was made of literature on intercrystalline corrosion and stress corrosion from the viewpoint of the effect of the structural state of a structural material. Intercrystalline corrosion was manifested in nonuniform solid solutions by the presence of inclusions of second-phase particles. The specified degree of ordering in uniform solid solutions leads to a sporadic increase of overall corrosion resistance, although the tendency toward stress corrosion is not eliminated. The relationship between the dislocation structure of the material and its tendency toward transcrystalline failure under stress was also examined. 9 figures, 2 tables, 132 bibliographic references.

1/1



USSR

UDC 621.396.4:621.372.851

OMEL'YANENKO, YU. I. and YAKUNIN, B. S.

"Studying the Possibility of Using a General Type Antenna-Waveguide Channel with an Increased Number of Superhigh Frequency Columns in Four Gigacycle Band Radio-Relay Lines"

Moscow, Elektrosvyaz', No 10, 1970, pp 1-9

Abstract: Results are given from a study where the authors consider the possibility of using one variant of the superhigh frequency polynomial filter for increasing the capacitance of four gigacycle radio-relay communication systems. The research procedure is given using the GTT 4000/600 type unit which was incorporated into one of the main radio-relay communications lines. Original article: four tables, one formula, and four bibliographic entries.

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USSR

UDC 613.34

POGOSOV, D. P., OMEL'YANETS, N. I., Candidate of Medical Sciences, Grigor'yeva, L. V. Doctor of Medical Sciences, MEDVEDEV, I. N., Candidate of Medical Sciences, MIRONETS, N. V., Kiev Institute of Public and Communal Hygiene imeni A. N. Marzeyev

"Hygienic Evaluation of Materials for Decontamination and Enrichment of Demineralized Water with Salt"

Moscow, Gigiyena i Sanitariya, No 8, 1972, pp 19-22

Abstract: Results are presented from a hygienic evaluation of AV - 7 x 8ch S anion-exchange resin in bicarbonate form and the contact granulated M-16 mineralizer for enrichment of desalinated water with salt and the asbestos-silver sterilizer for decontamination of desalinated water. The use of water which has been enriched with salt and decontaminated by the mentioned materials for drinking purposes is acceptable for a period of no more than 30 days. The procedures for applying the indicated materials for the mentioned purposes and testing the water obtained are described. The results of the sanitary-chemical, sanitary-bacteriological and sanitary-toxicological studies provide a basis for recommending AV-17-8chS anion-exchange resin (in bicarbonate form) and the M-16 granulated contact mineralizer as reagents for enriching water with salt for short-term utilization of it for drinking purposes. In connection

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POGOSOV, D. P, et al., Gigiyena i Sanitariya, No 8, 1972, pp 19-22

with absence in the mineralizer of fluorine compounds, the water cannot be used for drinking purposes over a prolonged period of time. The investigated asbestos-silver sterilizer is in need of further improvement in that its present output of silver ions is low and unstable. White rats were used to study the physiological effects of drinking the treated water.

2/2

.USSR

UDC 614.31:628.16.067

PANASENKO, G. I., Candidate of Medical Sciences and OHEL'YANETS, N. I.,  
Scientific-Research Institute of General and Communal Hygiene imeni A. N.  
Marzeyeva, Kiev

"Hygienic Evaluation of a Portable Ion Exchange Filter for Field Purification  
of Drinking Water

Moscow, Gigiyena i Sanitariya, No 7, 1972

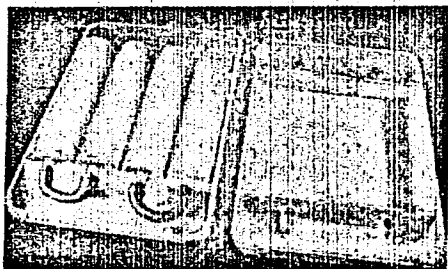
Translation: A portable ion-exchange filter (PIF) which contains, in addition  
to ion exchange resins, biologically active fibers for disinfecting the pro-  
cessed water while simultaneously serving as a drainage device and which is  
used for field purification of drinking water, has been developed and tested.

The PIF (see illustration) consists of four ion-exchange columns connected in  
sequence by rubber tubes and enclosed in a case. The halves of the case are  
fastened by four Kapron bolts; each of the columns is placed in a recess and  
may be replaced easily. In carrying position, the column is equipped with  
two polyethylene covers, covered by a fitting.

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USSR

PANASENKO, G. I., and OMEL'YANETS, N. I., *Gigiyena i Sanitariya*, No 7, 1972



A Portable Ion-Exchange Filter (inside view)

The experimental PIF samples issued are intended for domestic use and in this case the water enters the filter after it has been connected to the water supply system by a rubber hose. The filter case has special recesses for fastening it to the wall. In order to obtain drinking water directly from a reservoir under field conditions, the PIF should be equipped with a device which provides for collection and filtration of the water (a siphon, etc.).

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PANASENKO, G. I., and OMEL'YANETS, N. I., *Gigiyena i Sanitariya*, No 7, 1972

The assembled ion exchange filter is 215 mm high, 145 mm wide and 48 mm thick. Each of the four columns contains 60 ml of ion exchanger. The overall capacity of the device is 300-400 liters. In operation, it filters from 10-25 m/hr.

During passage of the water, the ion exchange columns are filled in the following order: the first two -- by IA-1r anionite, the third by AV-22 anionite and the fourth by AV-172 anionite. A dehydrogenated polyvinyl alcohol fiber with a quaternary ammonium base is used as a decontamination agent in the portable ion exchange filter. The PIF filtering column is made from Mark 10702 (MRTU Interrepublic Technical Standard]-6-05-1086-69) polyethylene which is authorized for use in the food industry. We established also that it does not change the quality of the water touching it and may be used for the preparation of PIF filtering columns.

We performed laboratory experiments to study the effect of the portable ion exchange filter on the quality of the processed water. In essence, we filtered tap water through the PIF at a filtration rate of 5-7 m/hr daily for 5 months. In the course of the experiment, we filtered 528 liters of tap water through the PIF; i.e., we filtered 2200 volumes of water through 1 volume of ion exchanger.

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PANASENKO, G. I., and OMEL'YANETS, N. I., *Gigiyena i Sanitariya*, No 7, 1972

As a result, it was established that the filtered water does not acquire foreign off-flavor and odors from contact with the ion exchange resins and its clarity and oxidizability is decreased 2-3 times in comparison to control water. The saline content of the processed water is unchanged and monomers are not observed in it (G. I. Panasenکو and coauthors). We studied also the total microbial contamination of water filtered through the PIF. We found that the biologically active fiber used in the filter does not guarantee a disinfecting effect; on the contrary, the microbial contamination of the filtrate is increased from 15 to 140 times (G. I. Panasenکو). Analogous results resulted from filtration of Arkhangel tap water (color value 60-90 degrees).

Thus, the biologically active fiber with a quaternary ammonium base which, under static conditions, possesses bacterial properties, does not cause, under dynamic conditions (filtration of water), a bactericidal effect, apparently because of the short (nearly 1 minute) duration of contact of the water and the fiber and the splitting from the polymer of active groups which ensure a bactericidal effect during prolonged filtration.

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USSR

PANASENKO, G. I., and OMEL'YANETS, N. I., *Gigiyena i Sanitariya*, No 7, 1972

Since chemical substances which often cause a biological effect on warm-blooded animals may be separated from ion-exchange resins, we performed chronic sanitary and toxicological experiments on laboratory animals for a final solution of the problem concerning the possibility of using PIF for production of drinking water. The experiment, which lasted for 5 months, involved three groups of 130-150 g male white rats. Each group received water from an automatic spigot; control rats received dechlorinated tap water, the first experimental group received water filtered through the PIF, filled only with biologically active fiber and the second experimental group received water, processed in a PIF, filled with IA-1r, AB-22-172 ion exchange resins and biologically active fibers.

We found that the general condition and behavior of the experimental animals and also their water consumption differed in no way from that of the control animals. Weight increase of the experimental groups was on a level with that of the control rats and averaged 25-30 g monthly.

In the course of the experiment, the percent content of hemoglobin in all groups of animals varied, but was within physiological norms (12.3-14.7 g  
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PANASENKO, G. I., and OMEL'YANETS, N. I., *Gigiyena i Sanitariya*, No 7, 1972

percent). We did not obtain reliable results in a study of the erythrocyte, leukocyte and reticulocyte counts in the blood of all groups of animals. The formed elements of the blood of animals remained within physiological norms. The phagocytic activity of leukocytes, which was determined by the phagocytic number, varied from 3.59 to 4.49 in all groups.

The content of free SH-groups in the blood of animals changed insignificantly during the experiment and statistical processing revealed no reliable differences. The blood sugar level in experimental animals was the same as in control animals. Adrenalin loading did not induce any noticeable differences in control or experimental animals. The same results were obtained from a study of the latent iron-binding capacity of the blood transferrin.

We found no reliable differences in the weight coefficients of the internal organs and during a study of the ascorbic acid level in the adrenal glands. The study of the toxic properties of water treated by the PIP on transplanted cultures of Ner-2 and KB cells showed no cytopathogenic effect of the water. Pathohistological examination of the internal organs of sacrificed animals showed identical changes in the control and experimental groups.

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USSR

PANASENKO, G. I., and OMEL'YANETS, N. I., *Gigiyena i Sanitariya*, No 7, 1972

Conclusions

1. The portable ion exchange filter decreased the color value and oxidizability of high-color water 2-3 times. Water, treated with PIF, had no toxic effect upon transplanted Ner-2 and KB cells.
2. Prolonged consumption of the PIF processed water by animals did not harm their organisms.
3. PIF with anionites IA-1r, AB-22 and AB-172 may be recommended for producing drinking water under field conditions but only for supplementary disinfection of treated water.

Bibliography

1. Panasenko, G. I. In the book: *Hygienic Evaluation of Bactericidal Tissue From Polyvinyl Alcohol Fiber*. Kiev, p 23, 1969.
2. Panasenko, G. I., Vlasova, L. P., Miropol'skiy M.U. and others, In the book: *Hygiene of the Use of Polymer Materials and Articles Made From Them*. Kiev, p 198, 1969.

7/7

USSR

OMEL'YANETS', T. G., Kiev Scientific Research Institute of Epidemiology, Microbiology, and Parasitology, Kiev

"Serological Characteristics of Polysaccharide-Containing and Protein Fractions of Different Forms of *Shigella sonnei*"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 758-760

Abstract: Data obtained in work by Omel'yanets' and associates indicated that *Shigella sonnei* of stage I, stage II, and the R-form have common antigens both of the polysaccharide and protein type. The serological activity of the antigen fractions isolated from the bacilli decreased in the order stage I > stage II > R-form. Serological and chemical study of the polysaccharide-containing and protein fractions indicated that *Sh. sonnei* of stage II occupy an intermediate position and are not identical with those of the R-form, as assumed by some investigators. *Sh. sonnei* of stage II are easily dissociated, probably already in the organism of patients. They are often isolated in early stages of dysentery. Their susceptibility to dissociation probably explains the occurrence of mild forms of Sonne dysentery.

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1/2 035 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ANGULAR AND TEMPERATURE FUNCTIONS OF ION ELECTRON AND ION ION  
EMISSION IN A GALLIUM ARSENIDE SINGLE CRYSTAL -U-  
AUTHOR--(03)-KAPUSTA, O.I., LEBEDEV, S.YA., OMELYANOVSKAYA, N.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 913-15  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--GALLIUM ARSENIDE, SINGLE CRYSTAL, THERMAL EFFECT, ION  
EMISSION, ELECTRON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/1493 STEP NO--UR/0191/70/012/003/0913/0915  
CIRC ACCESSION NO--AP0120280  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120280

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF ANGULAR AND TEMP. DEPENDENCE OF IONIC ELECTRONIC AND IONIC IONIC (FOR POS. IONS) EMISSION DURING BOMBARDMENT OF GAAS SINGLE CRYSTALS BY AR IONS WITH AN ENERGY OF 70 KEV. THE MEASUREMENTS WERE CARRIED OUT UNDER THE FOLLOWING CONDITIONS: VACUUM IN THE TARGET REGION 2 TIMES 10 PRIME NEGATIVE 7 MM HG WITHOUT BEAM AND (5-6) TIMES 10 PRIME NEGATIVE 7 MM HG WITH THE BEAM, C.D. ON THE TARGET 0.5 MA.-CM PRIME 2, TEMP. INTERVAL OF THE MEASUREMENTS 100-600 DEGREES. ANGULAR DEPENDENCE IS GIVEN OF IONIC IONIC AND IONIC ELECTRONIC EMISSIONS OF THE (100) FACE ON ITS ROTATION AROUND THE (100) AXIS AND THE (110) AXIS. THE CURVES WERE RECORDED AT THE SPECIMEN TEMP. OF 550 DEGREES. BOTH ANGULAR DEPENDENCES ARE CHARACTERIZED BY ANISOTROPY DETD. BY A REGULAR DISTRIBUTION OF TARGET ATOMS. THE SAME DEPENDENCES FOR THE (111) FACE (ON ROTATION AROUND THE (110) AXES AT 550 DEGREES SHOWS ITS INVERSE COSINE DEPENDENCE. TEMP. DEPENDENCES OF IONIC IONIC AND IONIC ELECTRONIC EMISSIONS CAN BE USED TO STUDY THE KINETICS OF THE ANNEALING OF DEFECTS. THE COEFF. OF IONIC IONIC EMISSION REACHES A PLATEAU AT HIGHER TEMPS. THAN THE COEFF. OF IONIC ELECTRONIC EMISSION. THIS INDICATES THAT IONIC IONIC EMISSION IS MORE SENSITIVE TO THE PURITY OF THE SURFACE.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ANGULAR AND TEMPERATURE DEPENDENCES OF THE SECONDARY EMISSION OF  
INDIUM ANTIMONIDE SINGLE CRYSTALS DURING ARGON ION BOMBARDMENT -U-  
AUTHOR-(03)-KAPUSTA, O.I.; LEBEDEV, S.YA., OMELYANDVSKAYA, N.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(4), 995-1000  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--INDIUM ANTIMONIDE, SINGLE CRYSTAL, ARGON, ION BOMBARDMENT,  
AMORPHUS MATERIAL, ION EMISSION, ELECTRON EMISSION, THERMAL EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0919 STEP NO--UR/0181/70/012/004/0995/1000  
CIRC ACCESSION NO--AP0121521  
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121521

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ION ELECTRON AND ION ION EMISSION WERE INVESTIGATED, DEPENDING ON THE TARGET TEMP, AND THE ANGLE OF INCIDENCE OF AR IONS WITH AN ENERGY OF 70 KEV ON (111) AND (110) FACES OF SINGLE CRYSTAL INSB, AND THE DEPENDENCE WAS DETD. OF THE COEFFS. OF ION ELECTRON EMISSION ON THE ENERGY OF BOMBARDING IONS AT NORMAL INCIDENCE ON THE ABOVE FACES. AT SUFFICIENTLY HIGH TARGET TEMPS., THE RESULTS AGREE QUAL. WITH THE MODEL OF TRANSPARENCY IF ACCOUNT IS TAKEN OF THE SHIFTS OF ATOMS IN THE SURFACE LAYERS OF THE CRYSTAL. IN THE TEMP. VARIATIONS OF THE COEFF. OF ION ELECTRON EMISSION, 5 DIFFERENT REGIONS ARE OBSD., THE EXISTENCE OF WHICH IS RELATED TO ANNEALING OF RADIATION DEFECTS AND TO VARIATIONS IN THE AMORPHOUS LAYER PRESENT ON THE SURFACE.

UNCLASSIFIED

USSR

UDC 632.78

OMELYUTA, V. P., Ukrainian Institute of Plant Protection

"Effectiveness of Insecticides Against Eastern Leaf Roller Moth"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 7 (105), 1972, pp 36-37

Abstract: A series of insecticides was examined in laboratory and field trials against the eastern leaf roller moth, first observed in Ukraine in 1964. The most effective were phtalophos, cyanox, ultracid, gardona, C-9491, diphterex, and sevin in 0.1% concentrations, applied five times every two weeks. Carbo-phos, Bi-58, DDVF, bazudin, and metathio were ineffective.

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USSR

UDC: 669.185.1

KOLGANOV, G. S., MATUKHNO, G. G., TUPITSA, V. I., PORKHUN, V. G.,  
SHEMET, G. A., OMES', N. M.

"Improvement of the Technology of Production of Type 07T1 Steel"

Moscow, Metallurg, No 10, Oct 73, pp 19-20.

Abstract: . The Krivorog Metallurgical Plant has begun producing type 07T1 steel to replace type KOM steel for the manufacture of bailing wire. The new steel is made in 130-ton converters by the standard technology for manufacture of killed steel, with the maximum quantity of slag run off after completion of blowing. The remaining slag is thickened by addition of 1-1.5 t lime. The metal is tapped at a carbon content of 0.06-0.9%, at 1590-1605° C. The metal is deoxidized in the ladle with titanium sponge or ferrotitanium. During teeming of the steel, when the adjustable head is 1/2 full, liquid aluminum is added to the surface of the metal. The introduction of this step to the technology has reduced total reject rate for 07T1 steel from 1.50 to 0.45%. The quantity of nonmetallic inclusions in the metal is not increased.

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USSR

UDC 621.762.5

OMETOVA, L. F., and TROFIMOVA, A. A., Moscow

"Sintering of Thin Nichrome Films"

Kiev, Akademiya Nauk Ukr SSR, Poroshkovaya Metallurgiya, No 7, Jun 72,  
pp 22-27

Abstract: The process of sintering thin nichrome films (80Ni-20Cr) of various thickness (1000, 50, and 20 Å) is considered by studying the variation of their electrical resistance during heat treatment. The processes of zonal isolation are supposed to have a decisive effect on the electrical resistance variation during heat treatment. Optimal conditions are suggested for vaporized coating and heat treatment of thin nichrome films (300 Ohm/cm<sup>2</sup> surface resistivity with deviations not exceeding 0.02% during heat resistance tests, and not more than 0.1% for cold resistance and thermal shock tests).

1/1

USSR

OMIROV, R. Yu., Docent, Samarkand Medical Institute, Samarkand

"Biochemical Shifts in the Blood Serum During Systematic Administration of Small Doses of Some Insecticides Under Experimental Conditions With and Without Traumatic Injury"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 1, Jan 71, pp 45-48

Abstract: Rabbits were given 5 mg/kg of sevin, 0.7 mg/kg of methylmercaptophos, or 1 mg/kg of hexachloran per day perorally. Shifts in the serum during intoxication with the insecticides and under the combined effect of insecticides and of a trauma consisting of a closed fracture of the metatarsal bone were studied for 120 days. The study indicated that there were characteristic shifts in the content of sugar, P, and Ca under the effect of the trauma alone and the insecticides alone. The shifts in question were most pronounced under the combined effect of insecticides and the trauma. Shifts in the content and  
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USSR

OMIROV, R. Yu., Meditsinskiy Zhurnal Uzbekistana, No 1, Jan 71,  
pp 45-48

composition of serum proteins and in the content of cholesterol  
in the serum were also observed. All three insecticides  
lowered the serum cholinesterase activity both in animals with  
and without the traumatic injury by amounts reaching 35-45%.  
The cholinesterase activity of the blood serum of rabbits with  
the traumatic injury only did not decrease.

2/2

USSR

UDC 595.771(575.2)

BRODSKIY, K. A., and OMOROV, E. O., Institute of Zoology, Academy of Sciences USSR, Leningrad, and Osh Pedagogic Institute, Osh

"Distribution of Larvae of Mosquitoes of the Families Elepharoceridae and Deuterophlebiidae (Diptera) in the River Ak-Bura of the Altay Range"

Leningrad, Entomologicheskoye Obozreniye, Vol 51, No 1, 1972, pp 66-73

Abstract: A collection of specimens along the river Ak-Bura and its tributary Kichik-Alay on the northern incline of the Altay Range indicated that the following mosquitoes of the family Elepharoceridae were present: *Tianschanella monstrosa* Brodsky, *Asioreas nivia* (Brodsky), and *Blepharocera asiatica* Brodsky. Of the family Deuterophlebiidae, the species *Deuterophlebia mirabilis* Edw. was present. The distribution of the four species along the course of the Ak-Bura, as indicated by the number of specimens found, varied with ecological, hydrodynamic, and climatic conditions. In the upper reaches of the Ak-Bura (elevation 2700-4000 m above sea level, mean rate of water flow on the surface 2.5 m/sec, mean water temperature in the summer 6.2°) *A. nivia* predominated. In the middle course of the river (elevation 1100-2700 m, rate of water flow 2.5-3.2 m/sec, water temperature 9.9-11.6°), *B. asiatica*, *T. monstrosa*, and *D. mirabilis* were

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USSR

BRODSKIY, K. A., and OMOROV, E. O., Entomologicheskoye Obozreniye, Vol 51, No 1, 1972, pp 66-73

present, with *B. asiatica* and *T. monstrosa* predominating. At the end of the upper section and in the beginning of the lower section of the middle course, the number of *D. mirabilis* tended to decrease. In the lower course of the river (elevation 900-1100 m, rate of water flow 1.47 m/sec, water temperature 19.0°), only *B. asiatica* and *T. monstrosa* were present, with *B. asiatica* predominating.

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USSR

UDC 539.3

ONANOV, G. G.

"Canonic Kinematic Unknowns of the Generalized Flat Section Law"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 197-200

Abstract: The mean surface of a shell is given by a vector which is a function of two variables. If one of these variables is constant the vector function represents a "solid" section of this surface.

The "solid" section can be referred to a certain pole. The displacement of the section consists of the translation of the pole and rotation about the pole, both are represented by vectors which are functions of one variable. These functions are called the kinematic unknowns of the generalized flat ("solid") section law. These unknowns become canonic if a common pole is used for all sections of the shell surface.

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USSR

ONANOV, G. G., Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 197-200

The deflections of the surface can be expressed as a function of the derivatives of the kinematic unknowns, see equations (10) and (11). These derivatives can be eliminated from the differential equations of the internal equilibrium.

2/2

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USSR

UDC 539.3

ONANOV, G. G.

"Deflection of Round Conical Shell Supported at Equally Spaced Points"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 4-25

Abstract: The case is analyzed of a round conical shell whose base is fixed with regards to displacements normal to the axis of the cone and is supported in the axial direction at several equally spaced points.

The general equations of displacements are derived by the method of variations. These equations are applied to the particular case being analyzed.

The reactions at the points of support are given by formula (71).

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USSR

ONANOV, G. G., Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 4-24

The normal and tangential loads per unit of length are given by formulae (72).

A numerical example is shown on fig. 3. It is a cone supported at three points of the base and acted upon by a moment at the apex. Fig. 3 also shows the distribution of normal and tangential loads in three planes normal to the axis located at a distance from the base equal to 0.05, 0.15 and 0.6 of the height of the cone.

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USSR

VASHCHILA, V. V. and ONAYTIS, V. A., Leningrad Scientific Research Institute  
of Physical Culture

"Graphic Recording of Motor Reactions and Maximum Frequency of Movements after  
Adequate Stimulation of the Vestibular Analyser"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 2, 1971, p 62

Abstract: A brief description is given with a diagram of an attachment to an  
electrocardiograph for use in recording the parameters of various bodily move-  
ments before, during, and immediately after rotation on a Barány chair. The  
known speed at which the paper in the electrocardiograph moves (100 mm per  
sec or 0.5 mm per 0.005 sec) makes it possible to calculate the length of the  
latent period of visual-motor reactions, the maximum frequency of movements  
at any time, and the duration of each movement.

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UDC: 621.383.003.3

USSR

GLAZKOV, M. M., KUZ'MICHEV, G. P., ONEGIN, Ye. Ye., VOLOS, V. F.

"A Method for Wireless Assembly of Semiconductor Devices"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 16, Jun 71, Author's Certificate No 303677, Division H, filed 1 Sep 69, published 13 May 71, p 191

Translation: This Author's Certificate introduces: 1. A method for wireless assembly of semiconductor devices. The procedure includes the operations of making contact conductor frames, connecting them to the crystals, connection to external leads, and hermetic sealing. As a distinguishing feature of the patent, the precision and reliability of assembly are improved by stamping contact leads of variable cross section on a tape with the formation of lugs on the ends of the leads, and etching the tape in an etchant solution until the tapered sections between the contact leads are eaten away. 2. A modification of this method distinguished by the fact that a reinforcement ring is fastened to the contact leads after they have been stamped on the tape.

USSR

UDC: 621.396.6-181.5(088.8)

ONEGIN, Ye. Ye., LIFLYAND, V. N., KUZ'MICHEV, G. P.

"A Method of Wireless Assembly of Semiconductor Devices"

USSR Author's Certificate No 269317, filed 24 Jun 68, published 13 Jan 71  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V272 P)

Translation: A method is proposed for noncontact assembly of semiconductor devices on a dielectric substrate. The method involves attaching the contact areas of the semiconductor crystal to the current-conducting lines of a printed circuit board, connecting the current-conducting lines to the external leads, and sealing the device. To improve the quality of the devices, a relief image is produced on the dielectric substrate, and a current-conducting paste layer is applied to the elements of this image.

1/1

USSR

UDC 512.5

ONEGOV, V. A.

"Hermite Interpolation for Functions of Two Variables"

Leningrad, Vestnik Leningradskogo Universiteta, No 13, 1970, pp 56-61

Abstract: The article considers the problem of Hermite interpolation for functions of two variables with special selection of interpolation points. The points in the present case form a rectangular grid. Expressions for Hermite interpolation error terms are obtained for three special cases. By combining the three special cases the form of the error term of the Hermite interpolation can be indicated in each specific case, although the expression for it will be cumbersome.

1/1

Nuclear Physics

USSR

UDC 539.17

BARASHENKOV, V. S., ONEYEV, V. D.

"Intranuclear Cascades with Multiparticle Interactions"

Moscow, Vzaïmodeystviya Vysokoenergeticheskikh Chastits i Atomnyakh Yader s Yadrami, Atomizdat Press, 1972, pp 468-502

Abstract: The methods developed in Chapters 4 and 6 of this book were used for a detailed investigation of the complete intranuclear cascade of biparticle interactions, including the contribution of the "rod" leading particle, the contributions of subsequent generations with all other generated particles, and the evaporative cascades [I. Z. Artykov, et al., Yadernaya Fizika, No 3, 978, 1966; I. Z. Artykov, et al., Nucl. Phys., No 87, 241, 1966; I. Z. Artykov, et al., Izv. AN SSSR, Ser. fiz., No 30, 1581, 1966]. This permits us to discover to what extent the generally accepted cascade model agrees with the results of the experiments in outer space. A further generalization of the cascade model is consideration of the multiparticle interactions inside the nucleus. A model of high-energy cascades with biparticle collisions is created mathematically. Some divergence of the ordinary cascade model with experience is exhibited for energies of the primary particles of several gigaelectron volts. Nevertheless, the extension of such calculations to the cosmic energy region is of great interest, especially in connection with the discovery of the role played by the leading particles in the mechanism of interaction of the particles with the nuclei.

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USSR

BARASHENKOV, V. S., et al., Vzaimodeystviya Vysokoenergeticheskikh Chastits i Atomnykh Yader s Yadrami, Atomizdat Press, 1972, pp 468-502

The nuclear interaction cross sections calculated by the Monte Carlo method are discussed. The set nature of the nascent particles and their energy spectra are analyzed. Other investigated properties include the distribution with respect to a transverse pulse and angular distributions. A model and a calculation scheme are presented for multiparticle interactions and nucleon-nuclear collisions, the interactions of  $\pi$ -mesons with the nuclei, and the tubular model. An analysis of the nuclear interactions in the 10-30 gigaelectron-volt range shows that the experimental data known up to now cannot be matched with the tubular model.

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1/2 009 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--REGENERATION OF MAGNESIUM BASE -U-  
AUTHOR-(04)-ONI, L.A., PITYUGIN, V.I., BORISOV, N.L., BELDUS, V.D.  
COUNTRY OF INFO--USSR  
SOURCE--BUM. PROM. 1970, (3), 2-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MAGNESIUM, CYCLONE FURNACE, SULFITE, SULFUR, SODA ASH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1995/1359 STEP NO--UR/0329/70/000/003/0002/0004  
CIRC ACCESSION NO--AP0116810  
UNCLASSIFIED

272 009

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0116810

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. EXPTS. ON THE RECOVERY OF MG AND S FROM SPENT LIQUORS OF THE MG BASE SULFITE PROCESS WERE CONDUCTED IN AN EXPTL. CHAMBER FURNACE WITH AND WITHOUT A CYCLONE PRECOMBUSTION CHAMBER OF THE TYPE USED IN TYPICAL SODA RECOVERY BOILERS. THE EFFICIENCY OF THE FURNACE WHEN OPERATED UNDER VARIOUS CONDITIONS WAS EVALUATED BY DETN. OF THE INDEX OF S RECOVERY (THE RATIO OF S GASIFIED TO THE TOTAL S INTRODUCED WITH THE SPENT LIQUOR). WITHIN THE NORMAL RANGE OF VARIATIONS, EXCESS AIR HAD NO EFFECT ON THE COMBUSTION PROCESS. TWO MAIN FACTORS AFFECTING THE DEGREE OF S RECOVERY WERE THE TEMP. AND THE PRESENCE OF MINERAL COMPONENTS OTHER THAN MG COMPS., I.E. MAINLY NA AND K. AT 1100DEGREES OR ABOVE IN THE COMBUSTION CHAMBER AND 80PERCENT MGO IN THE ASH, THE DEGREE OF S RECOVERY CAN REACH 97PERCENT AT A NORMAL EXCESS OF AIR. THUS, THERE IS NO NEED FOR A REDUCING ZONE AND A 2 STAGE COMBUSTION CHAMBER. UNDER SUITABLE TEMP. CONDITIONS, MG BASE SPENT SULFITE LIQUORS CAN BE BURNED ON AN INDUSTRIAL SCALE IN FURNACES OF CONVENTIONAL SODA RECOVERY EQUIPMENT. THE SCREENING TUBES MUST BE HEATED TO GIVE 950-1000DEGREES AT THE OUTLET OF THE COMBUSTION CHAMBER AND 1250-1300DEGREES AT THE OUTLET OF THE SUPERHEATED ZONE. A CYCLONE PRECOMBUSTION CHAMBER IS NEEDED ONLY IF THE REQUIRED TEMP. CANNOT BE OBTAINED IN THE SUPERHEATED ZONE BECAUSE OF LOW CALORIFIC VALUE OF THE SPENT LIQUOR OR TOO LOW A TEMP. OF THE AIR FED INTO THE FURNACE. FACILITY: TSENT. NAUCH. ISSLED. PROEKT. KONSTR. KOTLOTURBIN. INST. IM. PULZUNOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 612.821+612.826

KESHELAVA-GOGICHADZE, M. V., and ONIANI, T. N., Associate Member of the Academy of Sciences Georgian SSR, Institute of Physiology, Academy of Sciences Georgian SSR

"Behavioral and Electroencephalographic Effects of Electrical Stimulation of the Head of the Caudate Nucleus"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 68, No 1, Oct 72, pp 201-204

Abstract: In cats with implanted electrodes, stimulation of the head of the caudate nucleus induces several effects depending on the parameters of the stimulus. A moderate stimulus induces a sleepy state with synchronization of slow potentials in the neocortex and hippocampus and a fall in heart rate. Some animals lie down comfortably and fall asleep. A stronger stimulus wakes a sleeping cat, desynchronizes slow waves, and intensifies theta rhythm in the hippocampus. In a waking cat, it causes a general excitation (pupillary dilation, piloerection, and mewing), intensifies theta rhythm in the hippocampus, but induces no change in the electroneocorticogram. A very strong stimulus precipitates an alarm reaction with intensification of hippocampal theta rhythm and acceleration of heart rate. Next, some animals fall into stupor with

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USSR

KESHELAVA-GOGICHADZE, M. V. and ONIANI, T. N., Soobshcheniya Akademii Nauk  
Gruzinskoy SSR, Vol 68, No 1, Oct 72, pp 201-204

inhibition of hippocampal theta rhythm and deceleration of heart rate. Finally,  
all animals develop motor activity consisting of continuous rotation in the  
contralateral direction. The findings indicate that the head of the caudate  
nucleus participates not only in the control of the diurnal waking-sleeping  
cycle but also in the regulation of complex motivational behavior and associ-  
ated emotional components.

2/2

1/3 017 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ON THE COMPLEX NATURE OF THE PARADOXICAL SLEEP IN THE CAT -U-  
AUTHOR--(03)-DNIANI, I.N., MOLNAR, P., MANEYSHVILI, T.L.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIOLOGICHESKIY ZHURNAL SSSR IMENI I. M. SECHENOVA, 1970, VOL 56,  
NR 5, PP 689-695  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--SLEEP, CAT, ELECTRODE, HIPPOCAMPUS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0248 STEP NO--UR/0239/70/056/005/0689/0695  
CIRC ACCESSION NO--AP0126021  
UNCLASSIFIED

2/3 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126021

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTRAL ANALYSIS OF THE CORTICO AND SUBCORTICOGRAMS RECORDED WITH IMPLANTED ELECTRODES SHOWED THE PARADOXICAL SLEEP TO BE COMPOSED OF THREE DISTINCT PERIODS. 1) THE HIPPOCAMPAL DESYNCHRONIZATION PERIOD, WITHOUT RAPID EYE MOVEMENTS AND MUSCLE TWITCHES, DURING THE SLOW WAVE SLEEP. 2) THE THETA PERIOD OF HIPPOCAMPAL SYNCHRONIZATION, WITH THE SUDDEN APPEARANCE OF THETA BURSTS, ACCOMPANIED BY RAPID EYE MOVEMENT, MUSCLE TWITCHES AND ARRHYTHMIC HEART RATE AND RESPIRATION. 3) THE DELTA PERIOD OF HIPPOCAMPAL SYNCHRONIZATION, I.E. THE GRADUAL SLOWING OF THE HIPPOCAMPAL ACTIVITY, WITHOUT MUSCLE TWITCHES AND WITH OCCASIONAL EYE MOVEMENTS, FURTHERMORE WITH A DECREASE OF THE HEART RATE. THE LATTER PERIODS OF HIPPOCAMPAL SYNCHRONIZATION REPEATEDLY APPEARED DURING EACH PARADOXICAL SLEEP PHASE. THE APPEARANCE OF THE SLOW WAVE SLEEP WAS FOUND TO BE PRECEDED BY HIPPOCAMPAL SYNCHRONIZATION PERIOD, I.E. DELTA PERIOD USUALLY. ACCEPTING THE VIEW THAT THE NEURAL ESSENCE OF THE PARADOXICAL SLEEP WOULD BE THE LIBERATION OF THE RETICULAR ACTIVATING SYSTEM FROM THE INHIBITORY INFLUENCE OF THE PONTINE SYNCHRONIZING STRUCTURES (12), AND TAKING INTO CONSIDERATION THE ROLE OF THE HYPOTHALAMIC STRUCTURES IN THE GENESIS OF THE HIPPOCAMPAL SYNCHRONIZATION (15), THE RETICULAR FORMATION WAS SUPPOSED TO RISE THE HIPPOCAMPAL DESYNCHRONIZATION, AND THE HYPOTHALAMUS TO RISE THE TWO HIPPOCAMPAL SYNCHRONIZATION PERIODS.

UNCLASSIFIED

3/3 017

UNCLASSIFIED

PROCESSING DATE--18NOV70

CIRC ACCESSION NO--APO126021

ABSTRACT/EXTRACT--THE RECENT DATA OF THE GRASYAN'S GROUP (14) AS WELL AS THE CONTROL STIMULATION EFFECTS IN THE PRESENT STUDY SUGGEST THE LATERAL HYPOTHALAMIC ORIGIN OF THE THETA PERIOD WITH RELATIVE FUNCTIONAL DOMINANCE OF THE MEDIAL STRUCTURES DURING THE DELTA PERIOD OF THE PARADOXICAL SLEEP. FACILITY: INSTITUTE OF PHYSIOLOGY GEORG. SSR, TBILISI.

UNCLASSIFIED

USSR

UDC 612.821.7+612.822.3

ONTANI, T. N., KORIDZE, M. G., and KAVKASIDZE, M. G., Laboratory of Comparative Neurophysiology, Institute of Physiology, Academy of Sciences Georgian SSR, Tbilisi

"On the Character and Significance of the Dynamics of the Electrical Activity of the Neocortex and the Hippocampus During the Paradoxical Phase of Sleep"

Leningrad, Fiziologicheskij Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1168-1175

Abstract: The dynamics of the electrical activity of various regions of the neocortex and hippocampus were studied in cats during the paradoxical phase of sleep, using spectral analysis and integration of the EEG, EKG and electrical activity of optical and jugular muscles. Changes in the electroencephalogram, electrohippogram, and somatic and vegetative patterns are said to imply a division of paradoxical sleep into two stages. The first stage is characterized by desynchronization of neocortical activity, occurrence of pontogeniculate-occipital spikes in the visual cortex and some association and projection areas, abrupt augmentation of hippocampal theta activity with depression of other slow waves, and somatic and vegetative signs of emotional stress.

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USSR

ONIANI, T. N., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1168-1175

In the second stage the hippocampal theta rhythm is depressed simultaneously with either a suppression of slow waves or an increase in the delta rhythm. Neocortical synchronization of slow waves develops, as shown by the predominance of alpha activity and concomitant reduction of stress signs. These findings are said to suggest that the reciprocally interrelated midbrain and mesencephalic structures must be responsible for the regulation of the two stages of paradoxical sleep. In addition the first stage is considered to correlate with emotional tension, and the second stage with its relief.

2/2

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--RESULTS OF A SPECTRAL ANALYSIS OF THE ELECTROENCEPHALOGRAM DURING  
SLEEP AND WAKEFULNESS -U-  
AUTHOR-(03)-ONIANI, T.N., MOLNAR, P.P., BAORIDZE, I.K.  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIIA NAUK GRUZINSKOI SSR, SOOBSHCHENIIA, VOL. 57, JAN. 1970,  
P. 173-176  
DATE PUBLISHED----JAN70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ELECTROENCEPHALOGRAPHY, SLEEP, ELECTROPHYSIOLOGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0210 STEP NO--UR/0251/70/057/000/0173/0176  
CIRC ACCESSION NO--AP0119206  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--16OCT70

\*CIRC ACCESSION NO--AP0119206

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION, BY SPECTRAL ANALYSIS AND INTEGRATION OF ELECTROENCEPHALOGRAMS OF CATS WITH PERMANENTLY IMPLANTED ELECTRODES, OBTAINED DURING VARIOUS PHASES OF THE SLEEP WAKEFULNESS CYCLE. GRAPHS SHOWING THE ELECTRICAL ACTIVITY OF THE AUDITORY AND VISUAL PORTIONS OF THE NEOCORTEX AND THE DORSAL HIPPOCAMPUS OF A SLEEPING CAT AND THE CHANGES IN THIS ACTIVITY DUE TO ELECTRIC STIMULATION OF THE RETICULAR FORMATION OF THE MIDBRAIN INDICATE THAT SLOW HIGH AMPLITUDE OSCILLATIONS PREVAIL IN ALL THESE STRUCTURES PRIOR TO STIMULATION. DELTA, THETA, AND ALPHA RHYTHMS DOMINATE IN THE AUDITORY REGION OF THE NEOCORTEX DURING SLEEP. THRESHOLD EXCITATION OF THE RETICULAR FORMATION LEADS TO SUBSTANTIAL CHANGES IN THE ELECTRICAL ACTIVITY OF THE NEOCORTEX, WHICH MANIFEST THEMSELVES IN A PRONOUNCED INHIBITION OF THE DELTA, THETA, AND ALPHA RHYTHMS. THESE RHYTHMS ARE ALSO INHIBITED IN THE HIPPOCAMPUS, BUT TO A LESSER DEGREE.  
FACILITY: AKADEMIIA NAUK GRUZINSKOI SSR, INSTITUT FIZIOLOGII, TIFLIS GEORGIAN SSR.

UNCLASSIFIED

USSR

UDC 591.1 + 612-019

ONIANI, T. N. (Corresponding Member, Academy of Sciences Georgian SSR), MOENAR, P. P., and BADRIDZE, I. K., Institute of Physiology, Academy of Sciences, Georgian SSR

"Results of Spectral Analysis of Electroencephalogram During Sleep and Wakefulness"

Tbilisi, Sobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 57, No 1, 1970, pp 173-176

Abstract: Different cortical rhythms recorded with the use of chronically implanted electrodes in several phases of the sleep waking cycle were investigated by the method of spectral analysis and integration. During spontaneous as well as evoked arousal (by means of alimentary conditioned signal or by electrical stimulation of the reticular formation), high voltage slow waves (delta, theta, and alpha) were inhibited in different neocortical territories, and for a short period in the hippocampus as well. In place of the generally reported increase of the low-voltage fast activity components ( 1 and 2), a decrease in these rhythms was found.

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USSR

UDC 612.822.3+154.2

~~ONTANI, T. N.~~, KORIDZE, M. G., and ABZIANIDZE, Ye. V., Laboratory of Comparative Neurophysiology, Institute of Physiology, Academy of Sciences Georgian SSR, Tbilisi

"Electroencephalographic and Vegetative Correlates of Emotional Reactions"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenova, Vol 58, No 7, 1972, pp 1,040-1,049

Abstract: Changes occurring in the electroneocortico-gram, electrohippocampo-gram, and heart rate during the development of various motivational-emotional reactions were investigated in cats with chronically implanted stereotaxic electrodes. Emotional reactions were evoked by electrical stimulation of the reticular formation, central gray matter, and hypothalamus. Intensification of the hippocampal theta rhythm with either an increase or a decrease in heart rate was the most characteristic electroencephalographic correlate of feeding, drinking, and defensive emotional reactions. On the other hand, electrical stimulation of the hypothalamus (ventromedial nucleus and the anterior region) inducing inhibition of natural behavior, including spontaneous feeding and drinking, resulted in inhibition of the hippocampal theta rhythm.

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USSR

UDC 615.285.7.099.07:[616.153.1+616.36-008.931]-074

ONIKIYENKO, F. A., Institute of Labor Hygiene and Occupational Diseases, Kiev

"The Activity of Some Blood Serum and Liver Enzymes in Animals with Acute and Chronic Sevin Poisoning"

Moscow, Farmakologiya i Toksikologiya, Vol 35, No 2, Mar/Apr 72, pp 237-240

Abstract: In rats receiving a single oral administration of the highest tolerated dose of sevin (400 mg/kg), cholinesterase activity is reduced in plasma and in the liver, while the activity of alkaline phosphatase, arginase, and transaminases is increased in plasma but reduced in the liver. Similar though much less pronounced changes in enzymatic activity occur in chronic intoxication with this pesticide, induced through daily administration of 1/5 LD<sub>50</sub> for 2 - 1/2 months. The disturbances become more severe with increasing doses and duration of intoxication but do not reach the intensity observed in acute poisoning. Upon discontinuation of the treatment, recovery takes place gradually over a period of about a month. It is suggested that the activity of not only cholinesterase but also transaminases should be determined for the diagnosis of sevin poisoning.

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Acc. Nr.: **AP0030926**

Ref. Code: UR 0475

PRIMARY SOURCE: *Vrachebnoye Delo*, 1970, Nr 1, pp 105-108

**SUMMARY**  
**EFFECT OF SUPPLEMENTARY ADMINISTRATION OF VITAMIN B<sub>1</sub>**  
**IN DDT AND HEPTACHLOR POISONING ON OXIDATION-REDUCTION**  
**PROCESSES IN THE ORGANISM**

V. A. Ostroukhova and F. A. Onikiyenko (Kiev)

The effect has been studied of administration of vitamin B<sub>1</sub> on the state of oxidation-reduction processes in DDT and heptachlor poisoning.  
It was found that during repeated prolonged (1.5 months) entering of subtoxic doses of the aforementioned poisons into the animal organism daily administration of excessive amounts of vitamin B<sub>1</sub> resulted in a significant improvement of oxidative processes, in particular in the case of DDT poisoning.

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REEL/FRAME  
**19690945**

USSR

UDC 577.4

KOVALENKO, I. YA., ~~ONIKIYENKO, V. V.~~ TRUSHINA, L. I.

"Some Models and Methods of Forecasting Population and Man Power in the Labor and Personnel Subsystem"

V sb. Razrabotka avtomatizir. sistemy plan. raschetov v soyuz. resp. (Development of Automated Planning Calculation Systems in the Union Republics -- collection of works), Kiev, 1971, pp 125-137 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V466)

No abstract

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UNCLASSIFIED

PROCESSING DATE--03JUL70..

TITLE--ON DISPENSARY SERVICE FOR PATIENTS WITH LUPUS ERYTHEMATOSUS -U-

AUTHOR--GNIPKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 1, PP 73-76

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DRUG EFFECT, PUBLIC HEALTH, SKIN DISEASE, ANTIMALARIAL DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FILE/FNAME--1979/C872

STEP, AC--LR/C206/70/OC0/C01/C073/C076

CIRC ACCESSION AC--APCC47346

UNCLASSIFIED

24  
5  
29

Acc. Nr: AP0047346

Ref. Code: UR0206

PRIMARY SOURCE: Vestnik Dermatologii i Venerologii, 1970,  
Nr 1 , pp 73-76

ON DISPENSARY SERVICE FOR PATIENTS WITH LUPUS ERYTHEMATOSUS

V. A. Onipko

Summary

Analysis of the results of complex sanitation work, effectiveness of treatment and prophylaxis of spring-summer relapses and exacerbations in 70 patients with lupus erythematosus for 3 years of dispensary observations is presented.

Systemic lupus erythematosus developing from the discoid form in 4 patients after blood transfusions and in the process of treatment with resoquin is described.

The author states that prophylactic measures carried out on the basis of dispensary service result in a considerable reduction in the incidence and intensity of relapses of lupus erythematosus. Before dispensarization only one patient had no relapses in the spring-summer period, after three years of dispensary follow-up 40 patients had no relapses.

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REEL/FRAME

19790872

DI 2

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFFECT OF SINTERING PROCESS PARAMETERS ON PELLET QUALITY AS STUDIED  
BY A FACTOR METHOD UNDER INDUSTRIAL CONDITIONS -U-  
AUTHOR--(05)--SHARYGIN, D.A., ONISHCHENKO, A.E., RYABOKON, F.A., NESTEROV,  
G.S., URIN, V.D.  
COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(2), 105-7

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--IRON OXIDE, SULFUR, DESULFURIZATION, INDUSTRIAL PRODUCTION,  
HIGH TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/1950

STEP NO--UR/0133/70/030/002/0105/0107

CIRC ACCESSION NO--AP0115758

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70  
CIRC ACCESSION NO--AP0115758  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF TEMP. OF THE  
PREHEATING ZONE, THICKNESS OF THE PELLET LAYER, TIME IN THE FIRING ZONE,  
AND SPECIFIC GAS CONSUMPTION ON THE CRUSHING STRENGTH OF PELLETS, THEIR  
FeO AND S CONTENTS, THE DEGREE OF DESULFURIZATION, AND THE PROPORTION OF  
SMALLER THAN OR EQUAL TO 5-MM FINES WERE STATISTICALLY INVESTIGATED,  
USING PRODUCTION DATA. AFTER DETG. THE REGRESSION COEFFS., THE  
CORRESPONDING VALUE OF THE QUALITY PARAMETER, Y, CAN BE GIVEN AS Y  
EQUALS B SUBO PLUS PRIMEK SIGMA B SUBI X SUBI PLUS PRIMEK SIGMA SUBI  
SMALLER THAN J B SUBIJ X SUBI X SUBJ, WHERE B IS THE COEFF. OF  
REGRESSION AND X ARE INDEPENDENT VARIABLES. ANAL. OF THE DATA OBTAINED  
PERMITTED AN IMPROVEMENT OF PELLET PREPN. BY SELECTING CORRESPONDING  
TREATMENT PARAMETERS. PLANT RESULTS CHECKED THE ACCURACY OF THESE  
PREDICTIONS. FACILITY: SOKOLOVSKO SARBAISKII GORNOOBOGAT,  
KOMB., USSR.

USSR

UDC: 51

ONISHCHENKO, A. M., BORODYUK, V. M.

"Mathematical Economics Model of Optimization of the Complex Development of Interrelated Sectors"

V sb. Vopr. nauch. organiz. proiz-va v nar. kh-ve USSR (Problems of Scientific Organization of Production in the National Economy of the Ukrainian SSR--collection of works), vyp. 1, Kiev, 1970, pp 120-125 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V512)

Translation: A multiple-index model with Boolean variables is written out (on the basis of agricultural materials). Considerations are given on the numerical solution of the model.

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USSR

ZVEREV, G. M.; KOLODNYI, G. Ya.; ONISHCHENKO, A. M.

"Nonradiative Transitions between Levels of Trivalent Rare Earth Ions in Yttrium-Aluminum Garnet Crystals"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; March, 1971; pp 920-7

ABSTRACT: Nonradiative transitions between levels in  $Nd^{3+}$ ,  $Er^{3+}$ ,  $Ho^{3+}$ , and  $Tu^{3+}$  ions in yttrium-aluminum garnet crystals are studied. The variation with temperature of the probabilities for nonradiative transitions are studied, and it is shown that in the single-frequency model approximation optical phonons with an energy  $\sim 700 \text{ cm}^{-1}$  play the predominant role in nonradiative relaxation. The spontaneous nonradiative transition probabilities for various energy gaps between the levels and the dependence of the nonradiative transition probability on the energy gap are determined by measuring the quantum yield, lifetime, and kinetics of luminescence at  $77^\circ\text{K}$ . For gaps lying between  $1200\text{-}5000 \text{ cm}^{-1}$  the dependence can be satisfactorily approximated by an exponential law. The relaxation times from the major excitation levels to the  ${}^4F_{3/2}$  level are measured.

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USSR

ZVEREV, G. M., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Mar 71, pp 920-927

sured for  $\text{Nd}^{3+}$  ions excited by radiation from a ruby or rhodamine 6G laser or by the second harmonic from a neodymium laser; the measurements are based on the kinetics of luminescence emitted by  $\text{Nd}^{3+}$  ions from the  ${}^4F_{3/2}$  level. The relaxation time from levels with an energy  $\sim 18800 \text{ cm}^{-1}$  is  $5 \cdot 10^{-7}$  sec. For levels lower than  $18800 \text{ cm}^{-1}$  the time does not exceed  $5 \cdot 10^{-8}$  sec. On the basis of the dependence of the nonradiative transition probabilities on the energy gap between the levels, the relaxation time between the  ${}^4I_{1/2}$  and  ${}^4I_{3/2}$  levels of  $\text{Nd}^{3+}$  ions is evaluated at  $\sim 5 \cdot 10^{-7}$  sec.

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USSR

UDC 632.38

SHERBAN, Ye. D., and ONISHCHENKO, A. N.

"Winter Wheat Mosaic and Its Vectors in Moldavia"

Kiev, Mikrobiologichnyy Zhurnal, Vol 34, No 6, Nov/Dec 72, pp 757-762

Translation of Russian Abstract: As a result of an examination of winter wheat plantings in a number of rayons of Moldavia during the summer of 1969-1970, we discovered the agent of winter wheat mosaic. The wheat mosaic virus afflicts primarily wheat and the disease manifests itself in two forms -- rosette and mosaic. Mosaic plants do not produce a rosette, lag behind in growth, rarely form ears, and sometimes the ears proliferate.

When sections of diseased leaves were immersed in an acid medium pH 4.5-5, needle-shaped crystals 10 microns in size were found. The wheat mosaic virus is not transmitted mechanically by the sap. The results of tests on transmission of the virus through the soil, by seeds, and also with plant remains proved negative. Under Moldavian conditions, the vectors of the wheat mosaic agent are the *Psammotettis striatus* L. and *Macrosteles laevis* Rib leafhoppers. During electron microscope investigation, bacilliform particles typical of the wheat mosaic virus were detected in the sap of diseased plants.

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USSR

UDC 681.327.66-416

AVGUST, V. I., ONISHCHENKO, A. P., and PANNIKOV, S. I., Khar'kov Poly-technical Institute

"A Device for Measuring the Coercive Force of Thin Magnetic Films"

USSR Author's Certificate, No 280668, Filed 3 Apr 69, Published 4 Dec 70  
(from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B238 P)

Translation: A device for measuring the coercive force of thin magnetic films is proposed. It contains a source of a sinusoidal magnetic field which reverses the magnetization of a film, an amplifier for the voltage induced by the current which remagnetizes a film, null-balance devices, a flip-flop, and a measuring instrument. The device is distinguished by the fact that a differentiating circuit is connected in front of the voltage amplifier, while the output of the amplifier and the output of the power source are connected to the null-balance devices. The purpose of this is to increase the precision of the device's measurements. In order to automate the measurements, the outputs of the null-balance devices are connected to a circuit which forms a time interval between the output pulse of the null-balance devices in direct-current voltage. 2 illustrations.

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USSR

UDC: 621.80.001

ONISHCHENKO, E. L.

"Some Problems of Discrete Control of Deep-Water Manipulators"

Moscow, Mekhanika mashin, No. 27-28, 1971, pp 38-44

Abstract: The manipulators in question may be used for geological research, in explorations of the ocean floor. They may be set up on special research vessels and bathyscapes, in situations in which the operator sees the object at close range and may perform complex maneuvers, or where the research is carried on at depths of 4-6 km by unmanned equipment let down by the research vessel. From his discussion of the problems connected with such apparatus, the author draws the following conclusions: that the control of the manipulators operating on the follow-up system principle with the control signals transmitted by cable is possible only through the use of multiplexing communication; that the multiplexing method is the most acceptable from the point of view of simplicity of construction, reliability, and rapidity of operation; and that the parameters of the pulse element in the time multiplexing system are selected on the basis of the required dynamics for each specific case of manipulator.

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USSR

OSTRENKO, V. YA., KURILENKO, V. KH., QNISHCHENKO, I. I.

"Defects in Hot Rolled Titanium Alloyed Tubing"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost',  
No 1, Jan-Feb 70, pp 29-30

Abstract: Hot rolling of titanium tubes in automatic mills has resulted in defects on the external and internal surfaces of the tubing, particularly in the broaching of billets. The tendency of titanium to adhere to the tools is worsened by the high contact stresses under high temperature conditions and the significant slippage of the metal relative to the surface of the guiding lines in the broaching mill. Another no less important factor in the formation of defects is the gas saturation of the titanium and the formation of a brittle layer on the surface. The most frequent types of defects and conditions of their formation are described and illustrated. These defects increase consumption of metal in the manufacture of the tubing. At the present time, the formation of defects is reduced by more frequent replacement of

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OSTRENKO, V. YA., et al., Metallurgicheskaya I Gornorudnaya Promyshlennost', No 1, Jan-Feb 70, pp 29-30

line guides. The authors performed an experiment involving blowing compressed air through the mill at 6 atm. pressure between operating cycles. This method was somewhat successful in reducing the frequency of defect formation.

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USSR

VOYTsENYa, V. S., ONISHchENKO, I. N., SAPPa, N. N., SAFRONOV, V. G., and TRUBChANINOV, S. A.

"Interactions of Moving Plasma with Non-Uniform Magnetic Fields"

Kiev, Fizika Plazmy i Problemy Upravlyayemogo Termoyadernogo Sinteza, No 4, 1973, pp 105 - 113

Abstract: Various types of instabilities have been detected in plasmas moving in a uniform magnetic field, and the unstable movements are apparently determined by the properties of the plasma and the conditions of its entry into an axial magnetic field, independently of the source. Systems in which the magnetic field increases with increasing radius and systems with force-line intersections (helical symmetry) restrict some of these instabilities. Experiments conducted with two configurations - a direct stellarator and a quadrupole magnetic field in combination with an axially symmetric field showed that plasma at a density of approximately  $10^{13}\text{cm}^{-3}$  moves along force-lines, leading to a better result for the stellarator field than for the combination of an axially symmetric field and a multipole field. The stellarator field was found to reduce the non-uniformity of electric potential observed with the other field and to leave significantly less plasma close to the walls of the container.

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USSR

UDC: None

LEVIN, M. B., LYUBARSKIY, M. G., ONISHCHENKO, I. N., SHAPIRO, V. D.,  
and SHEVCHENKO, V. I.

"Nonlinear Theory of Electron-Beam Kinetic Instability in a Plasma"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 62,  
No 5, 1972, pp 1725-1732

Abstract: In earlier papers on this subject the problem of the excitation of monochromatic plasma waves was solved for the case of an instability in the monoenergetic beam in the plasma. The present paper discusses the kinetic instability which arises in the interaction between the plasma and the beam, with the release of large quantities of heat. This instability is the result of the Landau attenuation effect; a formula is given for the linear increment of the increase in oscillation manifested by the instability. In their analysis, the authors use a system of equations describing the motion of the resonance particles in the wave field and the change in the wave amplitude due to the interaction with those particles, a system valid only if the phase change of the field as a result of that interaction is neglected. Plots are given of what the authors call the phase "mixup" of the resonance particles. Connected with the Physico-Technical Institute of the  
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USSR

UDC: None

LEVIN, M. B., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62, No 5, 1972, pp 1725-1732

Ukrainian Academy of Sciences, they thank Ya. B. Faynberg and R. Z. Sagdeyev for discussing the work with them, and Yu. N. Dnestrovskiy, D. P. Kostomarov, A. A. Ivanov, and T. Soboleva for their assistance in preparing it.

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USSR

UDC: 621.384.633

KOCHKIN, V. A., NOVIKOV, D. L. and ONISHCHENKO, L. M.

"Coherent Transversal Oscillation Frequency in an Electronic Model of Ring Cyclotron"

Moscow, Pribory i Tekhnika Eksperimenta, Zhurnal Akademii Nauk SSSR, No 1, Jan/Feb 72, pp 31-33

Abstract: The magnetic field of the electronic model of a ring cyclotron is produced by 13 concentric windings and by a spiral variation winding. The magnitude of field variation is obtained by varying the spacing between the turns of the variation winding.

The frequency of coherent transversal oscillations as a function of the field and radius are given by formulae (2) and (3) for the vertical and radial directions respectively. This frequency was determined experimentally by exciting the oscillations with a high-frequency electrostatic field and finding the resonant condition.

Graphs of the frequency versus radius are presented. The agreement between the theoretical and experimental data is good.

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UDC 612.766.1:622.272.3

USSR

RESHETYUK, A. L., VANIN, L. G., ONISHCHENKO, L. P., TARASENKO, V. T., and VASYL'KOV, V. M., Donetsk Institute of the Work Hygiene and Occupational Diseases

"Physiological Function Stress of Miners' Organisms Under Conditions of the Deep Donbas Mines"

Kiev, Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 547-553

Abstract: Physiological and ergometric studies were carried out with experienced miners (15 years) during a full shift of manual work, or a combination of manual and machine work under different microclimatic conditions (70-95% humidity, 22-31°C). High temperature of deep mines (29-31°C) reduces the work productivity and increases the functional stresses of miners. A danger of heat stroke was observed with workers who worked previously in not too deep mines, and also in experienced miners after vacations. Adaptation of miners to working conditions at 29-31°C lasts for 1 month, and readaptation, for 15 days. After adaptation to heat the work productivity increases and the functional stress of the whole organism decreases, along with physiological effectiveness. In order to avoid chronic overstresses of miners in deep mines a vacation every 6 months is recommended. Some formulas are presented for description of the physiological conditions of miners and for proper scheduling of their work and rest periods.

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USSR

UDC 531.383

ONISCHENKO, S. M. (Kiev)

"On Nonasymptotic Stability of Undisturbed Motion of Two-Rotor Gyrocompasses"

Kiev, AN UkrSSR, Prikladnaya mekhanika, Vol 6, No 1, 1970, pp 124-128

Abstract: The nonasymptotic stability of the undisturbed motion of the sensor of a two-rotor gyrocompass is analyzed. A method of averaging is used in constructing a basic system of particular solutions of the initial linear differential equations with periodic coefficients describing the small oscillations of the gyro's sensor around its equilibrium position during gyration of a ship in high geographic latitudes. The nonasymptotic-stability boundaries of the unperturbed motion of the gyrocompass during ship's gyration within high latitudes are determined, and the dependence of the critical latitude on the ship's speed is established. The loss of stability in latitudes exceeding the critical one is possible because of the compass' directional-moment decrease in the region of the Earth's poles. Orig. art. has: 1 figure, 11 formulas, and 3 references.

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

235861 RESISTANCE BUTT WELDING of homogeneous material, which have a tendency to brittleness, involves using instead of a straight butt a saw-tooth shaped or undulating joint of the two facing plates. During the upsetting operation, the projections of one end match the depressions of the other end. The zig-zag line of fusion prevents the origin or cracks. 4.9.67. as 1185267/23-27. V.K.LEBEDEV et alia. E O.Paton Electrowelding Inst. (4.7.69.) Bul.6/24.1.69: Class 21h. Int.Cl. B23k.

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AUTHORS: Lebedev, V. K.; Yavorskiy, Yu. D.; Sakhatskiy, C. P.;  
Yushchenko, K. A.; and Onishchenko, P. M.

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