USSR

MARKUS, A. S. and MEREUTSA, I. V.

"Full Set of Roots of the Operator Equation Corresponding to a Polynomial Operator Family"

Abstract: This paper concerns the quadratic operator family $L(\lambda) = \lambda^2 I + \lambda B + C$ sstudied in an earlier paper (M. G. Kreyn, et al., O nekotorykh matematicheskikh printsipakh lineynoy teorii demfirovannykh kolebaniy kontinuumov -- Some Mathematical Principles of the Linear Theory of Damped Continuum Oscillations -- published in the Tr. mezhdunnrodnogo simpoziuma po primeneniyu teorii funktsiy kompleksnogo peremennogo v mekhanike sploshnoy sredy (Transactions of the International Symposium on the Application of the Theory of Functions of a Complex Variable to the Mechanics of a Solid Medium) "Nauka," Moscow, vol. 2, 1965, pp 283-322). Under some limitations on the coefficients of the family $L(\lambda)$, there exist roots of the equation $L(Z) = 0$, where $L(Z) = Z^n + A_{n-1} Z^{n-1} + \ldots + A_1 Z + A0$, having certain characteristics. Unlike the method of the earlier paper, the present one does not introduce determinations of the full set of roots. It considers the problem of the mutual placement of the
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USSR

spectra of $L(\lambda)$ and the spectra of the roots Z_1, Z_2,...,Z_n of $L(Z)=0$. The function of the Vandermonde operator in investigating the connection between the multiple completeness of the characteristic and joint vectors of $L(\lambda)$ on the one hand, and the completeness of the system of root vectors of the operators Z_1, Z_2,..., Z_n on the other, is explained. Some examples are given. The authors express their gratitude to I. A. Fel'dman for his comments.

Abstract: In a comprehensive study, the biochemical effects of
herbicides which are usually applied jointly were investigated.
Derivatives of triazines inhibit photoreduction of cytochrome C,
NAD, NADP, and phosphorylation. Since they also depress ATP and
NADP·H₂ formation, regeneration of CO_2 acceptors and formation of
phosphorated esters of sugars and carbohydrates is inhibited as
well. Application of triazines jointly with 2,4-D magnifies carbo-
hydrate depletion in plants and causes their death. Similar
analyses of the effects of other herbicide complexes are presented.
The results indicate that it is indispensable to know the bio-
chemical effects of each herbicide separately and in conjunction
with other compounds, in order to be able to make proper qualitative
selections and prepare the mixtures in proper proportions.
1/1

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UNCLASSIFIED   PROCESSING DATE--18SEP70

TITLE--TESTING SEMERON ON CABBAGE PLANTINGS -U-

AUTHOR-(03)-MEREZHINSKIY, YU.G., PONOMAREV, G.S., ZINKOVICH, A.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(1), 50-2

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE

TOPIC TAGS--HERBICIDE, AGRICULTURE CROP, SOIL TYPE/(U)SEMERON HERBICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0723   STEP NO--UR/0394/70/008/001/0050/0052

CIRC ACCESSION NO--AP0108929
                    UNCLASSIFIED

2/2   011
CIRC ACCESSION NO--AP0108929
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   SERMERON AT 1.5-2.0 KG-HA IS EFFECTIVE AGAINST WEEDS AND SAFE FOR CABBAGE PLANTINGS WHEN APPLIED AT THE 2-4 LEAF STATE OR 2-3 WEEKS AFTER PLANTING.   SEMERON IS EFFECTIVE FOR 2-2.5 MONTHS IN MINERAL SOIL OR 1 MONTH IN PEAT SOIL.

UNCLASSIFIED

UDC 632.954:635.34

USSR

MEREZHUNSKIY, YU. G., PONOMAREV, G. S., and ZIN'KOVICH, A. M., Institute of Plant Physiology, Academy of Sciences Ukrainian SSR

"Testing of Semeron on Cabbage Plants"

Abstract: Tests conducted by the authors in 1967 and 1968 show that the use of semeron (Desmetryne) makes it possible to grow cabbage by the direct seeding method and to dispense with manual labor in caring for the vegetable. Field experiments with white cabbage were conducted at the Kiev Vegetable Varietal Plot and at the "Buchanskiy" and "Tarasovskiy" sovkhozes in Kiyevskaya Oblast. Results indicate that direct-seeded cabbage should be treated with semerom in the two- to four-leaf phase, the period when it is completely unharmed by the herbicide and weeds are most susceptible to it. Transplanted cabbage should be treated with the herbicide 2-3 weeks after transplanting. Doses should not exceed 1.5-2.0 kg/ha. Semeron retains its toxicity 2-2.5 months in mineral soil, up to one month in peaty soil.

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USSR

UDC 538.574.6

MERGELYAN, O.S. [Institute Of Radio Physics And Electronics, AS, Armenian SSR]

"Diffraction Of Plane Electromagnetic Wave At A Corrugated Dielectric Surface"

Abstract: Use of the method of "matching" of fields at the boundary of a dielectric with periodically varying density makes it possible to reduce the problem of diffraction at a corrugated dielectric surface to the problem of reflection and refraction of an electromagnetic wave by a plane-parallel layer (or a dielectric with a periodically varying permeability (, located between isotropic dielectrics. Expressions are obtained for the amplitude and angular distribution of scattered fields. The author thanks B.M. Bolotovskiy for helpful discussion. 5 ref. Received by editors, 15 June 1971.

1/1

USSR

UDC 621.372.8.09

VAGANOV, ROAL'D BORISOVICH; MATVEYEV, ROSTISLAV FEDOROVICH; MERIAKRI, VYACHESLAV VYACHESLAVOVICH

"Mutliwave Waveguides With Random Irregularities"

Mnogovolnovyye vonovody so sluchaynymi neregulyarnostyami (cf. English above), Moscow, Izd. "Sovetskoye radio," 1972. 232 pp, 7 tab. 58 fig. 52 ref. 77 kop.

Abstract: A theoretical analysis is presented and methods are described of experimental study of multiwave waveguide channels, on the basis of which it is possible to construct ultrawide band communication lines and feeder lines with small losses. The effect of random irregularities on the properties of multilines is considered in detail. Theoretical conclusions are confirmed by the results of experimental studies. The book is intended for specialists in waveguide techniques, high-frequency electrodynamics, communication theory, measurements in the millimeter band, and statistics of random media, and also for students of advanced courses and graduate students of corresponding specialities.

TABLE OF CONTENTS

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USSR

VAGANOV, ROAL'D BORISOVICH, et al., Mnogovolnovyye vonovody so sluchaynymi neregulyarnostyami, Moscow, Izd. "Sovetskoye radio," 1972. 232 pp., 7 tab. 58 fig. 52 ref. 77 kop.

CHAPTER I
Regular Multiwave Waveguides And Waveguide Elements

2/9

USSR

VAGANOV, ROAL'D BORISOVICH, et al., Mnogovolnovyye vonovody so sluchaynymi neregulyarnostyami, Moscow, Izd. "Sovetskoye radio," 1972. 232 pp, 7 tab. 58 fig. 77 kop.

CHAPTER II
Slightly Irregular Multiwave Waveguides

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USSR

VAGANOV, ROAL'D BORISOVICH, et al., Mnogovolnovyye vonovody so sluchaynymi
neregulvarnostyami, Moscow, Izd. "Sovetskoye radio," 1972.   232 pp, 7 tab.
58 fig. 77 kop.

4/9

USSR

VAGANOV, ROAL'D BORISOVICH, et al., Mnegovolnovyye vonovody so sluchaynymi neregulyarnostyami, Moscow, Izd. "Sovetskoye radio," 1972. 232 pp, 7 tab. 58 fig. 77 kop.

CHAPTER III

Waveguides With Random Irregularities. Short Channels

5/9

USSR

VAGANOV, ROAL'D BORISOVICH, et al., <u>Mnogovolnovyye vonovody so sluchaynymi neregulyarnostyami</u>, Moscow, Izd. "Sovetskoye radio," 1972. 232 pp, 7 tab. 58 fig. 77 kop.

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USSR

VAGANOV, ROAL'D BORISOVICH, et al., Mnogovolno'vyye venovody so sluchavnymi neregulyarnostyami, Moscow, Izd. "Sovetskoye radio," 1972. 232 pp, 7 tab. 58 fig. 77 kop.

CHAPTER IV

Extended Channels

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USSR

VAGANOV, ROAL'D BORISOVICH, et al,, Mnogovolnovyye vonovody so sluchaynymi
neregulyarnostyami, Moscow, Izd. "Sovetskoye radio," 1972. 232 pp, 7 tab.
58 fig. 77 kop.

CHAPTER V

Methods Of Measuring The Parameters Of Multiwave Waveguides

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USSR

VAGANOV, ROAL'D BORISOVICH, et al., Mnogovolnovyye vonovody so sluchaynymi neregulyarnostyami, Moscow, Izd. "Sovetskoye radio," 1972. 232 pp, 7 tab. 58 fig. 77 kop.

ELECTRICAL ENGINEERING
Materials

USSR

UDC   621.371.029.6

KRAFTMAKHER, G. A., MERIAKRI, V. V.

"Investigation of the Properties of Ferrites on Submillimeter Waves"

Moscow, Radiotekhnika i Elektronika, vol 16, No 11, Nov 71, pp 2221-2222

Abstract: The complex parameters ε and $\overset{\leftrightarrow}{\mu}$ of a number of ferrites are studied in the long-wave part of the submillimeter band. The results show that some grades of ferrites can be used as the basis for nonmutual devices with small losses (of the order of 1-2 dB). One figure, bibliography of four titles.

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USSR   UDC 535.34

DEM'YANOV, A. A., MERIAKRI, V. V.

"Investigation of the Absorption Spectra of Petroleum and Its
Fractions in the 3.5 to 8.0 mm Wavelength Range"

Abstract: Petroleum samples studied were from the Romashkinskiy
field of the Zay-Karatay platform, containing 1.75% sulfur and
sulfur compounds; from the Belorussian field (Rechitsa Region,
well no 6), containing 6.76% solid paraffin inclusions; from the
Belorussian field (Ostashkovich Region, well no 2), containing
32% pitch; and a mixture of Zhirnovskiy petroleums. Measurements
were made in the wavelength range of 3.5 to 8.0 mm at 25°C.
Curves are plotted for the attenuation factor α as a function of
wavelength for the various samples. As shown by the $\alpha = f(\lambda)$
curves, for petroleum it is similar to its behavior in weak solu-
tions of polar dielectric materials in nonpolar solvents. In
general, attenuation increases in the short-wave region due partly
to additional scattering from the paraffin lattice as well as
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USSR

DEM'YANOV, A. A., et al, Zhurnal Prikladnoy Spektroskopii, Vol
13, No 4, Oct 70, pp 639-642

from low boiling point fractions. The temperature dependence of
α for the sample with 30% pitch is unique, in that losses ini-
tially decrease, then at about 12 to 17°C change sign and begin
to increase.

Spectral absorption as a function of temperature was also measured.
This was done because the temperature of petroleum varies from 0
to 50°C during production and transportation. Variation of the
losses with temperature in petroleum fractions indicates that
losses rise linearly toward the shorter wavelengths at constant
temperature and nonlinearly as temperature is increased, with the
exception of the 105 to 160°C fractions, which is almost indepen-
dent of temperature. The explanation for this is sought in the
nature of the polarization of the fractions. Dipole theory per-
mits only qualitative analyses to be made and related to variation
in the viscosity of the test samples.

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USSR

The experimental data obtained fall to the right of the extremum
of dielectric losses, which accounts for the increase in α with
temperature. Also, an instrument for measuring moisture on the
basis of the losses must be corrected for temperature and
petroleum composition.

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USSR   UDG 533.9.08

VARANOV, R.B., MERIAKRI, V.V. [In-t radiotekhn. i elektron. AN SSSR--Institute
Of Radio Engineering And Electronics, AS, USSR]

"Device For Plasma Diagnostics"

USSR Author's Certificate No 204303, filed 18 Mar 65, published 4 May 70 (from
RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A255P)

Translation: A device patented for plasma diagnostics with the aid of a microwave
quasioptical beam formed by lenses, and containing an analyzer, differs in the fact
that with the object of registration of the higher modes for determination of the
parameters of the plasma layer which result from interaction of waves, the analyzer
consists of a receiving waveguide, transient section, matching adapter, and a number
of microwave radiation detectors. With the object of a more precise identification
of the radiation, the microwave radiation detectors are made in the form of direct-
ional couplers, each of which is tuned to one wave of a higher order.

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USSR

UDC 533.9.08

VAGANOV, R.B., MERIAKRI, V.V. [In-t radiotekhn. i elektron. AN SSSR--Institute Of
Radio Engineering And Electronics, AS USSR]

"Device For Diagnostics Of Plasma"

USSR Author's Certificate No 204393, filed 18 Mar 65, published 22 June 70 (from
RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A363F)

Translation: A device is patented for diagnostics of plasma with the aid of a
microwave quasioptical beam formed by lenses, which contains an analyzer differing
in the fact that (with the object of registration of the waves of higher modes
originating as the result of interaction, in order to determine the parameters of
the plasma layer) the analyzer consists of a receiving waveguide, transitional
section, a matching adapter, and a number of microwave radiation detectors. The
device of patent 1 [po p. 1] differs in the fact that, with the object of a more
precise identification of the radiation, the microwave radiation detectors are
made in the form of directional couplers, each of which is tuned to one wave of
higher order.

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USSR   UDC 621.791.16:669.24

MERIIN, B. V., Candidate of Technical Sciences, and KHOLOPOV, YU. V., All-Union Scientific Research Institute of Electric Welding Equipment

"Selection of a Welding Nozzle Material for the Ultrasonic Welding of Nickel"

Moscow, Svarochnoye Proizvodstvo, No 8, Aug 73, pp 26-27

Abstract: Various materials were tested for use as welding nozzles in the ultrasonic welding of NK02 nickel. The materials tested were EA925 surfacing alloy, recommended for welding copper; 0311, for welding aluminum; stellite, normally used for providing high erosion stability at elevated temperatures; TsN12 surfacing alloy, recommended for galling operations a elevated temperatures; molybdenum rods(TsM2A alloy), R6M3 high-speed cutting alloy, and EI572 and EI787 heat-resistant Fe-base alloys, and EI893 and EI826 Ni-base alloys. Two nozzles made from each material were tested and the performance was evaluated by the number of spot welds that could be done before cleaning. Many of the materials were rejected for reasons of crack development, low mechanical strength at higher temperatures, etc. It was ascertained that the strength of a material in ultrasonic welding depends on its yield strength at the welding temperature, impact strength, and surface condition. In the welding of nickel
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USSR

MERIIN, B. V., et al., Svarochnoye Proizvodstvo, No 8, Aug 73, pp 26-27

it was established that the best nozzle material was the nickel-base heat-resistant alloys. Three figures, six bibliographic references.

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UNCLASSIFIED   PROCESSING DATE--16OCT70

TITLE--PHYSICOCHEMICAL NATURE OF MERCURY LIKE LUMINESCENCE CENTERS IN
  PHOSPHORS WITH HETEROVALENT ISOMORPHISM -U-

AUTHOR--MERILOO, I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 547-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MERCURY, LUMINESCENCE CENTER, PHOSPHOR, PHYSICAL PROPERTY,
  ISOMORPHISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0877   STEP NO--UR/0363/70/006/003/0547/0549

CIRC ACCESSION NO--AP0118047
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0118047
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CATION AND ANION
   IMPURITIES ON THE FORMATION OF LUMINESCENCE CENTERS IN
   CRYSTALLOPHOSPHORS WHICH ARE OF TECH. INTEREST, SUCH AS THOSE BASED ON
   BETA-CA SUB3(PO SUB4)SUB2 AND CAS AND ACTIVATED BY HG LIKE IONS (GA
   PRIME POSITIVE, IN PRIME POSITIVE, TL PRIME POSITIVE, GE PRIME2
   POSITIVE, SN PRIME2 PUSITIVE, PB PRIME2 POSITIVE, SB PRIME3 POSITIVE, BI
   PRIME3 POSITIVE), WAS STUDIED.   NAAL. OF THE DATA INDICATES THAT THE
   INTRODUCTION OF COMPENSATING IMPURITIES ALMOST DOES NOT CHANGE THE
   EXCITATION AND THE RADIATION SPECTRA. ONLY IN CASE OF GA DOPED CA
   SUB3(PO SUB4)SUB2 IS THERE OBSD. A SLIGHT REDISTRIBUTION OF THE
   INTENSITIES IN THE EXCITATION SPECTRA DURING THE CHANGE IN THE
   COMPENSATING ION, SUCH AS COANNOT BE EXPLAINED BY THE INCREASED CONCN.
   OF THE ACTIVATOR. THERE IS OBSD. AN INCREASED LUMINESCENCE INTENSITY OF
   PHOSPHORS ACTIVATED BY GA PRIME POSITIVE, SB PRIME3 POSITIVE, AND BI
   PRIEM3 POSITIVE UPON THE INTRODUCTION OF COMPENSATORS.   USING THE
   COMPENSATORS F PRIME NEGATIVE, AL PRIME3 POSITIVE, AND SC PRIME3
   POSITIVE INCREASES THE LUMINESCENCE INTENSITY BY A FACTOR OF 6-7 FOR CA
   SUB3(PO SUB4)SUB2(GA). THE RESULTS THUS SHOW THAT ASSOCD. COMPLEX
   CENTERS OF LUMINESCENCE ARE FORMED IN THESE PHOSPHORS. THE LOW
   DEPENDENCE OF THE ENERGY OF THE ELECTRONIC TRANSITIONS OF THE IMPURITY
   CENTERS IN THE PRESENCE OR THE ABSENCE OF THE COMPENSATING IONS TOGETHER
   WITH THE ACTIVATOR IS PROBABLY ASSOCD. WITH THAT THE COMPENSATOR (ESP.
   THE CATIONIC ONE) BASICALLY CHANGES THE LOW ANGULAR INTERACTION IN THE
   CENTER, WHICH IS THE SAME FOR ALL ELECTRONIC STATES OF THE IMPURITY
   CENTER.
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0118047
ABSTRACT/EXTRACT--THE LOW EFFECT ON THE F PRIME NEGATIVE SPECTRA. IS
 PROBABLY CAUSED ALSO BY THE CLOSENESS IN THE PROPERTIES BETWEEN F PRIME
 NEGATIVE AND D PRIME2 NEGATIVE.   FACILITY: INST. FIZ. ASTRON.,
 TARTU, USSR.

UNCLASSIFIED

USSR

UDC 612.014.45+612.8

AVIROM, V. M., ADRIANOV, O. S., VYKHODTSEVA, N. I., GAVRILOV, L. R., MERING, T. A., and SIROTYUK, M. G., Institute of Acoustics, Academy of Sciences USSR, and Brain Institute, Academy of Medical Sciences USSR

"Destruction of Deep-Lying Brain Structures With Focused Ultrasound"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 5, 1971, pp 1,110-1,113

Abstract: An apparatus designed to minimize the loss of ultrasonic energy at high frequencies and intensities of ultrasound is described.   It consists of an oscillator, ultrasound emitter, universal standard stereotaxic device to hold the animal, and a device to permit ultrasound to be transmitted to the animal's brain. The focusing emitter rests on a concave resonant plate of piezoelectric ceramic 85 mm in diameter with a focal length of 70 mm. Acoustic energy is transmitted from the emitter to the brain through degassed water (or physiological saline). Degassed water is poured into a rubber bottle connected to the frame of the emitter and inot a small funnel attached to the animal's head. The article concludes with a description of the surgical technique recommended for preparing the brains of rabbits and rats prior to ultrasonication.

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USSR

UDC   62:.165-521:539.4

VASIL'CHENKO, G. S., MERINOV, G. N., KUZLITSKIY, A. S., Central Scientific
Research Institute of Technology and Machine Building, Moscow

"Application of the Theory of Linear Mechanics of Fracture to Evaluating the
Strength of Turbine Rotors"

Abstract: The authors apply the theory of linear mechanics of fracture to
analysis of the maximum strength of the K-220-44 welded turbine rotor made
from 34KhMA steel. Linear mechanics of fracture can be used to find the
mathematical relation between the geometry of a part, the dimensions of a
crack or equivalent defect, the properties of the material, the stress dis-
tribution and the so called critical coefficient of stress intensity. This
coefficient can be used to find the stresses which lead to brittle fracture
of the rotor in the case of a crack or similar flaw of a certain size, or to
solve the inverse problem -- to determine the dimensions of the crack which
will produce brittle fracture of the rotor at a given speed. The critical
coefficient of stress intensity is experimentally determined, and a numerical
formula is derived which gives this coefficient in terms of the geometry of

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USSR

VASIL'CHENKO, G. S. et al., Problemy Prochnosti, No 9, Sep 72, pp 22-26

the part and the weakening defect, and the rotational velocity at fracture.
The applicability of the method is experimentally confirmed. It is found
that the working speed of the K-220-44 rotor can be exceeded by 25% without
danger of brittle fracture from inertial and cyclic loads.

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USSR   UDC 911.3.616.9.576.895.42(42+57)

BABENKO, L. V., NAUMOV, R. L., USPENSKIY, I. V., MERINOV, V. A., RUBINA,
M. A., VASIL'YEVA, I. S., IOFFE, I. D., OBLESOVA, L. N., and RAZUMOVA, I. V.

"A Biological Study of Ixodes Ticks -- Disease Vectors -- and a Scientific
Study of Countermeasures in Natural Foci"

V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. para-
zitol. i tropich. med., 1970 (Proceedings on the Conference Commemorating
the 50th Anniversary of the Institute of Medical Parasitology and Tropical
Medicine 1970 -- collection of works), Moscow, 1970, pp 52-53 (from RZh-
36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No. 1.36.67)

Translation: This study has four objectives: a) study of the ecology and
population biology of the prevalent Ixodes and Dermacentor tick species; b)
complex study of biological laws in natural foci of tickborne encephalitis
and in one focus of Asian tickborne rickettsiosis (in Krasnoyarskiy Kray);
c) study and practice of countermeasures against tickborne encephalitis for
residents of large, newly-constructed housing developments in the hill rayons
of Krasnoyarskiy Kray; and d) study of the effect of pesticides on ticks
(I. persulcatus, for example). A proposal is advanced for research on the

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USSR

BABENKO, L. V., et al, V sb. Materialy Nauchn. konferentsii, posvyashch.
50-letiyu In-ta med. parazitol. i tropich, med., 1970 (Proceedings on the
Conference Commemorating the 50th Anniversary of the Institute of Medical
Parasitology and Tropical Medicine 1970 — collection of works), Moscow,
1970, pp 52-53 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Ab-
stract No 1.36.67)

characteristics of the population biology, morphology, and physiology of
ticks within various geographic conditions.

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USSR

UDC 669.71':536.2:669-973

ZLOBINTSEV, G. M., KOZINETS, V. V., MERISOV, B. A., and KHOTKEVICH, V. I., Khar'kov University

"Heat Conductivity of Aluminum Alloys at Low Temperatures"

Moscow, Metallovedeniye, No 5, 1971, p 64

Abstract: The heat conductivity of the AD1, AL4, AK8, ATиM, AMr3, D16, and AMr6 structural aluminum alloys was investigated at temperatures of 10-300°K by measuring the conductivity up to the temperature of liquid nitrogen in 5-10°K intervals and then in 15-20°K intervals. The results are tabulated and shown in graphs of the temperature-dependent coefficient of thermal conductivity. One figure, one table, four bibliographic references.

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1/2   022   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--THE ROLE OF GEOGRAPHICAL ENVIRONMENT IN PREVALENCE OF
DERMATOMYCOSES IN THE IRKUTSK REGION -U-
AUTHOR-(02)-TARTAKOVSKAYA, L.M., MERKACHEV, I.T.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 4, PP 38-42

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SKIN DISEASE, MYCOSIS, FUNGAL DISEASE, EPIDEMIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0563   STEP NO--UR/0206/70/000/004/0038/0042

CIRC ACCESSION NO--AP0108778
                        UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2   022
CIRC ACCESSION NO--AP0108778
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   IN THE COURSE OF INVESTIGATIONS OF
THE EPIDEMIOLOGY OF MYCOTIC DISEASES GREATER ATTENTION IS GIVEN TO
FACTORS OF NATURE. THE ANALYSIS WHICH WAS CARRIED OUT SUGGESTS THAT THE
INCIDENCE OF DERMATOMYCOSES DEPENDS NOT ONLY UPON EPIDEMIOLOGICAL
FEATURES OF THE CAUSATIVE AGENT BUT UPON NATURAL RESERVOIRS OF INFECTION
AS WELL. THE STRUCTURE OF THE SOIL PLAYS A CERTAIN ROLE IN THE
EPIDEMIOLOGICAL CHAIN. NOT THE LEAST IMPORTANT IN OCCURRENCE OF
DERMATOMYCOSES ARE CLIMATIC AND SOCIAL FACTORS, SETTLED WAYS OF LIFE AND
DENSITY OF THE POPULATION, AS WELL AS THE DEGREE OF LAND CULTIVATION.
EXAMINING THE SOIL FOR THE PRESENCE OF KERATOPHILS, THE AUTHORS FOUND
THEM TO BE ISOLATED FROM THE SOIL IN THE MAJORITY OF DISTRICTS OF THE
REGION, BEING FOUND MORE FREQUENTLY IN MORE DENSELY POPULATED AREAS THAN
IN AREAS WITH LESS POPULATION. THE PREDOMINANT DERMATOPHYTE IN
TRICHOPHYTON TERRESTRE CLOSE IN ITS MORPHOLOGICAL PROPERTIES TO
TRICHOPHYTON GYPSEUM.   FACILITY: IRKUTSKIY OBLASTNOY KOZHNO
VENEROLOGICHESKIY DISPANSER AND SEKTOR MEDITSINSKOY GEOGRAFII INSTITUTA
GEOGRAFII SIBIRI I DAL'NEGO VOSTOKA SIBIRSK OTD. AN SSSR.

USSR

ZELENSKIY, V. A., MERKADER, L. P., DVORKIN, S. A.

"Interference in a Television Channel due to Nonlinear Distortions of the Television Signal Subcarrier"

Translation: It is shown that the magnitude of nonlinear interference in the form of the second and third harmonics of the carrier frequency depends to a considerable extent on the brightness of individual sections of the TV image. The corresponding relationships are given in the form of equations and graphs. Some recommendations are given on evaluating the given type of interference.

1/1

UDC 621.384.664

USSR

GALYAYEV, N. A., GOLOVINA, N. I., GRACHEV, M. I., GRIDASOV, V. I., GUBRIYENKO,
K. I., YEREMENKO, Ye. V., ZAPOL'SKIY, V. N., ZELENOV, B. A., KOTOV, V. I.,
KUZNETSOV, V. S., MERKER, E. A., MYZNIKOV, K. P., PUCHUGIN, V. A., PRILEPIN,
A. A., SELEZNEV, V. S., SEREBRYAKOV, B. A., KHODYREV, Yu. S., and CHEPEGIN,
V. N.

"Proton Beam With an Impulse of Up to 70 Gev/s Elastically Dispersed Inside a
Target"

Abstract: This paper discusses the operation of a channel built into the
French liquid-hydrogen Mirabelle chamber for the accelerator of the Institute
of High-Energy Physics (IFVE). The function of the channel is to form pure
beams of pi and k mesons, and antiprotons, in a broad range of impulse magni-
tudes under the action of a high-frequency separator. The secondary particles
are generated on the inside of a target placed in the path of a proton beam
diverted from the accelerator with an energy of 70 Gev. By using a fast
system for aiming the proton beam at the target, together with a kicker magnet
in the channel, the required number of particles passing through the chamber
can be provided. The optical system of the channel is described with the

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USSR

aid of diagrams of two possible variants; the beam aiming system and the particle dosage for the bubble chamber are also explained. The authors thank R. M. Sulyayev, P. F. Yermolov, A. M. Moiseyev, M. I. Solov'yev, I. A. Danil'chenko, Ye. A. Parshin, V. M. Kolesnik, A. N. Aleyev, V. D. Rudko, and V. M. Gorshkov for their assistance.

2/2

USSR

UDC 621.791:621.791.74:669.018.2/.8:061.3

SOKOLOVSKIY, S. A. (Cand. of Techn. Sciences), and MERKHER, A. M. (Engineer)

"Sixth Republic [Moldavian SSR] Scientific and Technical Conference on Advanced Methods for Welding and Cutting of Metals"

Moscow, Svarochnoye proizvodstvo, No 6, June 72, p. 60

Abstract: The conference was held 1-2 December 1971 in Kishenev. It was attended by 100 experts--scientists and production management personnel of Moldavia as well as by guests from other republics. The objective of the conference was the introduction of advanced methods for welding and cutting of metals to the participants and promotion of these methods in the industry. The topics of the reports included: The Present State and Prospects for the Development of Welding in Moldavian SSR (A. M. Merkher), Characteristics and Potentials of Microplasma Welding of Metals of Small Thickness (B. I. Shnayder), Mechanized Welding Methods for the Assembly and Fabrication of Building Structures (N. A. Shumov), Plasma-Arc Cutting (several reports), Friction Welding of Tractor Assemblies (Yu. I. Kharitonov), Application of Anti-corrosive Coating to Backings and Decorative Coatings in Construction (P. A. Shumov), Laser and Its Applications (Ye. M. Zamyatin). The resolutions

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USSR

SOKOLOVSKIY, S. A. and MERKHER, A. M., Svarochnoye proizvodstvo, No 6, June 72, p. 60

emphasized the need for training technicians and establishing a research and production welding laboratory for greater utilization of advanced experience in metal welding and cutting.

USSR   UDC 666.914

DANILOV, V. I., Engineer (Khoroshevskiy Reinforced Concrete Parts Plant DSK-1),
MERKIN, A. P., Candidate of Technical Sciences (Moscow Order of the Red Banner
of Labor Engineering and Construction Institute imeni V. V. Kuybyshev), and
FAMINSKIY, O. I., Engineer (Glavmosstroy)

"Technology of High-Strength Gypsum Plaster Parts"

Abstract: New technology has been proposed for the single-step production
of gypsum and gypsum plaster parts from dihydrous gypsum. The method involves
intensive dehydration during heating of the dihydrous gypsum powder whereupon
the chemically bonded water remains in the mass in the form of moisture and
then, as a result of cooling, enters into the reaction of the polyhydrate
hydration. With this method it is possible to produce plaster with filler with
a compressive strength up to 600 kgf/cm^2 at a bulk density of 2200 kg/m^3. This
new method eliminate a number of intermediate processes and yields a better
product than obtained from currently used production processes. A figure shows
the production schematic for manufacture of sheet rock. Three figures.

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USSR   UDC 678.746.22.06-405.8

NEKHOROSHEV, A. V., Doctor of Technical Sciences, MERKIN, A. P., Candidate
of Technical Sciences, GEYDANS, I. U., PUCHKOV, V. N., Engineers

"Styropore Concrete in Remote Regions and the Arctic"

Moscow, Stroitel'nye Materialy, No 1, Jan. 1973, pp 18-20.

Abstract: The conditions of construction in the Arctic require the develop-
ment of insulating structural materials. One such material is styropore
concrete, developed by "Arktikstroy" Trust. This concrete is made with an
artificial filler made of expanded polystyrene beads. Experience has
shown that the production of styropore concrete products does not require
additional capital investment or the construction of special plants. Styro-
pore concrete has certain technological and economic advantages over other
light concretes made with porous fillers: the lightness of the polystyrene
beads allows the density of the concrete to be varied widely; the poly-
styrene beads have minimum water absorption; the raw material for expansion
into beads can be economically transported over long distances; the heat
conductivity on the material is very low.

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- 15 -

UDC   621.372.85

GOLOVANOV, V. A., KRASNOV, YE. S., MERKIN, E. I., OSNOVINA, G. O., POLYAK, N. M.,
PROKOPENKO, V. G., and ERLIKH, E. I.

"Adhesives for the Ferrites of Super-High Frequency Instruments"

Translation: The authors study problems associated with the selection of an ad-
hesive for mounting ferrite inserts in high power level, super-high frequency in-
struments. Test results are also presented for various working conditions. Ori-
ginal article: one table and three bibliographic entries. Resume.

1/1

Devices

3

USSR

UDC   621.3.049.7

GOLOVANOV, V. A., YEREMICHEVA, K. A., KRASNOV, Ye. S., MERKIN,
E. I., OSNOVINA, G. G., POLYAK, N. M., and ERLIKH, I. M.

"Adhesive with Epoxy Base"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
znaki, No. 33, 1971, p 200

Abstract: This adhesive is designed to improve the operation of
ferrite UHF devices in the face of low and high powered signals
as well as temperature variations. A recipe for its manufacture
is given.

1/1

USSR   UDC   621.372.832.8

MERKIN, E. I., CHEVYKALOV, G. P.

"Analysis of a Single-Plane Four-Armed Circulator"

Elektron. tekhnika. Nauch.-tekhn. sb. Ferrit. tekhn. (Electronic Tech-
nology. Scientific and Technical Collection. Ferrite Technology), 1971,
vyp. 1(28), pp 101-108 (from RZh-Radiotekhnika, No 12, Dec 71, Abstract
No 12B211)

Translation: A single-plane transresonance circulator based on a four-
-armed strip hook-up is considered. In the center of the hook-up are two
ferrite discs, and in the center of each disc are brass rods. Formulas
and graphs are given for approximate calculation of the geometric dimen-
sions of the circulator. Five illustrations, bibliography of five titles.
Resumé.

1/1

= 23 -

UDC 621.372.832.43(088.8)

USSR

MERKIN, E. I., MILEVSKIY, N. P., and RUBIN, A. YE.

"A Resonant Ferrite Isolator"

USSR Author's Certificate No 281579, filed 28 Feb 69, published 30 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B186 P)

Translation: The proposed resonant ferrite isolator contains a strip line
with polarizing loops. To reduce direct losses, the central conductor of
the line at the point of connection of the loops is made with open holes.

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USSR   UDC 621.372.832.43

MERKIN, E. I.

"Small High Power Level Wave Guide Rectifier"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Engineering.
Scientific and Technical Collection. Ferrite Engineering), No 3 (25), pp 52-
56 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B167)

Translation: The parameters of the rectifier and its structural features are
presented.

1/1

USSR

UDC 624.19.001.57

MERKIN, V. YE., and CHERBOTAYEV, V. V.

"An Analysis of the Conditions of Similitude in the Simulation of Underground Structures"

Moscow, Osnovaniya, Fundamenty i Mekhanika Gruntov, No 1, 1971, pp 25-27

Abstract: The article deals with determination of the similitude criteria necessary for the simulation for various undergound structures, and an analysis of the degree of influence of some parameters of the "jacketing — rock" system upon the stressed state of that system. A method is proposed for correcting the results of simulation on the basis of graphs of relationships of the value of the load to the value of this or that parameter of the model, these graphs being constructed on the basis of an analytical solution, on an electronic computer, of the problem of the distribution of ontact pressures upon the excavation supports. Three figures, 3 bibliographic entries.

1/1

UDC 615.849.1.015.25.034.61

USSR

GOLUBENTSEV, D. A., MERKINA, T. N., MORDUKHOVICH, V. V., and TITOV, A. V.

"The Effect of Ionizing Radiation on the Excretion of Radioprotectors in Rats' Urine"

Moscow, Farmakologiya i Toksikologiya, Vol 35, No 5, Sep-Oct 70, pp 607-610

Abstract: Administration of sulfur containing radioprotectors such as β-mercaptoethylamine (MEA), cystamine, or cystophos in optimal doses to non-irradiated rats produces a sharp rise of non-protein thiols in the urine due to excretion of MEA. When cystamine is administered, the amount of MEA excreted in urine is twice as low as when MEA itself is used. Administration of sulfur containing protectors in combination with serotonin lowers considerably the excretion of non-protein thiols in urine. A whole body irradiation of rats at a dose of 700 r (LD 100/30) 5-10 min after administration of the radioprotector results in a drastic drop of the excretion of MEA. This indicates a change in metabolism due to the effect of radiation.

1/1

USSR

UDC: 621.382.2

DAVYDOV, Yu. T. and MERKISHIN, G. V.

"Measuring the Multiplication Factor and the Level of the Current
Through the Active Region of an Avalanche Photodiode With Guard
Ring"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 2072-
2073

Abstract: In the development of optical sensors using avalanche
photodiodes, it is important to know the value of the current en-
tering the multiplication layer and the multiplication factor.
This brief communication discusses the peculiarities of measuring
these two quantitites. The authors warn that the current through
the guard ring may cause substantial errors in measurement of the
multiplication factor for d-c, and show that the effect of this
current can be reduced by using a pulsed optical signal of low du-
ration and intensity, well focused in the center of the photodiode
operating area, for the measurements. The results of such measure-
ments on silicon photodiodes, with working area diameters of 100

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USSR

DAVYDOV, Yu. T. and KEREKSHIN, G. V., Fizika i tekhnika poluprovodnikov, No 10
1972, pp 2072-2073

microns with a light spot of 90 μ and a pulse duration of 100 nsec,
are presented. Under these conditions, the error due to the ring
current is less than 10%.

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USSR

MERKITE, R. Yu.

"Rule Describing Distribution of Syllables in Words in Dictionaries"

Lit. Mat. Sb. [Lithuanian Mathematics Collection], 1972, Vol 12, No 4, pp 125-131 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V748, by the author).

Translation: In this work, based on studies of distribution of syllables in words from dictionaries (without repetitions), a model is established of the formation of words of syllables. Two stages are differentiated in the formation of words (formation of roots and formation of words by attachment of affixes, prefixes, suffixes, endings) to roots. This division is possible in synthetic languages; in analytic languages, word formation will follow the rule describing the formation of roots. This work sets forth the hypothesis that the formation of roots from syllables is described by a geometric rule, while the attachment of syllables together with affixes is described by a binomial rule; the formation of words of syllables follows a rule which is a combination of the geometric and binomial rules. Calculations made for Lithuanian, German and Italian confirm the correctness of the model.

1/1

USSR

UDC 519.21

MERKITE, R. YU., Institute of Physics and Mathematics, Academy of Sciences Lithuanian SSR

"A Law Describing the Distribution of Syllables in Dictionary Words"

Abstract: The purpose of the article is to find a law to describe the formation of words from syllables. The number of syllables in a word can be regarded as a random variable Z taking the values k, $k=1$, 2, ..., K, where K is the number of syllables in the longest word (the number of syllables in a word equals the number of vowels or diphthongs in this word). Let there be a sample of N words. This sample can be used to calculate the sampling distribution of the random variable Z. The problem is, using the sampling distribution of syllables in words, to find a theoretical distribution such as would be close to the distribution of the random variable Z. The law describing the distribution of syllables in the words of texts must consider the numerous repetitions of words; therefore, the word formation law can be found more rationally by studying the distribution of syllables in dictionary words.

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USSR

It is shown that the distribution of syllables in word roots is better described by a geometric law than by Poisson's law, and the geometric law is a rather exact model of the formation of word roots from syllables, while the distribution of syllables in the words is a composition of geometric and binomial laws. Calculations for Lithuanian, English, German, and Italian confirm the correctness of the model, which reflects the morphological structure of languages and does not require complicated calculations, so that it can be used in language typology.

2/2

MERKOV, A.M.

Statistics

CURRENT DATA ON USSR POPULATION SIZE AND GROWTH

[Article by Professor A.M. Merkov (General): Moscow, _Sovetskoye Zdravookhraneniye_, No 8, 1971, pp 12-14]

According to the census taken on 15 January 1970, the population of our country reached 241.7 million persons [1], whereas 159.4 million in 1913 [1] (within the present boundaries), 194.1 million in early 1940, 181.6 million in early 1951, 212.4 million [2] at the start of 1960, and 229.6 million in 1965 [1]. Thus, in relation to the 1950 data, in 1913 the population constituted 82.2 percent, and in 1951 93.6 percent (the decline at this time was due to the still existing sequelae of the Great Patriotic War of 1941-1945), 104.1 percent in 1960, 112.4 percent in 1965, and 126.4 percent in 1970. The rise in population was due to natural increment, i.e. a higher number of births than of deaths.

In 1970, males made up 46.1 percent and females 53.9 percent of the USSR population. USSR urban population constituted 18 percent in 1913 [1], 33 percent in 1940 [1], 49 percent in 1960 [1], 52 percent in 1965 [1], and 56 percent in 1970 [1]. In absolute figures: 135,991,000 people. The rise in size and share of urban population in the USSR was the result of successful building of socialism in our country and related plan of industrialization.

With respect to age structure, individuals from 0-15 years of age constituted 37.1 percent of the USSR population according to the 1939 census [4], the 16-49 year-old group constituted 48.9 percent, and individuals 50 or more years of age made up 13.9 percent, of which 6.8 percent were 60 or older. The 1959 census data [4] are indicative of a decline in percentage of younger people and rise in share of the elderly in the population of the USSR. Thus, 30.4 percent were in the 0-15 year-old group, 51 percent in the 16-49 year group, and 18.6 percent in the 50 or older group, including 9.4 percent 60 or more years of age [4]. According to the 1970 census, 30.9 percent of the USSR population was 0-15 years of age, 48.5 percent 16-49 years old, and 20.6 percent were over 50 years of age, including 11.5 percent [5] over 60 years old. The process of "aging" of the population, i.e. the rise in percentage of older people poses a number of new problems to public health services dealing with development of gerontology and geriatrics, and with organization of medical care for the elderly and aged.

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USSR   UDC 911.3:616-006.5

MERKOV, A. M.

"Method Problems in the Study of the Epidemiology of Malignant Tumors.
[Fundamental Aspects)"

V sb. Epidemiol. zlokachestven. opukholei (Epidemiology of Malignant
Tumors -- collection of works), Alma-ata, "Nauka," 1970, pp 3-7 (from
RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.196)

Translation: The correctness of the use of the term "epidemiology" for
the study of the social and hygienic aspects of cancer is substantiated.
Fundamental sanitary statistical data of epidemiological study of malig-
nant tumors are presented.

1/1

1/2   021   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--THE PROBLEM OF A HEALTH STATISTICS STUDY OF LONGEVITY -U-

AUTHOR--MERKOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 5, 1970,
  SUBMITTED 24 NOVEMBER 1969, PP 17-22
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STATISTICS, PUBLIC HEALTH, GERONTOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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CIRC ACCESSION NO--AP0132811
                         UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   INTEREST IN A HEALTH STATISTIC
STUDY OF LONGEVITY IN OUR COUNTRY HAS BEEN AROUSED BY THE SUBSTANTIAL
SOCIOECONOMIC SHIFTS SINCE THE GREAT OCTOBER SOCIALIST REVOLUTION, WHICH
IN TURN HAVE CAUSED A CHANGE IN THE PROCESSES OF NATURAL POPULATION
GROWTH AND IN THE AGE SEX COMPOSITION OF THE POPULATION.   THE
SIMULTANEOUS REDUCTION OF THE BIRTH RATE AND DEATH RATE HAS BROUGHT A
SUBSTANTIAL INCREASE IN THE AVERAGE LENGTH OF LIFE OF THE SOVIET
POPULATION AND AN INCREASE IN ITS COMPOSITION OF THE SHARE OF THE
ELDERLY AND THE AGED.   IT IS SUFFICIENT TO CITE SUCH FIGURES AS THESE:
IN 1897 PERSONS OVER 60 YEARS OF AGE CONSTITUTED 6.89PERCENT OF THE
COUNTRY'S POPULATION, WHILE THOSE OVER 70 YEARS OF AGE CONSTITUTED
2.56PERCENT, BUT IN 1959 MEN OVER 60 YEARS OF AGE CONSTITUTED 7.1PERCENT
OF ALL MALES, MEN OVER 70 YEARS OF AGE CONSTITUTED 2.7PERCENT OF ALL
MALES, WHILE THESE FIGURES FOR WOMEN WERE 11.4 AND 4.7PERCENT,
RESPECTIVELY.   THERE IS NO DOUBT THAT AT THE PRESENT TIME THE ABSOLUTE
NUMBER OF THE ELDERLY AND AGED AND THEIR SHARE IN THE TOTAL SOVIET
POPULATION ARE CONTINUING TO RISE, AND THE 1970 POPULATION CENSUS WILL
OBVIOUSLY SHOW AN INCREASE IN THIS SHARE TO AT LEAST 12-14PERCENT.   THE
1959 CENSUS LED TO A LARGE NUMBER OF HEALTH STATISTICAL INVESTIGATIONS
OF LONGEVITY WHICH INFORTUNATELY WERE NOT ALWAYS METHODICALLY CORRECT.
ONE MUST ASSUME THAT THE 1970 CENSUS WILL INITIATE A STILL LARGER
NUMBER.   WE THEREFORE CONSIDER IT EXPEDIENCY TO ELUCIDATE CERTAIN
METHODICAL PROBLEMS OF HEALTH STATISTICAL STUDY OF LONGEVITY.

UNCLASSIFIED

Acc. Nr: *APO034714*

THE CLINICAL PICTURE AND DIAGNOSIS OF RADIATION INJURY OF THE SPINAL CORD IN THE TREATMENT OF MALIGNANT TUMORS

A. V. Kozlova, M. A. Merkova

Summary

The article describes ten cases of radiation injury of the spinal cord after the irradiation of tumors of the pharyngolarynx, larynx, tonsils, mediastinum and lung. In 5 patients there was "electric paresthesia", developing several months after radium therapy, without objective symptoms of spinal pathology. In seven years in one patient there appeared a focal affection of the spinal cord with a slowly progressing symptomatics. In five patients with cancer of the laryngopharynx progressing affection of the spinal cord resulted in a lethal outcome. In four of them the focus of spinal affection was first revealed 3-6 segments below the irradiated level and only gradually there appeared symptoms of affection of irradiated segments of the spinal

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02

AP0034714

cord. An analysis has demonstrated that in contrast to metastatic affection, radiation injury develops more slowly with gradual spread of the process lengthwise and cross-wise in the spinal cord; for metastases more characteristic is extramedullary locali-zation, whereas radiation injury always runs a course of an intramedullary process. The prevention of late radiation injuries consists in the choice of conditions of irra-diation of malignant tumors, in which the spinal cord is excluded from the zone of large doses.

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19711420

USSR   UDC 539.3:534.1

MERKOVICH, I. M.

"Computer Study of the Reliability of Orthotropic Shells Under the Action
of a Random Dynamic Load by the Stochastic Modeling Method"

V sb. Probl. nadezhnosti v stroit. provektir. (Problems of Reliability in
Structural Design -- Collection of Works), Sverdlovsk, 1972, pp 137-142
(from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V213)

Translation: An orthotropic hollow shell of positive Gaussian curvature is
approximated by a system with one degree of freedom. The equation for the
vibrations was modeled on a computer. A random external action is produced
with a white noise generator and a shaping filter. The author did not con-
struct the reliability function as it depends on the mean-square value of
the load, however, he did establish the applicability of the concept of
rare peaks widely used in theoretical studies. Of considerable interest is
a study of the distribution of the bending coordinates. It turns out that
this distribution is practically insensitive to the level of the acting
static and dynamic components of the load and is not centered even under a
zero value of the static component of the load. V. A. Pal'mov.
1/1

Physical Properties

NEYMARK, B. YE., KORYTINA, S. F., MONINA, E. F., and MERKUL'EV, A. N.

"Experimental Study of the Physical Properties of Alloys Based on Type VT-5 and VF8 Titanium"

Translation of Abstract: Experimental studies were carried out on the physical properties of two Ti alloys: VT-5 and VT-8. The properties studied were: normal modulus of elasticity (by dynamic method), internal friction by attenuation of free vibrations of the samples, heat conductivity, electrical resistance, Lorentz Number (by the method of Jaeger-Deisselhorst), linear coefficient of expansion (in a vacuum dilatometer), density and heat capacity in the temperature range of 20-800°. (Two illustrations, one table, 5 bibliographic entries).

1/1

UDC 632.95

USSR

OSATSKIY, L. G., MERKULOV, A. A., KRAVTSOV, YE. YE.

"Herbicide"

USSR Author's Certificate No 235511, filed 4 Aug 67, published 25 Feb 70 (from RZh-Khimiya, No 18, 25 Sep 70, Abstract No 18N713 P, by L. Shelestenko)

Translation: Acidic fumigating resins are used as herbicides in controlling quarantined weed plants. Acidic fumigating resins are a resinous black liquid, with d_{20} 1.06 g/cm^3, readily soluble in water. The composition is as follows: 40% sulfuric acid -- 8-10% and sulfoacids -- 40-50%.

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TITLE--SYNTHESIS AND SOME PROPERTIES OF HYDROGALLOCARBONATES OF SODIUM AND POTASSIUM -U-

AUTHOR-(05)-TCHILOV, N.P., BERGER, A.S., VORSINA, I.A., POROSHINA, I.A., MERKULOV, A.G.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA KHIMICHESKIKH NAUK, 1970, NR 2, PP 87-95

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CARBONATE, SODIUM COMPOUND, POTASSIUM COMPOUND, X RAY ANALYSIS, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0584   STEP NO--UR/0289/70/000/000/0087/0095

CIRC ACCESSION NO--AP0113475

UNCLASSIFIED

2/2   026
CIRC ACCESSION NO--AP0113475
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGALLOCARBONATES OF SODIUM AND
POTASSIUM NA SUB2 O.GA SUB2 O SUB3. 2 CO SUB2.4H SUB2 O AND K SUB2
O.GA SUB2 O SUB3.2CO SUB2.3H SUB2 O WERE PREPARED FROM THE SOLUTION
MIXTURE OF GALLATES AND BICARBONATES OF SODIUM AND POTASSIUM
RESPECTIVELY. THE PHYSICO CHEMICAL CHARACTERISTICS OF THESE SUBSTANCES
SUCH AS THE REFRACTION OF LIGHT, SPESIFIC GRAVITY, DIMENTIONS OF CELLS
WERE DETERMINED. THE PROCESS OF THERMAL DECOMPOSITION OF SODIUM AND
POTASSIUM HYDROGALLOCARBONATES WAS STUDIED UNDER STATIC AND DYNAMIC
CONDITIONS OF HEATING AND UNDER HIGH TEMPERATURE X RAY ANALYSIS. SOME
PECULIARITIES OF IR SPECTRA OF OBTAINED COMPOUNDS WERE ALSO DISCUSSED.
     FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI
MINERAL'NOGO SYR'YA SO AN SSSR, NOVOSIBIRSK.

MERKULOV, A. P., OGORODNIKOV, N. N., TOLSTONOGOV, A. P.

"Filling of High-Pressure Containers with Chilled Gas"

Translation: Conditions are defined, providing relative isothermicity of
the process of filling of a high-pressure container with gas. Based on
the energy balance equation for a body of variable mass considering exter-
nal heat exchange of the system and the influence of the temperature choke
effect in the feed line, analytic expressions are produced for the change
in temperature of the gas entering the container. The nature of change of
the temperature of the working fluid in the container being filled during
the initial period of filling is established. The temperature of the in-
coming gas for which its temperature in the container remains practically
unchanged is calculated. A method is presented for calculation of the
thermal load on the refrigeration unit in which the feed gas is preliminar-
ily chilled. Graphs of the change in temperature of the working fluid in

1/2

USSR

MERKULOV, A. P., OGORODNIKOV, N. N., TOLSTONOGOV, A. P., Tr. Kuybyshev.
Aviats. In-t, 1973, No 56, pp 24-35

the container as a function of velocity of entering gas and its temperature
are shown. Calculations and experimental curves of the change in tempera-
ture of the gas with rapid filling of the high-pressure container with
chilled gas are presented. 6 Figures; 1 Table; 7 Biblio. Refs.

2/2

USSR   UDC 547.341

KORMACHEV, V. V., MERKULOV, A. V., and KUKHTIN, V. A., Chuvash State
University imeni I. N. Ul'yanov

"Reaction of Phosphorus Pentachloride With Alkadienes"

Abstract: The reaction of phosphorus pentachloride with 2,4-hexadiene was
investigated. The addition products of phosphorus pentachloride with buta-
diene, isoprene, and 2,4-hexadiene were decomposed with a solution of white
phosphorus in phosphorus trichloride yielding 4-chloro-2-alkenyldichloro-
phosphines. These products were reacted with alcohols and mercaptans in
presence of triethylamine to yield dialkoxy (dialkyldithio) 4-chloro-2-
alkenylphosphonites.

1/1

.USSR.   UDC 621.791.753.9

TKACHEV, V. N., Doctor of Technical Sciences, YUDIN, I. YE.,
Engineer, KAGAN, I. L., Engineer, MERKULOV, B., Engineer,
Rostov Scientific Research Institute of Machinery-Manufacturing
Technology

"Welding in Carbon Dioxide With Sv-08 Wire Coated With Aluminum
Alloy"

Abstract: Results are presented of an experimental investigation
in welding low-carbon steels in carbon dioxide with Sv-08 wire,
1.6 mm in diameter, coated with aluminum alloy of the composition
(in %): 0.52 Mn, 8.18 Si, 1.81 Cu, 0.45 Mg, and 0.24 Zn. The
welding process with alitized low-carbon wire in carbon dioxide
is characterized by high stability of arc burning. The metal
transfer within the 90-170 A/mm^2 current density range was found
to be large. The microstructure of the beaded metal is shown.
The mechanical properties and hardness distribution in welds by
one- and multi-operation-welding are discussed by reference to
1/2

USSR

TKACHEV, V. N., et al, Svarochnoye Proizvodstvo, No 3, Mar 72, pp 20-22

tabulated data and diagrams. The mechanical properties of the welded-on metal were found to be identical to properties of the metal beaded with Sv-08GS and Sv-08G2S wires. 2 illustrations, 2 tables, 3 bibliographic references

2/2

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USSR

UDC: 534.2

MERKULOV, L. G., ROKHLIN, S. I.

"Diffraction of Lamb Waves by a Crack in an Elastic Plate"

Tr. Taganrog radiotekhn. in-ta (Works of Taganrog Radio Engineering Institute), 1973, vyp. 34, pp 3-11 (from RZh-Fizika, No 5, May 73, abstract No 5Zh564 by A. Kolomiytsev)

Translation: The authors solve problems on the diffraction of Lamb waves by a finite crack of arbitrary length $2l$ and by an asymmetrically located, semi-infinite crack. The crack is located on an unbounded elastic-isotropic plate of thickness $2h$. The shift potentials of the Lamb waves diffracted by the crack are determined. The spectrum of permissible wave numbers k_i leads to two infinite systems of algebraic equations relative to the unknowns $X_j^+(k_i)$ and $Y_j^+(k_i)$ associated with the transformants of the stresses on a section. It is established that the resultant systems are quasiregular under the condition $l/h \gg k$. It is found how $X_j^+(k_i)$ and $Y_j^+(k_i)$ are related to the coefficients of transmission and reflection. For diffraction of Lamb waves by an asymmetric crack, a system of functional equations is found relative to the transformants of stresses and shift discontinuities on a section. It is found that the corresponding scalar problems have a solution if the shear modulus and some potential are assumed to be identically equal to zero.
1/1

KOVALENOK, R. V., MERKULOV, L. G.

"Computing Phonon Absorption of Ultrasonic Waves in Alkali-Halide Crystals"

Abstract: The absorption of ultrasonic waves in dielectric crystals is basically determined by phonon-phonon interactions. On the basis of the assumption that the contribution of the phonons to the nonrelaxation elasticity modulus is determined by the change in energy of the thermal phonons due to the change in the limited Debye frequency in the deformation field of the ultrasonic wave, the value of Δc, equal to the difference between the nonrelaxation and relaxation elasticity moduli, was computed. Because experimental research in alkali halide crystals has shown that the temperature dependence of the absorption factors of the crystals cannot be satisfactorily described by an equation derived from that value of Δc, the authors of the present paper re-compute the latter in the quasi-harmonic approximation under the assumption that the number of phonons in each type of oscillation before

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USSR

KOVALENOK, R. V. et al, _Fizika Tverdogo Tela_, Vol 14, No 2, 1972, pp 340-344

relaxation remains unchanged and that the change in internal energy is caused only by the change in frequency of the phonon oscillations. The results of the new computation are compared with those yielded by the experiments, and a good agreement between the two is observed. Tables of the two sets of results are given.

2/2

USSR

MERKULOV, L. G., YAKOVLEV, L. A., GUSEVA, YE. K., LAZAREV, G. I., MARAYEV, S. YE.

"New Method of Ultrasonic Control of the Purity of Aluminum Ingots Purified
by Zone Melting"

Translation: The ultrasonic method of controlling the purity of aluminum is
based on the effect of dislocation absorption of the ultrasonic vibrations in
crystalline materials. Practical implementation of this procedure is realized
as applied to the problem of finding the boundary of the pure part of the
aluminum ingots obtained by zone melting. Comparison of the data from ultra-
sonic measurements and the method of residual electrical resistance demonstrated
good correspondence of the results. Application of the ultrasonic method of
finding the boundary of the pure part of the ingots permitted the yield of
Al type A999 to be increased by 3% on the average under plant conditions. The

1/2

USSR

MERKULOV, L. G., et. al., _Tr. Vses. n.-i. i proyektn. in-ta alyumin. magn. i_
elektrodn. prom-sti, 1970, No 71, pp 128-134

procedure developed was used during the process of developing the optimal
technological process for zone purification of large aluminum ingots weighing
up to 70 kg. High sensitivity, simplicity, and reliability of the ultrasonic
method permit it to be recommended as an express method of industrial control
of aluminum purified by zone melting. There are 3 illustrations.

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USSR   UDC 669.71.43(088.8)

MERKULOV, L. G., YAKOVLEV, L. A., and GUSEVA, Ye. K.

"Ultrasonic Device for Determination of Pure Metal Boundary in Ingots"

USSR Author's Certificate No 265527, Filed 28/09/67, Published 10/07/70,
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G162 P)

Translation: An ultrasonic device is suggested for determination of the
boundary of pure metal in ingots, for example of Al, produced by zone
melting. The device contains a synchronizer, an exciter pulse generator,
a radiating and receiving head, a matching stage, an attenuator, a high-
frequency amplifier, a cathode ray tube, a scan generator, and a para-
phase amplifier. To increase the accuracy of determinations, the device
is equipped with a switch and calibrating acoustical channel consisting
of a specimen of pure Me and an acoustically coupled undamped piezoplate
connected to a second output of the generator and one terminal of a
switch, the common terminal of which is connected to the matching stage.
1 figure.

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- 3 -

UNCLASSIFIED   PROCESSING DATE--23OCT70

1/2   026
TITLE--SCATTERING OF ELASTIC MODES IN A PLATE WITH A TWO DIMENSIONAL
   DISTRIBUTION OF SURFACE IRREGULARITIES -U-
AUTHOR-(02)-MERKULOV, L.G., FIRSOV, I.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AKUSTICHESKIY ZHURNAL, VOL 16, NO 1, 1970, PP 100-115

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLAT PLATE, VIBRATION PROPAGATION, FOURIER TRANSFORM, ACOUSTIC
   SCATTERING, SURFACE ROUGHNESS, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1897   STEP NO--UR/0046/70/016/001/0110/0115

CIRC ACCESSION NO--AP0106558
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0106558

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE FOURIER INTEGRAL
TRANSFORMATION METHOD WAS USED TO SOLVE THE PROBLEM OF THE PASSAGE OF
ELASTIC MODES ACROSS A SECTION OF A PLATE IN THE FORM OF AN INFINITE
BAND WITH TWO DIMENSIONAL DISTRIBUTION OF SURFACE IRREGULARITIES. THE
DEPTHS OF THE IRREGULARITIES AND THE ANGLES OF INCLINATION THEY FORMED
ARE ASSUMED TO BE SMALL, WHICH MAKES IT POSSIBLE TO CONFINE THE PROBLEM
TO THE FIRST APPROXIMATION WHEN FINDING THE POTENTIALS OF THE SCATTERED
WAVES. A TOTAL CALCULATION WAS MADE FOR THE CASE OF THE INCIDENCE OF A
SYMMETRICAL LAMB WAVE. THE SCATTERED FIELD IS REPRESENTED AS THE SUM OF
THE LAMB AND SHEAR MODES (PROPAGATED AT DIFFERENT ANGLES WITH RESPECT TO
THE ANGLE OF INCIDENCE), WHOSE SYMMETRY IS DETERMINED BY THE SYMMETRY OF
THE SURFACE IRREGULARITIES.   FACILITY: LENINGRAD ELECTRICAL
ENGINEERING INSTITUTE IMENI V. I. UL'YANOV LENIN.   FACILITY:
TAGANROG RADIOTECHNICAL INSTITUTE.

UDC 534.121.1

USSR

MERKULOV, L. G. and FIRSOV, I. P., Leningrad Electrical Engineering Institute
_____. I. Ul'yanov (Lenin) and Taganrog Radiotechnical Institute

"Scattering of Elastic Modes in a Plate with a Two-Dimensional Distribution
of Surface Irregularities"

Abstract: The Fourier integral transformation method was used to solve
the problem of the passage of elastic modes across a section of a plate
in the form of an infinite band with two-dimensional distribution of
surface irregularities.   The depths of the irregularities and the angles
of inclination they formed are assumed to be small, which makes it possible
to confine the problem to the first approximation when finding the potentials
of the scattered waves.   A total calculation was made for the case of the
incidence of a symmetrical Lamb wave.   The scattered field is represented
as the sum of the Lamb and shear modes (propagated at different angles with
respect to the angle of incidence), whose symmetry is determined by the
symmetry of the surface irregularities.

UDC 539.3:534.1

USSR

AGAPOV, V. I., KUDINOV, A. N., MERKULOV, L. I.

"Study of the Stability of Reinforced Shells Under the Effect of Nonuniforming Gentle Pressure"

Translation: An abstract is given of a paper in which a study was made of circular cylindrical shells reinforced with framing and loaded under external pressure which is not uniform with respect to the circle. The shell was considered as structurally orthotropic. The eccentricity of arrangement of the frames was taken into account. It was proposed that the shell material can be beyond the elastic limit. In this case the problem was solved on the basis of the theory of small elastic-plastic deformations. The initial state of the shell was considered momentless. The solution was compared with the experiment in which tests were run on 50 shells made of steels 3, 1Kh18N9 and duralumin D16AT. The effect of the nature of placement of the frames on the stability loss process and the magnitude of the critical pressure was estimated.

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UDC 539.374

USSR

ALEKHIN, V. P., SHORSHOROV, M. Kh., GUSEV, O. V., and MERKULOV, V. A.

"Method of Studying Surface Plastic Deformation of Single Crystals in the Area of Brittle Rupture"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 165-171

Translation: A method is suggested for studying the specifics of the deformation of surface layers in comparison to volumetric deformation of brittle crystals by heating them in the die through an insert of a plate material, and calculation formulas are presented for determination of normal and tangential stresses in the contact zone. The method of photoelasticity is used to show the advantages of this method in comparison with determination of microhardness. Experiments are performed on the loading of Si and Mo crystals through aluminum and lead inserts, and the depth of the layer involved in plastic deformation is determined, sharply decreasing with decreasing temperature from 550 to -196°C. 5 Figures; 14 Bibliographic References.

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USSR

SOKOLIN, G. F., LULOVA, N. I., LIPAVSKIY, V. N., MIRKULOV, V. D.

"Selection of Evaporator Temperature During Dosing of Liquid Samples in an Industrial Chromatograph"

Translation: The most commonly used liquid sample dosing devices in industrial chromatographs are those in which the specimen is evaporated in a stream of carrier gas fed into the column, and the beginning of evaporation coincides with the beginning of analysis. Results are presented from experimental studies of the influence of evaporator temperature on the effectiveness of separation and the height of peaks of difficult-to-separate mixtures with boiling points of 135 to 145° C. It is demonstrated that the selection of the optimal evaporator temperature allows the effectiveness of the column to be increased significantly; the evaporator temperature should be 1.5-2 times the mean boiling point of the components of the mixture; if the optimal evaporator temperature causes thermal destruction of the specimen, dosing

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USSR

Sokolin, G. F., Lulova, N. I., Lipavskiy, V. N., Merkulov, V. D.,
Avtomatiz. i Kontrol'noizmerit. Pribory. Nauch.-Tekhn. Sb., No 12, pp 22-24.

devices with preliminary evaporation of the specimen should be used; the
accuracy of maintenance of the optimal evaporator temperature should be 0.5
to 1° C.   2 figures, 5 biblio. refs.

2/2   - 133 -

USSR

UDC: 614.48"324"

BARBINOV, V.A., Lt Col Med Serv and MERKULOV, V.F., Maj Med Serv

"Wintertime Disinfection in the Field"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1970, pp 63-64

Abstract: The disinfection of large areas, buildings, machines, and other bulky objects presents some difficulties, especially in the winter. The gas method is unsuitable for large areas and the disinfection of houses, hospital wards, etc. requires the consumption of large amounts of gas. Aqueous solutions of disinfectants freeze, and the addition of salt poses additional problems. The use of disinfectants in powdered form is expensive and difficult in windy weather. To overcome the disadvantages of the existing methods, an apparatus consisting of a steam boiler and pistol-type device to atomize and spray aqueous solutions of disinfectants is proposed. The steam prevents the disinfectant from freezing, and by warming the objects treated, reduces the time of exposure required.

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USSR   UDC 538.4

MERKULOV, V. I.

"Motion of a Sphere in a Conducting Liquid Under the Action of Crossed
Electric and Magnetic Fields"

Riga, Magnitnaya Gidrodinamika, No 1, 1973, pp 38-42

Abstract: In this theoretical paper a solution is given for the forces
moving a sphere in a weakly conductive liquid due to crossed electric and
magnetic multipoles. It also investigates the possibility of setting up
forces beyond the limits of the boundary layer that would counterbalance
the friction forces and avert the interruption of flow for a thick body.
The conductivity of the medium is proposed small enough so that the problem
can be solved in the inductionless approximation. Both the magnetic and
electric fields are assumed potential, and the motion of the liquid is
assumed eddyless and specified by some potential function of the three
dimensions. The analysis begins with the equation for the current density
caused by the electric and magnetic potential fields, and the force field
resulting from the interaction of the current density with the magnetic
field. Consideration is given to the application of such a system as a
marine engine.
1/1

USSR   UDC 539.4.011

KOTOV, P. I., LEBEDEV, V. M., and MERKULOV, V. N., Moscow
Aviation Technological Institute

"The Creep of VT-14 Titanium Alloy Under Low-Cycle Load Conditions"

Abstract: The accumulation process of creep strain and the failure conditions of VT-14 alloy were investigated at low-cycle load in the 2.5-60 cycles/hr frequency range at 400°C. The creep deformation of 1.0%, first resulting under stationary conditions, lowers the deformability of the alloy at subsequent cyclic load. With increasing average stress σ, the time until failure decreases; the change of the durability value depends on $\alpha = \tau_c/\tau_s$, where τ_c and τ_s are the application times of cyclic and static loads. At different σ levels and by different α values, the creep can have an improving as well a damaging influence on the durability. With increasing deformation frequency, the effect of cyclicity substantially lowers the magnitude of ultimate creep deformation. Six figures, eight bibliographic references.

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USSR

UDC: 620.172

MERKULOV, V. N., KOTOV, P. I., LEBEDEV, V. M., Moscow

"Short-term Creep of OT4 Alloy"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 57-59.

Abstract: This work studies the short-term creep of OT4 titanium sheet alloy as delivered by the manufacturer at temperatures of 400-500 and 600° and at rather high stresses, amounting to 55-100% of the tensile strength. In the 400-600°C temperature range, the short-term creep of OT4 alloy is accompanied by significant hardening. The temperature level at which hardening disappears with short term creep is about 640°C. In the 400-600° temperature level, the short term creep of OT4 alloy can be satisfactorily described by an equation based on the hypothesis of hardening when the hardening measure is the inclined creep deformation.

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KOTOV, P. I., LEVEDEV, V. M., MERKULOV, V. N., Moscow

"Creep of Titanium Alloys Under Variable Loads"

Abstract: The creep of titanium alloys VT-14 and VT-20 is studied in the 300-400°C temperature range with variable loads. It is demonstrated that with a stepped loading mode, the accumulation of creep deformations occurs slower than the calculated rate, while with a smoothly increasing load, the predictions of the theory of hardening are satisfactorily accurate. In the case of alternating loads and rests, the elastic after effect appears rather clearly during rest periods.

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USSR

MERKULOV, Ye. I., VANNIKOV, A. V., MIKHAYLOV, I. D.

"Investigation of Hole Mobility in Polydiphenylacetylene Films"

Abstract: The authors study the drift mobility of holes in films of poly-
diphenylacetylene precipitated from a benzene solution and in films of
modified polydiphenylacetylene made by repeated high-temperature subli-
mation (up to 500°C) of polydiphenylacetylene on a heated (to 250°C) sub-
strate with gold or aluminum electrode at a pressure of 10^{-5} mm Hg. The
specimens were made in the form of sandwich cells. Film thickness was
1-10 μ, and the working area of the electrode was 0.1 cm^2. Mobility was
determined by measuring the transit time T_t of nonequilibrium carriers
excited by a low-energy (3-10 keV) electron pulse with a duration of
0.2-1 μs. To prevent secondary effects, the time constant of the specimen
was chosen to keep the resistance and capacitance greater than T_t. It is
shown that the low mobility of charge carriers in polydiphenylacetylene
($2 \cdot 10^{-4}$ cm^2/V·s) is due to the presence of a large number of small traps.

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USSR

MERKULOV, Ye. I. et al., Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2679-2682

The mobility in sublimated polydiphenylacetylene, where there is an appreciable reduction in the number of traps, is 0.3 $cm^2/V \cdot s$. It is shown that the band concept can be applied to study of the motion of charge carriers in organic polymer semiconductors. Two figures, bibliography of five titles.

2/2

UNCLASSIFIED   PROCESSING DATE--13NOV70

1/2   013
ITLE--SOLUBILITY DIAGRAM FOR A NA SUB2 H SUB2 Y DISODIUM SALT OF
EDTA-KOH-H SUB2 O TERNARY SYSTEM AT 25DEGREES -U-
UTHOR-(03)-MERKULOVA, K.S., DOMBROVSKAYA, N.S., BRUYLE, YE.S.

M

OUNTRY OF INFO--USSR

OURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 881-5

ATE PUBLISHED-------70

UBJECT AREAS--CHEMISTRY

OPIC TAGS--SOLUBILITY, METAL COMPLEX COMPOUND, SODIUM COMPOUND, POTASSIU
COMPOUND, HYDROXIDE, YTTRIUM COMPOUND   M

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/2017   STEP NO--UR/0080/70/043/004/0881/0885

CIRC ACCESSION NO--AP0132278
              UNCLASSIFIED

2/2   013
CIRC ACCESSION NO--AP0132278
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. CURVE OF THE TERNARY SYSTEM CONSISTED OF 2 BRANCHES. OF THESE THE 1ST CORRESPONDED TO THE CRYSTN. OF ANHYD. NA SUB2 H SUB2 Y. THE 2ND BRANCH OF THE CURVE APPEARED WITH AN INCREASE IN THE KOH CONTENT AND CORRESPONDED TO THE CRYSTN. OF 2KOH.NA SUB2 H SUB2 Y. THIS SOLID PHASE CONTAINED KOH 25 NA SUB2 H SUB2 Y 75 WT. PERCENT. A THERMOGRAPHIC ANAL. OF THE SALT N SUB2 H SUB2 Y.2H SUB2 O HAD ENDOTHERMIC EFFECTS AT 104, 192, AND 243DEGREES. THE 1ST 2 WERE CAUSED BY THE LOSS OF 2 MOLS. OF H SUB2 O AND AT 243DEGREES THE COMPD. BEGINS TO DECOMP. THE DTA CURVE OF ANHYD NA SUB2 H SUB2 Y SHOWED ENDOTHERMIC PEAKS AT 81 AND 198.6DEGREES AND AT 350DEGREES THE COMPD. BEGINS TO DECOMP. THE DTA CURVE FOR 2KOH.NA SUB2 H SUB2 Y IS VERY COMPLEX AND IS AS YET NOT NOT RESOLVED.

USSR   М   UDC 621.315.592:669.777.054.2

MERKULOVA, N. A., KUKUSHKIN, N. A., SMIRNOV, V. A., KRAPUKHIN, V. V., and
ALEKSEYEVA, T. P.

"Investigation of the Temperature Field During Zone Recrystallization of Cadmium
and Tellurium"

V sb. Teplo- i massoperenos v tverd. telakh, zhidkostyakh i gazakh (Heat and Mass
Exchange in Solids, Liquids, and Gases--collection of works), Minsk, 1970,
pp 237-244 (from RZh-Metallurgiya, No 8, Aug 70, Abstract No 8G456)

Translation: Experimental data on heat exchange at the front of crystallization
in the process of zonal refining of Cd and Te is processed according to the
criteria of similarity of convective heat exchange, taking into consideration
Stefan's condition at the boundary of phase separation. Analysis of the criterial
equation shows that the coefficient of heat-exchange decreases with an increase
in the relative length of the molten zone. Spontaneous fluctuations of tempera-
ture were observed during registration of the temperature along the entire length
of the molten zone of the ingot. The largest fluctuations were observed in the
middle of the molten zone, where minimum amplitude for Cd was $1.2°$ at a frequency
of 6-8 periods per minute. At the same time no fluctuations were observed in

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USSR

MERKULOVA, N. A., et al, Teplo- i massoperenos v tverd. telakh, zhidkostyakh i gazakh, Minsk, 1970, pp 237-244

narrow zones $2.5 \cdot 10^{-2}$ m. The fluctuations appeared in the narrower zones. On this basis, it is assumed that the source of fluctuations is the turbulent nature of the convective motion. N. DEMENKOV

2/2

UDC 612.8.019.941

USSR

MERKULOVA, O. S., SOKOLOVA, Ye. V., and FILARETOV, A. A. (Reviewers)

Rezul'taty Issledovaniy po Morfologii, Neyroendokrinologii, Neyrofiziologii, Povedeniyu i Patologii Nervnoy Sistemy (Results of Investigations Into the Morphology, Neuroendocrinology, Neurophysiology, Behavior and Pathology of the Nervous System) by Lishshak, K. (Editor), Budapest, 1972

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 9, Sep 73, pp 1451-1452

Abstract: The collection contains articles about presynaptic influences on the formation of postsynaptic structures on the brain dendrites, the binding of H3-estradiol to the brain and uterus, and the decrease in electrical activity of subcortical formation neurons on habituation to new conditions or on adding ACTH and corticosteroids. The reviewers question the hormone dosage level of the latter. Additional articles discuss the dependence of elicited potentials in the auditory core on the stimulus frequency, the influence of the hippocampus on the mesoencephalic structures, the correlation between cortical electrical activity and stimulation of the thalamus nucleus, the refractory period in the reinforcement of lateral hypothalamus structures and the influence of disturbances in cervical lymphatic flow on the EEG and brain function.

UDC: 534.2

USSR

MERKULOVA, V. M., PAVLOV, V. S.

"Variation of Absorption of Sound in Some Rocks up to 400°C as a Function of Temperature"

Tr. Taganrog. radiotekhn. in-ta (Works of Taganrog Radio Engineering Institute), 1973, vyp. 34, pp 131-145 (from RZh-Fizika, No 5, May 73, abstract No 5Zh566 by V. I. Uchastkin)

Translation: A torsional pendulum on a frequency of about one hertz is used to study the internal friction (with accuracy of temperature control within +1°C) in granite-gneiss, metamorphic shale, and quartzite as a function of temperature. It is noted that specimens made in the form of prismatic bars were washed and dried in a vacuum at 80°C before testing. The paper gives the content of impurities in quartz and obsidian checked by a spectral method. It is shown that with heating above 100°C internal friction decreases, repeated measurement showing a depression in the initial level. It is noted that for quartzite heated to 400°C the internal friction showed almost no change in the repeat cycle of measurements. Obsidian shows a broad temperature maximum of internal friction which is independent of the cycle of measurements. It is pointed out that the irreversible change of internal friction with temperature in crystalline rocks is due to release of the liquid phase from the pores and

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- 11 -

USSR

MERKULOVA, M. V., PAVLOV, V. S., Tr. Taganrog. radiotekhn. in-ta, 1973, vyp. 34, pp 131-145

microcracks during heating. It is found that the residual internal friction after heating of specimens to 300-400°C may be due to processes of structural or dislocational relaxation under shear strains. It is shown that the maximum of internal friction in obsidian is caused by diffusion losses -- with the principal contribution from ions of alkali earth elements, especially sodium.

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USSR
Acoustics

USSR   UDC: 534.2

MERKULOVA, V. M., TSAPLEV, V. M.

"Measuring Velocities and Internal Friction Accompanying Longitudinal and
Torsional Vibrations in a Medium With Microcracks"

Tr. Taganrog. radiotekhn. in-ta (Works of Taganrog Radio Engineering Insti-
tute), 1973, vyp. 34, pp 146-155 (from RZh-Fizika, No 5, May 73, abstract
No 5Zh567 by V. I. Uchastkin)

Translation: Phase velocities and internal friction for the longitudinal
and torsional modes were measured by the method of resonance oscillations
of a composite vibrator on ultraporcelain rods on a frequency of 36 kHz
under compressive loads of up to 1400 kg/cm. It was found that micro-
cracks which can be observed visually by applying methylene dye were de-
veloped when the specimens were tempered. After tempering, the phase
velocity in the material decreases, while there is an increase in internal
friction. Additional acoustic absorption is caused by shear stresses on
the boundary between the crack and the viscous filler and also by diffrac-
tion scattering of sound from the edges of the crack. By using the well-
known results of diffraction of a normal Lamb wave on the edge of a semi-
infinite crack in an elastic plate, the authors evaluated the mean square
1/2

USSR

MERKULOVA, V. M., TSAPLEV, V. M., Tr. Taganrog. radiotekhn. in-ta, 1973, vyp. 34, pp 146-155

distance between crack channels. The fact that loading does not affect the parameters of torsional vibrations is attributed to the radial orientation of the cracks -- elastic displacement normal to a boundary does not excite viscous waves.

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