

USSR

UDC 632.4:582.285.22:633.11(471.4)

LEKOMTSEVA, S. N., VOLKOVA, V. T., and CHAYKA, H. N., Chair of Lower Plants,
~~Moscow State University~~

"Physiological Races of the Pathogen of Wheat Stem Rust in Some Regions Along
the Volga River"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 161-166

Abstract: Data on the specialization of such pathogens as Puccinia graminis Pers. were collected, starting in 1964, to study the occurrence and development of wheat stem rust in the irrigated regions along the Volga. The territory can be divided into three groups, according to the frequency of occurrence of the disease. Conventional methods were used to determine physiological races of the pathogen. Eleven races of P. graminis f. sp. tritici were identified in the Saratov, Kuybyshev and Volgograd regions. Two to three races predominated. The race composition of wheat stem rust was more homogeneous in commercial fields than on plants of selection stations. It was found that all types of wheat studied were highly susceptible to races of fungus distributed over the regions along the Volga. More experiments in nature are necessary for future selection of wheat immune to this disease.
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1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SPECIALIZED FORMS OF THE AGENT OF STEM RUST IN SOME VOLGA AREAS -U-
AUTHOR--(02)-LEKONTSEVA, S.N., VDLKOVA, V.T.
COUNTRY OF INFO--USSR
SOURCE--BIOLOGICHESKIYE NAUKI, 1970, NR 1, PP 87-91
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CEREAL STEM RUST, PLANT DISEASE, CROP IRRIGATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--300771740 STEP NO--UR70325710700070017009770091
CIRC ACCESSION NO--AP0136981
UNCLASSIFIED

2/2 003

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136981

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PUCCINIA GRAMINIS, THE AGENT OF STEM RUST OF GRAIN, IS FOUND IN MANY SECTORS OF SIBIRATOV, KUYBYSHEV AND VOLGOGRAD REGIONS. RUST DEVELOPS ON RYE, BARLEY, OATS AND WHEAT, MOSTLY ON IRRIGATED PLOTS. THREE SPECIALIZED FORMS OF THE FUNGUS ARE OBSERVED IN THIS AREA, PUCCINIA GRAMINIS F. SP. SECALIS ON RYE, COUCH GRASS AND BARLEY, PUCCINIA GRAMINIS F. SP. AVENAE ON OATS, AND PUCCINIA GRAMINIS F. SP. TRITICI ON WHEAT AND OCCASIONALLY ON BARLEY. PUCCINIA GRAMINIS F. SP. TRITICI AND F. SP. SECALIS ARE DISTINGUISHED BY THE SIZE OF THEIR UREDOSPORES. DIMENSIONS VARY DEPENDING ON THE FUNGUS POPULATION. BARBERRY IS THE INTERMEDIATE HOST IN ALL OF THESE AREAS.
FACILITY: KAFEDRA NIZSHIKH RASTENIY, MOSKOVSKOGO GOSUDARSTVENNOGO UNIVERSITETA IMENI M. V. LOMONOSOVA.

UNCLASSIFIED

USSR

UDC 621.391.677.4

KULAKOV, S. V., LEKS, A. G., SEMENOV, S. P., and UL'YANOV, G. K.

"Ultrasonic Signal Processor"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrabotsy, tovarnyye znaki, No. 33, 1971, p 174

Abstract: Used for processing the signals of phased antenna gratings by restoration of the wave front, this device contains a radiating acoustical grating, an ultrasonic polygon, a multichannel amplifier, an indicator, and a system for computing the acoustical field distribution. The computing system takes the form of a receiver acoustical grating whose elements are connected to the television-type indicator, and thus simplifies the construction and reduces its cost. The patent is claimed by the Leningrad Institute of Aviation Instrument Construction.

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USSR

UDC 669.293:537.312.62

LEKSIYA, I. YE., MOTULEVICH, G. P., SHUBIN, A. A., HARANOV, I. A., SPENKOV, V. A.,
and SHKULEVICH, R. S., Physics Institute imeni P. N. Lebedev

"Optical Properties of Superconducting Nb-Ti Alloys"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniya, Vol 29,
No 1, Jan 70, pp 97-107

Abstract: An experimental investigation of the optical properties of superconducting Nb-Ti alloys is reported. The samples were prepared from electron-beam-melted niobium (99.9) and titanium iodide; the experimental and measuring techniques are described. Optical constants n and k (H) of electrolytically polished cubic Nb-Ti beta-solutions with atomic Nb concentrations of 25, 40, 52, 70, and 85 were measured in the 1-10 micron spectral range at room temperature. The same samples were used for determining the density ρ , the static conductance σ_{st} , the resistance R at room and nitrogen temperatures, the residual resistance R_{0st} , and the transition temperature T_c into the superconducting state. The values of basic characteristics of conduction electrons of the tested alloys (electron concentration N , mean velocity v_F on the Fermi level, total area of Fermi level S_F , effective collision frequency ν , collision

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LEKSINA, I. YE., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 97-107

frequency of electrons with phonons ν_{ep} and with impurities ν_{ei} were determined on the basis of experimental data. The possibility is shown of obtaining N , ν , ν_{ep} and others from n and μ with the aid of normal skin-effect formulas, taking into account the nature of the relationship between the electron characteristics and the optical properties of alloys. An analysis of the results shows that: 1) the values of N are close to those of pure niobium, and only in 25% atomic Nb are these values somewhat smaller; 2) the effective collision frequency of electrons ν in alloys is $\sim 10^{15} \text{sec}^{-1}$, while the collision frequency of electrons with phonons ν_{ep} in alloys is close to that of pure niobium. Thus, the large ν values are related to large ν_{ei} values, which in alloys are two orders higher than ν_{ei} of pure niobium; and 3) an anomalous dispersion $\epsilon''(\omega)$ was observed in the long-wave region in all alloys. This indicates the existence of interphase transitions with the resonance frequency in the range of $h\nu = 0.15 - 0.20 \text{ eV}$ for 25-70 at% Nb alloy and in the range of $h\nu < 0.15 \text{ eV}$ for 35 at% Nb alloy. The possibility of the correct determination of electron characteristics of Nb-Ti alloys from measurements of their optical constants is pointed out. The dependence of the transition temperature T_s on N and ν_{ep} is presented in graphs. Orig. art. has: 7 figures, 10 formulas, and 3 tables.

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1/2 041 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--OPTICAL PROPERTIES OF SUPERCONDUCTING NIOBIUM AND TITANIUM ALLOYS
-U-
AUTHOR--(05)-LEKSINA, I.YE., MOTULEVICH, G.P., SHUBIN, A.A., BARANOV, I.A.,
SYTNIKOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 97-107
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SUPERCONDUCTING ALLOY, NIOBIUM ALLOY, TITANIUM ALLOY, PHOTON,
OPTIC CONSTANT, LIQUID NITROGEN, SUPERCONDUCTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0189 STEP NO--UR/0126/70/029/001/0097/0107
CIRC ACCESSION NO--AP0054985
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTICAL CONSTS. N AND X WERE MEASURE AT 1-10 MU FOR Nb-TI ALLOY BETA-SOLNS., CONTO. 25, 40, 52, 70, AND 85 AT. PERCENT NB. STATIC COND., RESISTANCE AT ROOM AND LIQ. N TEMP., RESIDUAL RESISTANCE CRIT. TEMP. (T SUBC) FOR TRANSITION TO THE SUPERCONDUCTING STATE, AND D. WERE DETD. ALSO FOR THESE SOLNS. THE DATA WERE USED TO CALC. BASIC CHARACTERISTICS OF COND. ELECTRONS OF THE ALLOYS. THE STUDY REVEALS THAT, IN NB, S AND D SHELL ELECTRONS INTERACT FORMING A UNIFORM COND. BAND. THIS IS MORE PRONOUNCED IN ALLOYS HAVING A HIGHER VALUE OF EFFECTIVE FREQUENCIES (V) OF ELECTRON COLLISIONS THAN THAT OF NB METAL. A CORRELATION BETWEEN N (CONC. OF COND. ELECTRONS.) AND T SUBC AND V OF ELECTRON COLLISION WITH PHOTONS IS GIVEN.

UNCLASSIFIED

USSR

BOL'SHOVA, K. V., and LEKSINA, I. YE., Fizika Metallov i Metallovadaniye, Vol 29,
No 4, Apr 70

planes $\{100\}$ and $\{111\}$.

The authors thank G. P. Motulevich for his assistance.

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1/2 038 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--OPTICAL PROPERTIES OF CUBIC NIOBIUM, TITANIUM ALLOYS IN THE VISIBLE
AND NEAR INFRA RED SPECTRUM -U-
AUTHOR-(02)-BOLSHOVA, K.V., LEKSINA, I.YE.
COUNTRY OF INFO--USSR
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, APR, 1970, 29, (4), 777-781
DATE PUBLISHED----APR70
SUBJECT AREAS--PHYSICS, MATERIALS
TOPIC TAGS--NIOBIUM ALLOY, TITANIUM ALLOY, LIGHT TRANSMISSION, DIELECTRIC
CONSTANT, ALLOY COMPOSITION, CRYOGENIC PROPERTY, ENERGY BAND STRUCTURE,
CRYSTAL ORIENTATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0450 STEP NO--VR/D126/70/02970/04/0777/0781
CIRC ACCESSION NO--AP0129675
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129675

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTICAL PROPERTIES OF NB,TI ALLOYS OF A WIDE RANGE OF COMPOSITIONS WERE STUDIED IN THE VISIBLE AND NEAR INFRA RED SPECTRUM (0.4-2.5 MU M) AND THE RESULTS WERE INTERPRETED IN TERMS OF THE LIGHT TRANSMISSION AND DIELECTRIC CONSTANT AT 77-300DEGREEK. AS IN THE CASE OF PURE NB, THESE PARAMETERS HAD SINGULARITIES ASSOCIATED WITH INTERBAND TRANSITIONS CLOSE TO THE (110) BRAGG PLANES; THE CORRESPONDING BANDS WERE NOT PARTICULARLY DEPENDENT ON COMPOSITION AND TEMP. THE ALLOYS ALSO EXHIBITED A NUMBER OF NEW BANDS NOT FOUND IN PURE NB; THESE APPEARED MOST SHARPLY AT LIQUID N TEMP., AND WERE ATTRIBUTED TO TRANSITIONS CLOSE TO THE (100) AND (111) PLANES.

UNCLASSIFIED

USSR

UDC 539.4

REGEL', V. R., LEKSOVSKIY, A. M., KIREYENKO, O. F., Leningrad

"Study of the Kinetics of the Growth of Cracks in Polymers. Report 2. Fractographic Study of the Kinetics of Crack Growth"

Problemy Prochnosti, No 10, 1971, pp 12-15.

Abstract: This report discusses information on the kinetics of growth of main cracks which can be extracted from experimental data on the dependence of the dimensions of the smooth zone on the rupture surface on test conditions. The fractographic method used is a simple method, based on measurement of the dimensions of smooth zones on rupture surfaces for specimens of equal durability, of producing the values of parameters β , C^* and V_0 , characterizing the kinetics of the development of main cracks, without performing direct and generally difficult experiments involving direct measurement of crack propagation velocity in massive and nontransparent specimens. The author's believe that further development and application of the fractographic method can produce significant information on the kinetics and nature of the rupture process, particularly when these data are difficult to produce by either methods.

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USSR

UDC 539.4

REGEL', V. R., LEKSOVSKIY, A. M., KIREYENKO, O. F. (Leningrad)

"Study of the Kinetics of the Growth of Cracks in Polymers. Report 1. Development of Through Cracks in Thin Polymer Films in Static Extension"

Problemy Prochnosti, No 10, 1971, pp 3-11.

Abstract: This article studies the problem of the regularities of growth of main tracks, naturally developing from microcracks or created by notching. The article is basically limited to analysis of the results of study of regularities of the growth of main cracks in a comparatively narrow range of growth rates which defines the lifetime of a specimen under load. It is determined that the regularities of the development of main cracks are determined by thermofluctuation processes occurring at the tips of the cracks. The study of the kinetics of crack growth allows more information to be produced on the nature of the process of rupture and the physical sense of coefficients included in formulas describing rupture than the study of the dependence of durability on test conditions.

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1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--GROWTH OF THE MAIN CRACKS IN POLYMERS UNDER STATIC AND CYCLIC
STRAIN -U-
AUTHOR--(02)-LEKSOVSKIY, A.M., RECEL, V.R.
COUNTRY OF INFO--USSR
SOURCE--MEKH. POLIM. 1970, 6(2), 253-65
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--POLYSTYRENE, POLYMETHYLMETHACRYLATE, NYLON, POLYPROPYLENE,
CELLULOSE RESIN, ACETATE, PLASTIC FILM, STRESS ANALYSIS, CRACK
PROPAGATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605014/D03 STEP NO--UR/0374/70/006/002/0253/0265
CIRC ACCESSION NO--AP0140445
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC79

CIRC ACCESSION NO--AP0140445

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS WAS STUDIED OF INCREASE IN LENGTH OF SMALL CUTS IN THE FILMS OF POLYSTYRENE, POLY(METHACRYLATE), NYLON 6, AND POLYPROPYLENE, OR OF CUTS AND EXISTING CRACKS IN CELLULOSE DIACETATE, CELLULOSE TRIACETATE, NITROCELLULOSE, AND REGENERATED CELLULOSE. THE TEMP. AND APPLIED STRESS WERE VARIED. THE GROWTH OF THE MAIN CRACK, I.E., THE LOCATION OF THE EVENTUAL FAILURE, OBEYED AN EQUATION OF THE SAME TYPE AS THE DURABILITY OF THE FILMS.

FACILITY: FIZ.-TEKH. INST. IN. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

1/2 030

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--HARDENING OF METALS BY HOT WORKING WITH A VARIABLE DEFORMATION
VELOCITY -U-
AUTHOR--(031)-SUYAROV, D.I., LEL, R.V., AKS, V.YU,

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V. U. Z., TSVETNAYA MET., 1970, (II), 130-135

DATE PUBLISHED-----70

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

TOPIC TAGS--METAL HARDENING, BIBLIOGRAPHY, HOT ROLLING, METAL DEFORMATION,
DEFORMATION RATE, IMPACT LOAD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0530

STEP NO--UR/0149/70/DCG/001/0130/0139

2/2 030
CIRC ACCESSION NO--AP0124225
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE RELATIVE MERITS OF TWO
FUNDAMENTALLY DIFFERING HYPOTHESES REGARDING THE HARDENING OF METALS BY
HOT ROLLING AND OTHER FORMS OF HOT WORKING WITH A VARIABLE DEFORMATION
VELOCITY ARE DISCUSSED. THEORETICAL AND EXPERIMENTAL ANALYSES INDICATE
THAT THE BETTER HYPOTHESIS IS THAT IN WHICH THE METAL IS REGARDED AS A
'HEREDITARY' MEDIUM, THE RELATION BETWEEN THE DEFORMATION AND
DEFORMATION RESISTANCE DEPENDING ON THE DEFORMATION VELOCITY IN A MANNER
EXPRESSED BY AN INTEGRAL EQUATION OF THE WALTER TYPE. THE PRACTICAL
APPLICATION OF THIS HYPOTHESIS IS CONSIDERED.

UNCLASSIFIED

Acc. Nr: **AP0040005**

Abstracting Service:
CHEMICAL ABST.

4-70

Ref. Code:
UFR 0191

79966a Studying the life of a metal-polymer pair in sliding friction bearings. Krichevskii, M. E.; Le'chuk, L. M.; Solov'ina, D. S. (USSR). *Plast. Massy* 1970, (11), 68-70 (Russ). The working parameters were studied of steel shaft-bearing systems. Bearings were made of solid cast nylon 6 (I) or steel coated with I by spraying or by dipping into hot fluidized I. The changes of bearing temp. (t) and frictional moment with time, the loss of I by attrition, and the changes of the friction coeff. with the workability criterium $\eta(t)vS/H(t)Rl$, [$\eta(t)$ is the dynamic viscosity, v is the linear shaft velocity, S is the sepn. between the shaft and the bearing, $H(t)$ is the hardness-temp. function of the bearing's surface, R is the shaft radius, and l is the bearing length (L. M. Le'chuk, et al., 1968)] are shown in graphs. The loss of I by attrition occurs rapidly when the workability criterium $< 5 \times 10^{-11}$.

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REEL/FRAME

19741412

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70
 TITLE--PROPERTIES OF ANTISTATIC AND CONDUCTING POLYMERIC MATERIALS -U-
 AUTHOR--(06)-VASILENOK, YU.I., DEYANOVA, A.S., KONOPLEV, B.A., LAGUNOVA,
 V.N., LELCHUK, SH.L., SAZHIN, B.I.
 COUNTRY OF INFO--USSR
 SOURCE--PLAST. MASSY 1970, (5), 57-60
 DATE PUBLISHED-----70

L2

SUBJECT AREAS--MATERIALS, PHYSICS
 TOPIC TAGS--SURFACE ACTIVE AGENT, POLYETHYLENE, PROPYLENE, COPOLYMER,
 BUTENE, ACETATE, POLYMETHYLMETHACRYLATE, ELECTRIC RESISTANCE, PLASTIC
 FABRICATION, ANTISTATIC ADDITIVE, MONOETHANOLAMINE, AMMONIUM CHLORIDE,
 ALCOHOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3006/0923

STEP NO--UR/0191/70/000/005/0057/0060

CIRC ACCESSION NO--AP0134652
 UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134652

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

ABSTRACT. THE ADDITION OF SURFACE ACTIVE

COMPS. TO POLYETHYLENE, ETHYLENE, PROPYLENE COPOLYMER, ETHYLENE, ALPHA, BUTYLENE COPOLYMER, ETHYLENE, VINYL ACETATE COPOLYMER, OR POLY(ME METHACRYLATE) REDUCED THEIR SP. SURFACE ELEC. RESISTANCE (RHO SUBS). THE REDN. OF RHO SUBS INCREASED THE RATE OF THE ELEC. CHARGE DISSIPATION AND IMPROVED THE ANTISTATIC PROPERTIES. THE REDN. OF RHO SUBS DEPENDED ON THE THICKNESS OF THE SURFACTANT LAYER ON THE POLYMER SURFACE, WHICH WAS THE FUNCTION OF THE SURFACTANTS DIFFUSION TOWARDS THE SURFACE. THE BEST METHOD OF ADDING THESE SURFACTANTS (HYDROXYETHYLATED CETYL ALC., STEARYL ALC., OCTADECYLAMINE, MONOETHANOLAMINE, OR DIMETHYLOCTADECYLAMMONIUM CHLORIDE) WAS DURING THE EXTRUSION.

UNCLASSIFIED

USSR

UDC 533.6.011.34

LEL'CHUK, V. L. All Union Heat Engineering Institute imeni F. E. Dzerzhinskiy, Moscow

"Compressible Gas Flow in a Constant Section Circular Tube With Impervious Adiabatic Wall"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 21, No 3, Sep 71, pp 423-430

Abstract: It is shown that the momentum equation of an axisymmetrical boundary layer is not valid at the tube end, where the longitudinal velocity gradients are large, when the flow rate is critical. It is established that up to $M=0.8$ the calculation of a flow of the 2- and 3-atom gases can be carried out with one dimensional equations. A comparison of the available experimental data shows that up to $M=0.8$ the compressibility effect on drag coefficient is small. A sharp drop in the friction coefficient with increasing M close to $M=1$ obtained in some works may result from using one dimensional equations for processing experimental data, which are not valid in this region. It is recommended to calculate the critical flow rate and the tube final pressure at critical flow rate, in accordance with the Frossel empirical equations.

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1/2 011 UNCLASSIFIED
TITLE--CATALYST FOR METHANOL SYNTHESIS -U-

PROCESSING DATE--04DEC70

AUTHOR--(04)-SUSHCHAYA, L.E., BONDAR, P.G., GERNET, O.V., ILELEKA, V.E.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,355
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBREZTSY, TOVARNYE ZNAKI, 1970 47
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METHANOL, CATALYTIC ORGANIC SYNTHESIS, CHEMICAL PATENT, ZINC OXIDE, CHROMIUM OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0846

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

CIRC ACCESSION NO--AA0136280

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 011

CIRC ACCESSION NO--AA0136280

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

ABSTRACT. THE TITLE CATALYST, CONSISTING OF ZNO AND CrO₃, CONTAINS NH₄ TUNGSTATE, NH₄ SUB₄ MOLYBDATE, AND URANYL NITRATE THAT CAN BE BROKEN DOWN EASILY TO THE CORRESPONDING OXIDES, AND WHICH WEIGH 0.001-2.0 WT. PERCENT (PREFERABLY 0.001-0.1 WT. PERCENT) OF THE CORRESPONDING OXIDE.

UNCLASSIFIED

172 010 UNCLASSIFIED PROCESSING DATE--1601CTO
 TITLE--CONTACTLESS PROBE FOR CONTROLLING THE WOBBLE OF COMMUTATOR SURFACES
 -U-
 AUTHOR--(04)-DENISOV, V.A., SHATERNIKOV, V.E., KULIKOV, V.V., LELEKOV, P.A.
 COUNTRY OF INFO--USSR
 SOURCE--ELEKTROMEKHANIKA, FEB. 1970, P. 228-230
 DATE PUBLISHED-----70
 SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
 TOPIC TAGS--ELECTRONIC COMMUTATOR, ELECTRON PROBE, TRANSISTORIZED
 OSCILLATOR, OSCILLOSCOPE/(U)750KHZ OSCILLATOR
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1996/1459 STEP NO--UR/0144/70/000/000/0228/0230
 CIRC ACCESSION NO--AP0118448
 UNCLASSIFIED

2/2 010
CIRC ACCESSION NO--AP0118448
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT, DESCRIPTION OF THE DESIGN, CIRCUIT, AND OPERATION OF A PISTOL GRIP PROBE FOR TESTING THE WOBBLE AND ASYMMETRY OF INDIVIDUAL SEGMENTS IN KING COMMUTATORS OF ELECTRIC MOTORS. THE DEVICE IS TRANSISTORIZED AND FULLY SELF CONTAINED (INCLUDING THE POWER SOURCE) EXCEPT FOR THE OSCILLOSCOPE READOUT. OPERATION INVOLVES THE USE OF A TIP MOUNTED, TOROIDAL INDUCTIVE SENSOR ELEMENT WHOSE COIL IS CONNECTED IN A TANK CIRCUIT FED BY A 750-KHZ CRYSTAL CONTROLLED OSCILLATOR. THIS TIP IS BROUGHT IN CLOSE PROXIMITY TO THE ROTATING COMMUTATOR RING WHOSE INDIVIDUAL SEGMENT SURFACES AFFECT THE TANK CIRCUIT AS THEY PASS NEAR THE TOROIDAL PICKUP ELEMENT. AS A RESULT, THE VOLTAGE IN THE TANK CIRCUIT BECOMES PULSE MODULATED, PASSES THROUGH A PROCESSING CIRCUIT, AND IS FED BY AN OUTPUT CABLE TO AN OSCILLOSCOPE.

UNCLASSIFIED

USSR

UDC 539.3

LELEKOVA, P. M.

"Calculation of a Single Cylindrical Shell Under Nonuniform Pressure by the Finite-Difference Method"

V sb. Raschet, prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 95-97 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V146)

Translation: A finite-dimensional method is used to calculate forces in a specific cylindrical shell from the action of a load of a special form distributed according to a sinusoidal law along the generatrix and according to the law $\cos^2 \theta$ along the directrix of the cylinder. The good coincidence between the calculated values for the forces and the values obtained directly from solution of the differential equations is pointed out. V. I. Kruglyakova.

UNCLASSIFIED
 TITLE--COEXISTENCE OF IMMISCIBLE LIQUIDS AT HIGH TEMPERATURES IN THE
 SODIUM FLUORIDE ALBITE GLASS AB SYSTEM -U-
 AUTHOR-(02)-DELITSIN, L.M., LELENTYEV, B.N.

PROCESSING DATE--20NOV70

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(4), 790-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLASS COMPOSITION, LITHIUM FLUORIDE, SODIUM COMPOUND, FLUID
STATE, HIGH TEMPERATURE EFFECT, ALUMINUM OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0016

STEP NO--UR/0363/70/006/004/0790/0793

CIRC ACCESSION NO--AP0132316

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 023

CIRC ACCESSION NO--AP0132316
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ALBITE GLASS NaF SYSTEM IS A PARTIAL SECTION OF A MULTICOMPONENT SYSTEM IN WHICH THERE IS A WIDE RANGE OF IMMISCIBLE LIQ. PHASES. THE LIQUIDUS LINE HAS A MIN. AT 680 DEGREES, CORRESPONDING TO A COMPN. OF 14 WT. PERCENT NaF PLUS 86 AT. PERCENT AB. INTRODUCTION OF AL SUB2 O SUB3 INTO A SYSTEM OF TYPE M PRIME POSITIVE SUB2 O SUB2 M PRIME F LEADS TO THE APPEARANCE OF IMMISCIBILITY IN THE FUSED STATE. THE EFFECT OF STRUCTURAL INCOMPATIBILITY OF THE CATION ANION PARTS OF THE COMPONENTS ON THE IMMISCIBILITY REGION IN THE ALBITE GLASS LiF NaF SYSTEM IS DISCUSSED.
FACILITY: GEOL. INST., APATITY, USSR.

UNCLASSIFIED

USSR

UDC: 621.385.6

KAMINSKIY, F. D., KASHIRIN, A. P., LELIOVSKIY, A. F., MATROSOV, Ye. I.,
RYABININ, V. A., TERRA, K. R.

"An Electronic SHF Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzy, Tovarnyye Znaki,
No 32, 1970, Soviet Patent No 270093, Class 21, field 17 Jul 67, pp 215-216

Abstract: This Author's Certificate introduces: 1. An electronic SHF device (such as a triode) containing an electron-optical system which is part of the vacuum input and half-wave short-circuited output (anode) resonators and which is made in the form of individual cells, each consisting of a cathode and grid operating into a common anode. As a distinguishing feature of the patent, the reliability is improved and the output power of the device is increased by making vacuum-tight coupling apertures for energy output in one of the walls of the output resonator located at a high-frequency voltage node symmetric with the axis of the device. 2. A modification of this device in which the distinguishing feature is that control of the width of the frequency passband is provided by installing a rotating disc at the energy output point on the axis of the device with apertures identical in size and shape to the coupling apertures, and in the same position relative to the axis of the device.

1/1

USSR

UDC 681.2.002.5:530.93

BERLINER, M. A. and LEIYANOV, B. N.

"An Automatic Moisture Meter at Superhigh Frequencies"

Moscow, Metrologiya, No 5, 1972, pp 26-38

Abstract: An experimental model of a superhigh-frequency moisture meter has been developed, which is superior to known moisture meters of its class produced abroad with respect to numerous indicators; it can serve as a prototype for the organization of series production of such moisture meters in the USSR. The instrument operates on the basis of the attenuation of 3.2 cm radial waves in a free space. An outstanding increase of reliability was attained by means of replacement of an attenuator of the conventional electromechanical type by a static device or a semiconductor attenuator. On the basis of this moisture meter, an automatic system has been developed for automatic correction of the process of preparing a concrete mixture; this system can be recommended as a standard one for continuous-action concrete plants. The developed moisture meter has universal applicability, and can be used in systems for the automatic moisture monitoring and control of various solid materials and liquids in numerous branches of the economy. 1 figure. 2 tables. 4 references.

1/1

USSR

UDC: 8.74

ARLAZAROV, V. L., LEMAN, A. A., ROZENFEL'D, M. Z.

"Macro-Language"

Makro-yazyk. In-t probl. upr. (avtomatika i telemekh.) (cf. English above.
Institute of Control Problems [Automation and Remote Control]), Moscow,
1970, 14 pp, 10 k. "Knizh. letopis", 1971, No 28, 45 (from EZh-Kibernetika,
No 5, May 72, Abstract No 5V507 K)

[No abstract]

1/1

UDC 546.791.6'21'131-386

USSR

FOMIN, V. V., LIPIS, L. V., AVERBAKH, L. I., MAYOROVA, Ye. P., and LEMAN, G. A.

"Uranyl Chloride Solvation With Tributylphosphate"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 772-775

Abstract: A study of the system UO_2Cl_2 -tributylphosphate (TBP) was carried out, concentrating on the effect of the solvent. The system was studied by the cryoscopical method, the distribution method, and spectroscopically. Extraction of UO_2Cl_2 with the mixture of TBP and CCl_4 + dichloroethane or heptane gave a pure compound $UO_2Cl_2 \cdot 2TBP$, supporting the contention that disolvates form under conditions studied. The spectrum of $UO_2Cl_2 \cdot 2TBP$ depended strongly on the solvent used in spectral analysis, but there were no indications that solvates other than the disolvate were formed. Cryoscopical determinations showed that only the disolvates exist in the system $UO_2Cl_2 - 2TBP-TBP$.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--18SEP70
 TITLE--MANDELSTAM BRILLOUIN SCATTERING OF LIGHT IN LITHIUM NIOBATE -U-
 AUTHOR--(031)-KHASHKHOZHEV, Z.M., LEMANOV, V.V., PISAREV, R.V.
 COUNTRY OF INFO--USSR
 SOURCE--FIZ. TVERD. TELA 1970, 12(1), 128-31
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS, PHYSICS
 TOPIC TAGS--LIGHT SCATTERING, LITHIUM COMPOUND, NIOBATE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REF/FRAME--1980/0248 STEP NO--UR/0181/70/012/001/0128/0131
 CIRC ACCESSION NO--AP0048527
 UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0048527
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. SPECTRA WERE OBTAINED OF
MANDELSTAM BRILLOUIN SCATTERING OF LIGHT IN LINBO SUB3. THE SCATTERING
ON TRANSVERSE ACOUSTICAL PHONONS IN MOST CASES IS CONSIDERABLY MORE
INTENSE THAN THE SCATTERING ON LONGITUDINAL PHONONS. VELOCITIES OF
ELASTIC WAVES FOR VARIOUS DIRECTIONS IN THE CRYSTAL DETERM. FROM THE
SPECTRA ARE IN SATISFACTORY AGREEMENT WITH THE CALCD. VALUES.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70
 TITLE--LIGHT SCATTERING ON ACOUSTICAL PHONONS AND POLARITONS IN LITHIUM SUB3
 -U-
 AUTHOR--(03)-KHASHKHCZHEV, Z.M., LEMANDV, V.V., PLSAREV, R.V.
 COUNTRY OF INFO--USSR
 SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1208-13
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY, PHYSICS
 TOPIC TAGS--LITHIUM COMPOUND, PHONON, TITANIUM ALLOY, CRYSTAL, LIGHT SCATTERING, METAL OXIDE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--3001/0376 STEP NO--UR/0181/70/012/004/1208/1213
 CIRC ACCESSION NO--AP0126131
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 024

CIRC ACCESSION NO--AP0126131
ABSTRACT/EXTRACT--(U) GP-C-

ABSTRACT. LIGHT SCATTERING WAS INVESTIGATED ON ACOUSTICAL PHONONS AND POLARITONS IN LITAO SUB3. THE VELOCITIES OF ACOUSTIC PHONONS FOR DIFFERENT DIRECTIONS IN THE CRYSTAL, OBTAINED FROM THE SHIFT IN THE FREQUENCY OF SCATTERED LASER LIGHT, ARE IN SATISFACTORY AGREEMENT WITH THE VELOCITIES CALCD. FROM KNOWN ELASTIC AND PIEZOELEC. CONSTS. A DIFFERENCE WAS NOTED BETWEEN EXPTL. OBSD. AND CALCD. INTENSITIES OF SCATTERING WHICH IS APPARENTLY DUE TO INACCURATE VALUES OF THE CONSTS. USED IN THE CALCN. SCATTERING OF LIGHT WAS INVESTIGATED ON PHONON PHOTON EXCITED POLARITONS RELATED TO THE TRANSVERSE PHONON MODE OF A SUB1 TYPE WITH LOWER ENERGY OF 203 CM PRIME NEGATIVE1 AT 300DEGREEK WHICH IS A SOFT MODE IN THE TRANSITION FROM THE FERROELEC. PHASE INTO THE PARAELEC. VARIATION WAS OBSD. OF THE FREQUENCY OF POLARITONS (203-141 CM PRIME NEGATIVE1) DEPENDING ON THE ANGLE OF SCATTERING (5-1.8DEGREE), CORRESPONDING APPROX. TO THE SCATTERING CURVE. INCREASE WAS OBSD. IN THE INTENSITY OF LIGHT SCATTERING ON POLARITONS WITH DECREASED ANGLE OF SCATTERING.

FACILITY: INST.

UNCLASSIFIED

Doc. Nr. **ATO100197** - Abstracting Service:
- CHEMICAL ABST.

Ref. Code

6-70 418 0020

- 111989k Highly elastic deformation of 1,4-butanediol dimethacrylate-hexyl methacrylate copolymer. Khalikov, D. Kh.; Shibaev, V. P. *Dokl. Akad. Nauk SSSR* 1970, 190(2), 176-178. [USSR] (Russ). An attempt was made to det. the values of the individual terms of the elastic stretching force $f = (df/d\lambda)_{T,P}$ stretching. $H =$ enthalpy, $S =$ entropy, $P =$ stress, and $T =$ the temp.; as well as f_0 , where $f_0 =$ the energy component of f , for 1,4-butanediol dimethacrylate-hexyl methacrylate copolymer (1). The stress relaxation and thermoelastic properties of 1 filter (30 x 5 x 1 mm) were measured with a special dynamometer (M. E. Miayureevich, 1969). The f was almost identical at high and low temps. This, together with the absence of residual deformation, indicated the complete reversibility of the highly elastic deformation. However, despite the fact that $(df/dT)_{T,P}$ for 1 at $\lambda > 1.10$ was pos., f was not directly proportional to T . DB:ll

11

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19841579

CB 7

USSR

UDC 621.377.31

VINICHENKO, YU.P., ZAKHAR'YEV, L.N., LEMANSKIY, A.A., TUMANSKIYA, A. YE.

"Diffraction of a Plane Wave at the Grating of Plane Waveguides with Protruding Dielectric Plates"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1388-1396

Abstract: In order to evaluate the efficiency of using dielectric resistors for matching waveguide-type gratings with space, the problem is considered of diffraction of a plane wave at an endless grating of plane waveguides filled with dielectric plates which protrude some distance from the waveguide. It is assumed that the waveguides have perfect conductivity and their thickness is arbitrary. This problem reduces to the solution of an infinite system of algebraic equations concerned with the amplitudes of the partial waves in space under the grating in the region which is occupied by the protruding parts of the plates and within the waveguides. The results are presented of numerical calculations which show that the dielectric resistors make it possible substantially to decrease the mismatch of a waveguide-type grating with space. 4 fig. 2 ref. Received by editors, 14 June 1971.

1/1

NOV 621.306.67

USSR

BAJURIN, V. I., ZAKHAR'YEV, L. N., and LEMANSKIY, A. A.

"Effect of Nonidentical Antennas of a Doppler Velocity Meter on Its Performance Accuracy"

Moscow, Radiotekhnika, Vol 27, No 12, 1972, pp 94-96

Abstract: Formulas found in a previous work on determining the direction and responding to the spectrum gravity center of a signal received by a Doppler velocity meter and effective meter antenna centers were based on the assumption that the receiving and transmitting antennas are identical. This paper analyzes the validity of such results when the antennas are not identical. It is assumed that the problem is cylindrical, the earth's surface is uneven with associated irregularities, and the meter moves horizontally. The Doppler spectral envelope D at the receiving antenna output is derived for arbitrary surface exponential amplitude distributions from the aperture field distributions. The centroid of D is derived, and the effective meter antenna centers are then found. These centers have different amplitude-phase distributions, and they are displaced relative to their geometric centers. The results are plotted for the displacement as a function of a weighted sampling factor corresponding to aperture point distribution amplitudes which exponentially decay from A at the center of the aperture to a power level P at the outer periphery.

USSR

BAEUREN, V. I., et al., Radiotekhnika, Vol 27, No 12, 1972, pp 94-95

for 0.01, 0.02, 0.04, 0.06, and 0.08 power levels. Finally, an equation is presented for the direction of the Doppler spectrum centroid of an incoming signal in terms of the directions of the principal maximums in the receiving and transmitting antenna patterns.

USSR

UDC 621.396.647.861.5.001.24

ZAKHAR'YEV, D. N., DEMIANSKIY, A. A., and SULAMSKAYA, L. Ye.

"Computing the Radiating System of a Two-Mirror Antenna."

Moscow, Antenny, No. 10, 1971, pp 48-60

Abstract: This article is concerned with the correctness of the method of geometric optics in computing and designing two-mirror antennas. It differs from other articles on this same subject in that it computes the field created by the counterreflector, which is an arbitrarily asymmetrical body, at the surface of the main antenna, a paraboloid of rotation. This computation is made on the condition that the counterreflector is in the Fresnel zone of the radiator while the mirror is in the Fresnel zone of the counterreflector. For ease of computation, it is assumed that the primary radiator has a circular opening in which the field distribution is symmetrical with linear polarization. The solution of the problem is in the form of relationships for the field distribution in the mirror aperture. It is shown that the use of geometric optics may lead to important errors in computing the parameters of this type of antenna. Methods of compensating for diffraction field distortions in the antenna aperture are discussed. The results of experiments conducted with the antenna are also examined.

1/1

USSR

UDC: 621.396.677:535.231.16

ZAKHAR'YEV, L. N., LEMANSKIY, A. A., TUMANSKAYA, A. Ye.

"On Calculating the Radiating System of a Two-Reflector Antenna"

V sb. Antenny (Antennas--collection of works), vyp. 10, Moscow, "Svyaz", 1971, pp 48-60 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5E60)

Translation: Calculations carried out in the Kirchhoff approximation are used as a basis for evaluating the part played by diffraction effects and the influence of the short-range zone in the radiating system of a two-reflector antenna. A method is determined for compensating for field distortions in the reflector aperture by giving the counter-reflector the proper shape. Seven illustrations, bibliography of twelve titles. Resumé.

1/1

- 16 -

UDC: 621.396.671

USSR

BABURIN, V. I., ZAKHAR'YEV, L. N., LEMANSKIY, A. A., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"On the Center of Gravity of the Received Signal Spectrum and the Effective Centers of the Antennas in a Doppler Flight Speed Indicator"

Moscow, Radiotekhnika, Vol. 26, No 6, Jun 71, pp 49-54

Abstract: A study is made of the way in which factors leading to asymmetric beam coverage of the ground surface affect the beam direction corresponding to the center of gravity of the Doppler spectrum and the position of the effective centers of the antennas in a Doppler flight speed indicator. Calculation is simplified by considering the cylindrical problem (antenna aperture bounded in one plane and unbounded in the other), assuming a flat rough ground surface with uncorrelated irregularities. It is further assumed that the antenna system of the speed indicator is made up of two identical antennas -- receiving and transmitting -- in a row and operating in the continuous mode. Side deflection of the indicator beam is disregarded. All formulas are derived for the case of horizontal flight. It is found that for certain beam directions and ratios of antenna length to wavelength, the effective centers of the antennas practically coincide with the centers of gravity of the fourth power of amplitude distributions of the field in the antennas. Errors are evaluated. The authors thank V. I. Karandasev for constructive criticism.

1/1

Acc. Nr:

AP0045019

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR0109

A70-22407 . Problem of the diffraction of an electromagnetic wave on an array of plane waveguides (K zadache difraktsii elektromagnitnoi volny na reshatke ploskikh volnovodov). In: P. Vinichenko, L. N. Zakhar'ev, A. A. L'vovskii, and A. F. Turanskaiia. *Radiotekhnika i Elektronika*, vol. 15, Jun. 1970, p. 58-66. 12 refs. In Russian.

Investigation of the characteristics of the field scattered by an infinite equidistant array of plane waveguides filled by a lossless homogeneous isotropic medium. The scattered field is determined by solving an infinite system of algebraic equations using the reduction method. For the case where there is only a specularly reflected beam, an estimate is given of the degree of approximation at which the truncated system of equations yields a practically accurate solution of the problem. The characteristics of the scattered field are analyzed, and attention is given to different methods of matching the waveguide array to free space.

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REEL/FRAME
19771915

UDC: 621.371.167.3

USSR

ZAKHAR'YEV, L. N. and LEMANSKIY, A. A.

Rasseyaniye Voln "Chernymi" Telami (Wave Scattering by "Black" Bodies), Moscow, Izd-vo Sovetskoye Radio, 1972, 288 pp

Translation: Annotation: The book is a monograph on the theory of scattering of acoustic and electromagnetic waves by ideally absorbing ("black") bodies. The known methods of calculating the diffracted field by a "black" body are reviewed. A new method is formulated which makes it possible to solve the problem of scattering of a "black" body, if there is a solution for the ideally conducting body. The proposed method is applied to the solution of a number of problems in radar and antenna engineering. Various physical models of "black" bodies are discussed.

The book is intended for scientists and specialists in the field of applied electrodynamics, acoustics and antenna engineering, also for graduate and undergraduate students of the corresponding specialties.

191 illustrations, 1 table, 98 bibliographic references

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Methods of Definition and Physical Models of "Black" Body

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ZAKHAR'YEV, L. N. and LEMANSKIY, A. A., Rasseyaniye Voln "Chernymi" Telami.
1972, 288 pp

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USSR

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1972, 288 pp

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7/7

1/2 009 UNCLASSIFIED PROCESSING DATE--09OCT70
 TITLE--EFFECT OF MINERAL FERTILIZERS ON METABOLISM OF FINE FIBRED COTTON
 -U-
 AUTHOR--LEMAYEVA, A.M. L
 COUNTRY OF INFO--USSR
 SOURCE--IZVESTIYA AKADEMII NAUK TURKMENSKOY SSR, SERIYA BIOLOGICHESKIKH
 NAUK, 1970, NR 1, PP 3-8
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--MINERAL FERTILIZER, NITROGEN, PHOSPHORUS, PLANT CHEMISTRY,
 AMINOBUTYRIC ACID

CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1990/1440 STEP NO--UR/0296/70/000/001/0003/0008
 CIRC ACCESSION NU--AP0109500
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--090670

2/2 009

CIRC ACCESSION NO--AP0109500

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

ABSTRACT. THE RESULTS OF INVESTIGATIONS UNDERTAKEN AT THE EXPERIMENTAL PLOT BY BOTANY INSTITUTE OF THE TURKMEN SSR ACADEMY OF SCIENCES INDICATED THE EXTREME EFFECT OF PHOSPHORUS ON NITROGEN DISTRIBUTION BETWEEN LEAVES AND ROOTS. IT AFFECTS THE FORMATION OF ALBUMINE NITROGEN AND ACCUMULATION OF ANILINE, THREONINE, ALPHA AMINOBUTYRIC ACID AND LEUCINE IN COTTON LEAVES.

UNCLASSIFIED

1/2 019

UNCLASSIFIED

PROCESSING DATE--0270170

TITLE--CURRENT TRANSIENTS IN THE INSULATOR DETERMINED BY SPACE CHARGE AND
DIFFUSION -U-

AUTHOR--(02)--ROSENAL, A., LEMBER, L.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR 1, PP 19-23

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTRIC INSULATOR, SPACE CHARGE, COMPUTER AIDED DESIGN,
DIGITAL COMPUTER, DIODE CIRCUIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1991/0122

STEP NO--GE/0030/70/037/001/0019/0023

CIRC ACCESSION NO--AP0110089

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0110089

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MATHEMATICAL PROBLEM OF ONE CARRIER SPACE CHARGE LIMITED CURRENT (SCLC) STEP RESPONSE IN A PERFECT INSULATOR IS SOLVED WITH A DIGITAL COMPUTER TAKING CARRIER DIFFUSION INTO ACCOUNT. CURVES OF FORWARD CURRENT DENSITY VS. TIME ARE PRESENTED WITH AN ERROR ANALYSIS AND A BRIEF DISCUSSION OF THE PARAMETER INFLUENCE FOR THE CASE OF A DIELECTRIC DILUTE UNDER DIFFERENT VALUES OF APPLIED PULSE VOLTAGES IN THE STEADY STATE CURRENT RANGE WHERE A SQUARE LAW BEHAVIOUR BEGINS TO SHOW UP AND INCLUSION OF DIFFUSION IN THE TREATMENT IS INDISPENSABLE. THE LOWERING OF THE VOLTAGE IN THIS RANGE DEPRIVES GRADUALLY THE MAIN FEATURES OF SCLC TRANSIENT ASCERTAINED FOR THE DIFFUSION NEGLECTED CASE. LAST OF ALL ONLY THE DIFFUSION DOMINATED CURRENT IN THE VERY BEGINNING OF THE TRANSIENTS REMAINS. THE MAXIMUM TIME FOR OBSERVING THE DIFFUSION CONTRIBUTION TO THE PULSE CURRENT ESTIMATED BY SCHILLING AND SCHACHTER PROVES TO BE UNDERSTATED.

FACILITY: INSTITUTE OF PHYSICS AND ASTRONOMY. FACILITY:
 ACADEMY OF SCIENCES OF THE ESTONIAN SSR, TARTU (A). FACILITY:
 AND TARTU STATE UNIVERSITY, TARTU (B).

UNCLASSIFIED

USSR

UDC: 539.16.08

YEROKHINA, K. I., LEMBERG, I. Kh., PASTERNAK, A. A., Physicotechnical Institute imeni A. F. Ioffe, Soviet Academy of Sciences

"Attenuation of the Doppler Shift of the Energy of Gamma Rays Emitted as a Result of Coulomb Excitation"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1595-1608

Abstract: Ge(Li) gamma-ray detectors with their inherent high resolution give additional information on the lifetimes τ of excited states based on measurements of attenuation of the Doppler shift of gamma-ray energy. Comparison of data on the partial lifetimes $\tau(E2)$ obtained in research on Coulomb excitation by measuring the absolute yields of gamma rays with the values of τ obtained in these same studies as a result of measurements of Doppler shift attenuation gives the possibility of computing the reduced probabilities $B(M1)$ of magnetic dipole transitions. In this paper the theoretical shape of the Doppler-shifted gamma line is calculated by approximating the exact distribution function using a convenient expression which is true for any directions of the recoil nuclei. A comparison of

1/2

USSR

YEROKHINA, K. I. et al., Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1595-1608

the experimental shape of the Doppler-shifted line with the expression given in this paper for the theoretical shape of the line showed satisfactory agreement. More than fifty lifetimes of levels in thirty nuclei with mass numbers from 52 to 133 were determined. The range of measured values of τ was from 0.05 to 3 ps. The average time for computer processing of one gamma line was 15-20 minutes. The lifetimes were measured for the first time for 25 of the excited states.

2/2

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
 TITLE--QUADRUPOLE MOMENT OF CADMIUM 114 IN THE FIRST EXCITED STATE -U-
 AUTHOR--(051)-ANDREYEV, D.S., GUSINSKIY, G.M., YEROKHINA, K.I., KUDOYAROV,
 M.F., LEMBERG, I.KH.
 COUNTRY OF INFO--USSR
 SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(8), 369-70
 DATE PUBLISHED-----70
 SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
 TOPIC TAGS--EXCITED STATE, CADMIUM ISOTOPE, CYCLOTRON, QUADRUPOLE MOMENT,
 CHARGED PARTICLE, ALPHA PARTICLE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
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2/2 022

UNCLASSIFIED

PROCESSING DATE--27NOV70

IRC ACCESSION NO--AP0137604

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUADRUPOLE MOMENT Q SUB2
POSITIVE) OF PRIME114 CD WAS DETD. IN A CYCLOTRON BY USING THE
SIMULATANEUS ACCELERATION OF SINGLY CHARGED B-MEV ALPHA PARTICLES AND
TRIPLY CHARGED 24 MEV C IONS: Q SUB2 POSITIVE EQUALS MINUS (0.53 PLUS OR
MINUS 0.17) B. FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD,
USSR.

PROCESS

USSR

GAL'PERIN, L. N., IL'YASOV, A. Z., and LEMBERG, I. Kh., Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR, Institute of Nuclear Physics of the Academy of Sciences Uzbek SSR

"Probabilities of M1-Transitions Between Levels of the Ground Rotational Band of Rare Earth Nuclei"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 8, Aug 70.
pp 1644-1645

Abstract: Calculations of the cascade Coulomb excitation of levels of the Tb-159, Dy-161, Dy-163, Er-167, Yb-171, Yb-173, and Lu-175 nuclei are presented. The values of $B(E2)$ between levels of the ground state necessary to obtain $B(M1)_{exp}$ were calculated on the basis of data on quadrupole moments of the ground states of these nuclei given by Elbek. A comparison of experimental and theoretical data on $B(M1)$ showed that within the limits of the combined errors the experimental data are satisfactorily described by the generalized model.

1/1

Nuclear Physics

2

USSR

ANDREYEV, D. S., GUSEVSKIY, G. M., YEROKHINA, K. I., KUDOLYAROV, I. K. H.,
LEMBERG, I. K. H., CHUGUNOV, I. N., Physico-Technical Institute "Lenin" N. I. Kofze,
Academy of Sciences, USSR

"Quadrupole Moment of the Nucleus ^{114}Cd in the First Excited State"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 8,
20 Apr 70, pp 369-370

Abstract: In the present work a cyclotron is used for the first time to determine the value of the quadrupole moment (Q_2^+) of the first excited state in ^{114}Cd . In order to eliminate the effect of instability of the intensity and energy of accelerated ions on the results of measurements, the experiments employed simultaneous acceleration of the singly charged α particles and the triply charged ions of carbon with energies of 9 and 24 Mev respectively. In this case the value of the Coulomb parameter ζ for both kinds of particles is practically identical and errors originating during comparison are minimal. In separate experiments it was shown that during simultaneous acceleration the ratio of the energies of the light and heavy particles is preserved with a precision not worse than 0.1 percent, and the error of determining Q_2^+ connected with this does not exceed 10 percent.

1/2

USSR

ANDREYEV, D. S., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 8, 20 Apr 70, pp 369-370

In contrast to other work in which the spectra of γ rays were registered in accordance with ions selected by energy, in the present work the spectra of backward-scattered ions were measured in accordance with γ -quanta selected by energy. The value of Q_2^+ was determined as:

$$Q_2^+ = - (0.53 \pm 0.17) \text{ barn.}$$

This contrasts with three other works in which the value of Q_2^+ lies in the limits $- (0.42 + 0.90)$ barn and a later work in which the value of Q_2^+ is close to zero. 6 ref. Received by editors 10 March 1970.

2/2

USSR

UDC 681.3(07)

KSENOFONTOV, I. S., LEMBERG, V. M., PUCHKO, A. N., ZHUKOVYEMEL'YANOV, O. D.,
and YAKOVLEV, K. A.

Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom
Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo
Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by
the USSR Ministry of Higher and Secondary Specialized Education as a Text-
book for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 259-371

Translation:

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1/8

USSR

KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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USSR

KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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USSR

KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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USSR

KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshogo i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshogo i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Technicians]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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WDS: A521.3.014.2

USSR

LEMBERG, Ye. A., TEACH, Yu. V., MAGDA, I. I., GADMESENY, U. P.,
and ABRAMOVICH, V. U.

"Switching Dischargers With a Pulsed Gas Laser in the Ultraviolet
Range"

Moscow, Pribery i tekhnika eksperimenta, No 1, 1975, pp 140-142

Abstract: The use of a nitrogen gas laser operating at a wavelength of 3371 Å in the control of an air discharger is investigated in this experimental paper. A simplified diagram is given of the experimental equipment together with a curve of the discharger operation as a function of the voltage across its electrodes, and an oscillogram of the current pulses from two dischargers connected by a constant delay circuit. The power of the laser was 25-30 kW at a pulse duration of 10 nsec, and the laser was pumped by an oscillator of the Arkad'yev-Marks circuit producing a pulse with a steep leading edge. The experiments involved tests of dischargers using various types of electrode metals -- Cu, Zn, and Mo -- with the laser radiation focused by a quartz lens on the electrode with the negative potential. Synchronization of two identical dischargers by the laser beam was also investigated. The authors thank L. L.

1/2

USSR

UDC: 662.3.014.2

LEMBERG, Ye. A., et al, Pribory i tekhnika eksperimenta, No 1,
1973, pp 140-142

Bolotin and Ya. B. Faynberg for their interest and their comments.

2/2

LEMBERG, Ye. A.

1165 0477
1 Aug 75

(5)

THE PHOTOELECTRIC EFFECT IN A NITROGEN LASER
ARTICLE BY YE. A. LEMBERG, Ye. V. Tash, I. I. Izada, P. P. ...

The air spark gaps could be ignited at a frequency of 15-20 hertz using a pulsed ultraviolet molecular nitrogen laser emitting along radiation with wavelength 3.371 μ and power 30 kw. The breakdown synchronization attained was not worse than at resonance. The dependence of the time of laser-initiated spark gap activation on the voltage applied is shown for various spark gap geometries.

The possibility of controlling an air spark gap by a nitrogen gas laser with a conversion wavelength of 3.371 μ is investigated in this paper. The gap is activated by discharge of the same energy field by photoelectron emission upon irradiation of the electrodes by quanta possessing an energy level close to the photoionization threshold. Although the probability of photoelectron emission is lower in this case than in experiments with shorter wavelength radiation, nevertheless since coherent radiation is employed a greater photon density can be created which compensates for the reduced number of photoelectrons.

Experiments were conducted with the setup diagrammed in Figure 1. The nitrogen laser's generation power attained 25-30 kw with a pulse length of 10 nsec. Pumping was performed by a generator producing a very steep pulse front assembled on the basis of an Arden's pre-market circuit. A system of compensating capacitors was used to reduce pulse rise time

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 TITLE--THE PROBLEM OF FORMATION OF PARASITIC GENOSIS OF THE HUMAN INTESTINAL
 TRACT IN THE COURSE OF EPIDEMIC PROCESS (COMMUNICATION 11) -U-
 AUTHOR-(02)-LERNER, P.M., LEMELEV, V.R.
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 39, NR 2, PP 167-170
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CIRC ACCESSION NO--AP0109505
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. BY THE METHOD OF EPIDEMIOLOGICAL SURVEY THE CAUSE EFFECT RELATIONSHIPS OF COMBINED INVASIONS WERE ESTABLISHED IN RURAL COMMUNITIES OF THE PLAIN, FOOTHILL AND MOUNTAIN AREAS IN TWO REGIONS OF THE UZBEK SSR. THE POINT OF VIEW OF THE EXISTENCE OF ANTAGONISTIC RELATIONS IN PARASITOCENOSIS OF THE HUMAN INTESTINE BETWEEN ASCARIDS AND H. NANA, ASCARIDS AND LAMBLIA, H. NANA, LAMBLIA AND SOME SPECIES OF DYSENTERY BACTERIA IS DISPROVED.
FACILITY: SAMARKANDSKIY MEDITSINSKIY INST. FACILITY: UZBEKSKIY N-I INST. EKSPERIMENTAL'NOY MEDITSINSKOY PARAZITOLOGII I GEL'MINTOLOGII.

UNCLASSIFIED

Organ and Tissue Transplantations

UDC 616.13-089.843

USSR

KNYAZEV, M. D., ~~LEWENYEV, V. I.~~ and STEPANOV, G. A., Scientific Research Institute of Clinical and Experimental Surgery, Ministry of Health USSR

"Autotransplantation of the Aorta and Its Main Branches"

Leningrad, Vestnik Khirurgii imeni I. I. Grekov, No 10, 1971, pp 93-95

Abstract: The authors describe a combined vascular prosthesis consisting of a segment from one of the patient's arteries implanted at the site of physiological flexion (e.g., inguinal ligament) and a synthetic graft inserted in an immobile portion of the blood vessel. This technique prevents kinking, retains the advantages of endarterectomy by eversion, and shortens the prosthesis. Such prostheses were implanted in 20 patients with atherosclerosis, arteritis, etc. and the immediate results were good, complete restoration of circulation in the extremity and patency of the prosthesis. Follow-up of 14 patients for over 2 years showed that all continued to hold their jobs, and there were no signs of ischemia in the extremity. The prosthesis became thrombosed on one woman because it was compressed during pregnancy.

1/1

UDC 547.13

USSR

PEREVALOVA, E. G., LEMENOVSKIY, D. A., BAUKOVA, T. V., SHYSLOVA, YE. I.,
GRANDBERG, K. I., and NESMEYANOV, A. N., Moscow State University in
M. V. Lomonosov

"Reaction of Ferrocenyl- and Phenyl(triphenylphosphine)gold with Electro-
philic Reagents"

Leningrad, Doklady Akademii Nauk SSSR, Vol 206, No 4, Oct 72, pp 833-996

Abstract: Reactions of ferrocenyl- and phenyl(triphenylphosphine)gold with electrophilic reagents was studied. No electrophilic substitution at the gold atom took place in these reactions, the products indicating that a homolytic process occurred in these reactions. For example, when ferrocenyl-(triphenylphosphine)gold reacted with acetic anhydride or acyl chlorides of acetic or trichloroacetic acids, only ferrocene, biferrocenyl and a salt of the composition $XAuP(C_6H_5)_3$ where $X = Cl$ or $COOCH_3$ were formed. No acyl-ferrocene was isolated. Analogous reactions occur with phenyl(triphenylphosphine)gold, no electrophilic substitution taking place. The results obtained can be explained by the single electron transfer mechanism, this being the first step in a series of reactions. The electron from the C-Au bond is transferred to the splitting reagent, which acts as an electron acceptor.

1/1

Organometallic Compounds

USSR

UDC 247.13

PEREVALOVA, E. G., LEMENOVSKIY, D. A., GRANDBERG, K. I., and NESMEYANOV, A. N.,
Moscow State University imeni M. V. Lomonosov

"Ferrocenylgoldtriphenylphosphine Complexes With Monovalent Gold Salts"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 93-96

Abstract: Reacting hydroborofluoric acid with ferrocenylgoldtriphenylphosphine (I) yields the borofluoride of (triphenylphosphineferrocenylgold)-triphenylphosphinegold (II). Excess of HBF_4 shows no particular effect on the reaction course or on the yield. PNR spectrum of (II) resembles the spectra of ferrocenylcarbocations. The data of NMR and UV spectroscopy indicate that a considerable positive charge is located on the gold atom next to the cyclopentadienyl ring in the compound (II). Compound (II) is believed to be monovalent gold borofluoride bound with two stabilizing ligands - triphenylphosphine and ferrocenylgold triphenylphosphine; the positive charge is evidently delocalized between the gold atoms. Compound (II) is also obtained by reacting (I) with $(\text{C}_6\text{H}_5)_2\text{Fe}^+\text{BF}_4^-$, $\text{NO}_2^+\text{BF}_4^-$, $\text{CH}_3\text{CO}^+\text{BF}_4^-$, except that with these reagents their excess lowers the yield of (II). Reacting (I) with concentrated H_2SO_4 produces 1/2

USSR

UDC: 547.1'13+546.72+546.59+547.241

NESMEYANOV, A. N., PEREVALOVA, S. G., LEMENOVSKIY, D. A. KOSINA, A. N.,
GRANDBERG, K. I., Moscow State University. Author: M. V. Lomonosov, Moscow, Ministry
of Higher and Secondary Specialized Education of the USSR

"Triphenylphosphineferrocenylgold"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Khimicheskaya, No 9, Sep 69,
pp 2030-2031

Abstract: Ferrocenyllithium was interacted with triphenylphosphinegold chloride to produce triphenylphosphineferrocenylgold with a yield of 81% of the theoretical value. This organometallic compound is an orange crystalline substance which is stable in air and readily soluble in benzene, ether, chloroform, tetrahydrofuran and alcohol. It decomposes during chromatography in a column with Al_2O_3 with the formation of ferrocene. Triphenylphosphinegold bromide also interacts with ferrocenyllithium to produce triphenylphosphineferrocenylgold, but the yield is lower (67%). The reaction products in both cases contain very small quantities of an organogold compound which does not contain iron, and is tentatively identified as triphenylphosphinebutylgold. It was found that the Au-C bond in triphenylphosphineferrocenylgold is readily broken by acids and halides to form ferrocene and complexes of univalent gold salts with triphenylphosphine. The authors thank A. V. KISIN for taking the NMR spectra.

USSR

PEREVALOVA, E. G., et al., Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 93-96

the sulfate analogue of the compound (II), somewhat less stable than the borofluoride complex. The UV and PMR spectra of the sulfates are identical with those of the borofluorides.

2/2

- 65 -

USSR

UDC 612.563.014.482

TARATUKHIN, V. R., RAPPOFORT, I. A., and LEMESH, G. A.

"Changes in the Skin Temperature Under the Effect of Ionizing Radiation"

Moscow, Meditsinskaya Radiologiya, Vol 18, No 8, Aug 73, pp 61-63

Abstract: Changes in the skin temperature of rats were studied after general irradiation of the animals with x-rays in doses of 50 and 100 r and local irradiation of the back freed of fur with beta-rays from ⁸⁵Kr in doses of 2.5 and 7.4 krad. In every instance the temperature increased on the 3d day after irradiation. This increase was statistically reliable except on irradiation with beta-rays in a dose of 2.5 krad. On irradiation with x-rays in a dose of 100 r, the skin temperature increased steadily, reaching a maximum on the 14th day after irradiation. After this there was a tendency towards a temperature decrease on the 21st day, which was followed by a return of the temperature to normal on the 28th day. On irradiation with x-rays in a dose of 50 r, the temperature was below normal on the seventh day, returning to normal on the 14th day and then decreasing to a minimum on the 21st day and returning to normal again on the 28th. Irradiation with beta-rays in a dose of 7.4 krad

1/2

USSR

TARATUKHIN, V. R., et al., Meditsinskaya Radiologiya, Vol. 15, No 8, Aug 73, pp 61-63

resulted in temperatures above normal from the third to 23th day. On irradiation with beta-rays in a dose of 2.5 krad, the temperature remained above normal until the 21st day, changing in a wave-like fashion, and then dropped from normal on the 21st day to below normal between the 21st and 23th day.

2/2

- 100 -

USSR

UDC 577.1:615.7/9

KOLOSOVA, T. S., TIUNOV, L. A., KUSTOV, V. V., IVANOVA, L. V., VASIL'EV, G. A.
LEMESH, G. A., and AKHMATOVA, M. A.

"Toxic Effect of Gaseous Products of the Organism's Vital Activity"

V sb. Probl. kosnich. biol. (Problems in Space Biology -- Collection of Works),
Vol 16, Moscow, "Nauka," (Science), 1971, pp 182-190 (Russian) (From RZh-
Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20P1687 from summary)

Translation: Rats were kept for 26 days in metal airtight chambers with
automatic O₂ supply and CO₂ excess removal. It was established that the
complex of gaseous substances given off by the organism causes lung tissue
damage and anemia, increases oxygen consumption and the weight of the
thyroid gland, and alters blood catalase activity.

1/1

MEDICINE
Aerospace Medicine

USSR

UDC 612.213:616.057

LEMESH, V. V., District Military Hospital (F. N. Grechko, Director).
Director of Scientific Work, Prof. G. I. Gurvich

"On Correlative Interrelations Between Some External Respiratory Indexes and the Functional State of the Cardiovascular System in Flight Personnel"

Minsk, Zdravookhraneniye Belorussii, No 11, Nov 71, pp 43-45

Abstract: In an attempt to find a correlation between respiration and blood circulation, respiration was studied by the spirographic method and myocardial contraction by polycardiography in 30 healthy pilots divided into 2 groups: 1) average age, 29.07 years, and 2) average age, 38.33 years. The correlation was established by computing the correlation coefficient of respiratory parameters, hemodynamic indexes, left ventricular phase, and p₁asic functional indexes. The findings revealed that at a young age the relationship between respiration and hemodynamics is predominant, influenced by greater oxygen absorption. At an older age, this relationship becomes negligible, while a new relationship arises between respiration and cardiodynamics.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEPT0
 TITLE--THE DEVELOPMENT AND INTRODUCTION OF ELECTRONIC COMPUTING EQUIPMENT
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 AUTHOR--LEHESHCHUK, P.K., SOKOLOV, V.F., DELRIO, B., FROLOV, V.YA.
 COUNTRY OF INFO--USSR L
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 COMPUTER CENTER, COMPUTER TECHNOLOGY
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CIRC ACCESSION NO--AP0108431

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

ABSTRACT. THIS ARTICLE IS THE FIRST PART OF A TWO PART TREATMENT OF DEVELOPMENTS IN THE UTILIZATION OF ELECTRONIC COMPUTERS AND RELATED EQUIPMENT IN THE USSR RAILROAD SYSTEM. AFTER AN INTRODUCTORY PORTION, IN WHICH THE AUTHORS MENTION, AMONG OTHER THINGS, THAT THERE ARE PRESENTLY MORE THAN 30 ELECTRONIC DIGITAL COMPUTERS IN OPERATION ON SOVIET RAILROADS, THE ARTICLE IS DIVIDED INTO THE FOLLOWING SELFEXPLANATORY SECTIONS: THE DIRECTION OF THE USE OF ELECTRONIC DIGITAL COMPUTERS IN TRANSPORTATION; RAILROAD COMPUTER CENTERS; INFORMATION AND PLANNING SYSTEMS; PARENTHESIS AND PARENTHESIS THE MAIN COMPUTER CENTER OF THE MINISTRY OF RAILWAYS.

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1/2 009 UNCLASSIFIED PROCESSING DATE--02DEC70
TITLE--THE DEVELOPMENT AND INTRODUCTION OF ELECTRONIC COMPUTING EQUIPMENT
IN RAILROAD TRANSPORT -U-
AUTHOR--(04)--LEMESHCHUK, P.K., SOKOLOV, V.F., DELRID, B., FROLOV, V.YA.
COUNTRY OF INFO--USSR
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TOPIC TAGS--COMPUTER APPLICATION, AUTOMATIC CONTROL SYSTEM, RAILWAY
TRANSPORTATION
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PROCESSING DATE--0200170

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE IS THE SECOND PART OF A TWO PART TREATMENT OF DEVELOPMENTS IN THE UTILIZATION OF ELECTRONIC COMPUTERS AND RELATED EQUIPMENT IN THE USSR RAILROAD SYSTEM. THE FOLLOWING SUBJECTS ARE DISCUSSED: CREATION OF A LONG DISTANCE DATA TRANSMISSION NETWORK; THE AUTOMATIC READING OF INFORMATION FROM MOVING ROLLING STOCK; THE "AVTODISPETCHER" SYSTEMS FOR THE DIRECT CONTROL OF STATIONS AND SECTIONS; THE "EKSPRESS" SYSTEM FOR THE AUTOMATION OF PRODUCTION PROCESSES CONNECTED WITH SPACE RESERVATION AND THE SALE OF TICKETS, ETC., FOR LONG DISTANCE PASSENGER TRAINS; THE LEMESHCHUK, P. K., ET AL., ZHELEZNODOROZHNYIY TRANSPORT, NO 2, FEB 70, PP 42-48 SOFTWARE FOR A SYSTEM FOR THE AUTOMATED CONTROL OF THE TRANSPORTATION PROCESS; THE REQUIREMENTS IMPOSED ON COMPUTING EQUIPMENT; AND THE TRAINING OF PERSONNEL.

UNCLASSIFIED

Mechanical Properties

USSR

UDC: 621.9.018.4:546.261

LEVESHO, A. M., ROGOZINSKAYA, A. A., Kiev

"Investigation of Changes in the Surface Layers of Carbides of Refractory Metals After Electric Spark Machining"

Kishinev, Elektronnaya Obrabotka Materialov, No 2(44), 1972, pp 18-22

Abstract: The authors studied changes in the structure, composition, and properties of titanium, niobium, and tungsten carbides after electric spark machining. The specimens were prepared by hot pressing followed by homogenization by annealing. The composition of the carbides was close to stoichiometric. The porosity of the specimens was 2-4%, and grain size was no greater than 40 μ . Surface layer changes were studied after finishing operations characterized by an energy of up to 0.01 J in a unit pulse. Metallographic studies showed that the microstructure of the surface layer does not undergo any appreciable changes. The surface relief shows increased unevenness and surface destruction with increasingly stringent machining conditions. Microhardness and microbrittleness also change noticeably with an increase in the severity of working conditions. It is concluded that decarbonization of the surface layer leads

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LEMESHKO, A. M., BOGOZINSKAYA, A. A., Elektronnaya Obrabotka Materialov, No 2(44), 1972, pp 18-22

to formation of carbide phases in regions of homogeneity (if these regions are extensive), or new phases if the extent of the regions of homogeneity is not great. It is shown that machining of hexagonal tungsten carbide results in formation of its cubic modification.

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USSR

UDC 539.1.073.7

KALASHNIKOVA, V. I., KOLYUBIN, A. A., and LEMESHKO, B. D.

"The Possibility of Controlling the Sensitivity of Photographic Emulsions by an Electric Field"

Moscow, Pribory i Tekhnika Eksperimenta, March-April 1973, pp 76-78

Abstract: This article investigates the possibility of controlling the sensitivity of photographic emulsions by an electric field when the emulsions are used for recording ionizing particles and when the activity considered involves observations of radiation from a nuclear phenomenon occurring at random moments of time. Under these circumstances, the sensitivity of the emulsion can be increased by applying a high-voltage pulse, synchronized with the event of the nuclear phenomenon. Experiments with photographic layers of the FT-101 type of emulsion under irradiation by protons with an energy of 100 Mev were performed with the emulsion in an electric field. At the same time the beam of protons was turned on, a high-voltage pulse lasting 50 μ s was applied to the emulsion. Control emulsions subject to the same proton irradiation but without benefit of the electric field were also developed. Photographs of both types of specimen are produced. It is concluded that a photographic emulsion can be used as track detector with controllable sensitivity.

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UDC 616.71+616.314]-008.9-02:612.232.4

USSR

VOLOZHIN, A. I. and LENETSKAYA, T. I., Moscow Institute of Medical Stomatology

"Changes in Calcium and Protein Metabolism in Bones and Teeth After Exposure to Hypercapnia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1973, pp 42-43

Abstract: Rats were exposed to gradually increasing concentrations of CO₂ (3 to 5%) for 30 days when they were injected with Ca⁴⁵ and glycine-2-C¹⁴. Hypercapnia had no effect on the calcium, inorganic phosphorus, and total protein levels of the blood. However, it increased the rate of Ca⁴⁵ resorption from the animals' bones (except the jaw) and teeth. The incorporation of glycine-2-C¹⁴ into acid-soluble proteins of the Femur decreased to 85% of the control. Histological examination revealed slow reconstruction of bone and marked dilatation and hyperemia of the blood vessels. The blood vessels of the dental pulp were also dilated.

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USSR UDC 612.751.1+612.311.1]015.31:[546.41+546.18]-06:612.275.2

VOLOKHIN, A. I., and LEVINSKAYA, G. I., Chair of Pathological Physiology, Moscow Medical Stomatology Institute

"Shifts in Calcium and Phosphorus Metabolism in the Bones and Teeth During Oxygen Deficiency"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5, Sep/Oct 70, pp 16-20

Abstract: The effect of hypoxia on the accumulation of Ca^{45} and P^{32} osteotropic isotopes in bones and teeth was studied using albino rats. When the rats were kept at sea level and altitudes (4 and 5 km) for 48 hrs., incorporation of the above isotopes in bones, whereas blood accumulation in the capillaries of the bone growth zone and of the pulp of molars and incisors increased considerably. At a simulated altitude of 7 km, both Ca^{45} and P^{32} accumulated to a greater extent in teeth and bones, whereas blood accumulation in these calcified tissues was considerably reduced. The degree of morphological change was proportional to the depression of calcium and phosphorus metabolism. It was concluded that hypoxic hypoxia leads to one-phase shifts in the mineral metabolism in calcified tissues. The first phase of the breakdown of this metabolism changed when the rats were repeatedly "elevated" to 3, 5, and 6 km. It is possible that this shift is

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VOLOZHEV, A. I., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya,
Vol 14, No 5, Sep/Oct 70, pp 15-20

accompanied by a compensating increase in blood accumulation in the tissues. In
the second phase a reversal of this effect took place when the rats were brought
to an altitude of 7 km.

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USSR

UDC 681.327.12

VOLOKHOV, V. S., LEMISHEVSKIY, G. A., REUTSKIY, V. YE., Institute of Cybernetics, Academy of Sciences of the Ukrainian SSR

"An Image Conversion Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzyy, Tovarnyye Znaki, No 12, 1970, Author's Certificate No 207213, filed 11 Apr 68, p 125

Abstract: This Author's Certificate introduces a device for image conversion which contains a rotating Dove prism, a TV transmitting camera, and a band-pass frequency filter module. As a distinguishing feature of the patent, the converter is designed to eliminate error in the initial reading of the image spectrum redistribution functions and increase the speed by locating the Dove prism in the hollow rotor of a step-by step motor and connecting the vertical sweep unit of the TV camera through a control circuit to the phases of the step-by-step motor.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THE EFFECT OF MUSCULAR EXERCISES ON THE LIPOLYTIC ACTIVITY OF THE
BLOOD SERUM AND OF THE CARDIAC MUSCLE OF RATS UNDER NORMAL CONDITIONS
AUTHOR--(03)-LITOVCHENKO, YU.S., LEVTEV, F.L., LEMPERT, B.L.
COUNTRY OF INFO--USSR
SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,
VOL 14, NR 3, PP 37-42
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--EXERCISE, BLOOD SERUM, LIPID METABOLISM, MYOCARDIUM, DIABETES
MELLITUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/1935 STEP NO--UR/0396/70/014/003/0037/0042
CIRC ACCESSION NO--AP0127336
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127336

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN RATS FORCED TO RUN IN A TRAITBAN (MODERATE AND MAXIMAL MUSCULAR EXERCISES) BEFORE MEALS A RISE OF LIPOLYTIC ACTIVITY OF THE BLOOD SERUM WHICH OCCURRED POINTED TO INCREASED WAYS OF ENERGY UTILIZATION OF TRIGLYCERINE COMPONENT OF THE BLOOD SERUM BETA-LIPOPOTEIDS. BUT ON FULL STOMACH THIS REACTION WAS NOTED ONLY AT THE MAXIMAL MUSCULAR LOAD. IN RATS WITH ALLOXAN DIABETES MUSCULAR EXERCISES PRODUCED THE SAME EFFECT UPON THE LYPOLYTIC ACTIVITY OF THE BLOOD SERUM AS IN INTACT ANIMALS, AND ONLY DECREASED WITH MAXIMAL MUSCULAR EXERCISES IN THE ANIMALS MADE TO RUN ON FASTING STOMACH. THE ACTIVITY OF LIPOLYTIC ENZYMES IN THE MYOCARDIUM OF RATS ELEVATES IN MODERATE PHYSICAL EXERCISES AND IN ALLOXAN DIABETES, BUT FELL BELOW THE NORMAL LEVEL IN THEIR COMBINATION. FACILITY: LABORATORIYA PATOKHIMII ZHIRO-LIPOIDNOGO OBmena PRI KAFEDRE PATOFIZIOLOGII TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY, MOSKVA.

UNCLASSIFIED

USSR

UDC 613.633+613.648]:666.76

LEMYASEV, M. F., BABUSHKINA, L. G., SEMENOV, G. V., (Deceased), KATSNEL'SON, B. A., KARAGODINA, I. V., TREYGER, S. I., and BELOBHAGINA, G. V., Scientific Research Institute of Hygiene and Occupational Diseases, Medical Institute, Oblast Sanitary-Epidemiological Station, Sverdlovsk

"Dust and Radiation Factors in the Production of Fireproof Articles From Zirconium Dioxide"

Moscow, Gigiyena i Sanitariya, No 10, Oct 1970, pp 38-41

Abstract: Tests with rats confirmed that the fibrogenic character of "pure" ZrO_2 dust is lower than that of the commercial product. This difference is attributed to the admixture of radioactive elements in the dust of the insoluble commercial ZrO_2 , which is used as raw material in the production of various fireproof objects, so that the fibrogenic action of this dust on the lungs is intensified. On the basis of data from this experiment and from studies in an industrial environment, it is recommended that maximum permissible concentrations of ZrO_2 dust and similar substances be established which taken into account the radioactive contamination present in these dusts.

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USSR

UDC 621.374.5 (088.8)

TRIFONOV, V.V., SHONUROV, S.A., ~~LEMZYAKOV, S.R.~~, KHISLEVSKIY, V.A.,
PRILEPSKIY, V.M. (Leningrad Electrical Engineering Institute)

"Magnetostrictive Transducer For Delay Lines"

USSR Author's Certificate No 296154, filed 25 Feb 69, published 9 Apr 71
(from RZh:Radiotekhnika, No 2, Feb 72, Abstract No 2G241P)

Translation: A magnetostrictive transducer for a delay line is proposed, which contains a winding with a few loops connected with an acoustic line, a matching transformer, and an acoustic damper. With the object of an increase of the product of the transmission coefficient by the power in the band of the frequencies being transmitted, the transducer winding is made in the form of two adjacent sections situated at the acoustic line and connected across the corresponding matching transformers into the circuit of an electromagnetic delay line. In order to decrease the dissipation inductance and widening of the band of the frequencies being transmitted, the step-down windings of the transformers are made in the form of cylindrical rods with a disk bulge [stolbchenny] in the middle part and with the cores of the step-up windings at the ends placed in cup-shaped cavities connected electrically with the ends of the rod, and in co

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TRIFONOV, V. V. et al, USSR Author's Certificate No 296154

doing a section of the winding of the transducer is connected between the edge of each cup-shaped cavity and the disk. With the object of increasing the efficiency, sections of the winding are made in the form of solenoids and each section -- in the form of two adjoining coils of an insulated wire, the diameter of which is equal to the internal diameter of the solenoid. The alignment of the acoustic line in the latter is accomplished with the aid of bushings /vtulka/ located at the ends of the winding, and the transformer, magnet, and acoustic damper are attached to a common housing.

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