USSR

UDC: None

SVIRINA, Ye. P., et al, Fizika tverdogo tela, No 6, 1973, pp 1665-
1667

find that all inversion pairs of the Hall field components differ
from zero in both materials under the condition of technical satu-
ration. They thank K. P. Belov and M. I. Kaganov for their com-
ments on the work.

2/2

USSR

UDC 621.372.852.1(088.8)

IOSELEVICH, YA. SH., NEMCHINOVA, M. A.

"Procedure for Tuning Comb Filters"

USSR Author's Certificate No 259189, Filed 15 Mar 68, Published 28 Apr 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B129P)

Translation: This author's certificate introduces a procedure for tuning comb filters on connected lines by detuning all the resonators and subsequently tuning them successively to the mean frequency while controlling the tuning process by an indicator. In order to improve the accuracy and reliability of tuning, an automatic voltage standing wave ratio meter is used. There are four illustrations.

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USSR   UDC: 681.326.3

NEMENMAN, M. Ye., PYKHTIN, V. Ya., MAL'TSEVA, V. A., SAMARSKIY, A. S., MALYAVSKIY,
Ye. Ye., TORIKASHVILI, V. V.

"A Device for Debugging Programs"

Abstract: This Author's Certificate introduces a device for debugging programs
which contains a control unit, a switching module, a unit for data reception
and output, a monitoring unit, and a decoder register. As a distinguishing
feature of the patent, speed and reliability in program debugging are improved
by incorporating into the device an interruption flip-flop; an automatic switch-
ing flip-flop; reset flip-flops; four rows of tubes; and AND, OR, and NOT logic
circuits. The operation code input lines are connected to the inputs of the
first row of tubes, the second inputs of these tubes being connected through
the NOT circuit to the input of the OR circuit and to the inputs of the fourth
row of tubes. The second inputs of the fourth row of tubes are connected to
the first output of the control unit. The outputs of the first and fourth
rows of tubes are connected to the inputs of the decoder register, whose

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USSR

NEMENMAN, M. Ye., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy,
Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21
April 1969, p 133

output is connected to one input of the control unit. The second output of
the control unit is connected to the input of the device at the "one" of the
first reset flip-flop. The "one" output of this flip-flop is connected to a
tube input, and the second input of the tube is connected to the third output
of the control unit. The output of the second tube is connected to the input
of the device at the "zero" of the first reset flip-flop and to the input of
the device at the "one" of the second reset flip-flop. The "zero" output of
the first reset flip-flop is connected to the input of the third tube, the
second input of this tube being connected to the fourth output of the control
unit. The output of the third tube is connected to the first input of the
monitoring unit, whose first output is connected to the input of the device
at the "one" of the interruption flip-flop, input of the device at the "zero"
of this flip-flop being connected to the fifth output of the control unit.
The "one" output of the interruption flip-flop is connected to the second in-
put of the monitoring unit. The second output of the monitoring unit is con-
nected to the device at the "one" of the automatic switching flip-flop, the

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USSR

NEMENMAN, N. Ye., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy,
Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21
April 1969, p 133

input of the device at the "zero" of this flip-flop being connected to the
first output of the switching module. The second output of the switching
module is connected to the input of the device at the "zero" of the second
reset flip-flop, the "one" output of this flip-flop being connected to the
first input of the switching module and to the first input of the AND cir-
cuit. The second input of the AND circuit is connected to the "zero" output
of the interruption flip-flop, while the output of the AND circuit is con-
nected to the first input of the OR circuit. The second input of the OR
circuit is connected to the "one" output of the automatic switching flip-
flop and to the second input of the switching module, the third input of the
switching module being connected to the sixth output of the control unit,
while the third output of the switching module is connected to the second
input of the control unit, and the fourth output of the control unit is
connected to the data output unit.

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USSR   •   UDC 669.181

KNYAZEV, V. F., GIMMEL'FARB, A. I., and NEMENOV, A. M.

Beskoksovaya Metallurgiya Zheleza (Cokeless Iron Metallurgy), Moscow, Izdatel'stvo "Metallurgiya," 1972, 272 pp

Translation of Annotation: The book considers the theoretical bases of coke-less iron metallurgy, as well as requirements for the iron ores and the fuel reducing agent in cokeless metallurgy. The current state of cokeless metal-lury in the USSR and elsewhere is reviewed. Technological schemes and pro-cessing equipment, technological and economic indices, calculation methods for determining the capacity of the basic industrial equipment, the quality and application of metallurgical products, and prospects for the development of cokeless metallurgy are also discussed.

The book is intended for engineers and technicians at industrial plants and planning and scientific research institutions of ferrous metallurgy dealing with problems of cokeless metallurgy. It may also be useful to teachers and students at metallurgical higher educational institutions.

Translation of Table of Contents: Page

USSR

KNYAZEV, V. F., et al., Beskoksovaya Metallurgiya Zheleza, Moscow, Izdatel'-
stvo "Metallurgiya," 1972, 272 pp

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USSR   •

KNYAZEV, V. F., et al., Beskoksovaya Metallurgiya Zheleza, Moscow, Izdatel'-
stvo "Metallurgiya," 1972, 272 pp

ARZUMANOV, A. A., NEMENOV, L. M., ANISIMOV, O. K., BATALIN, S. S.,
VOLKOV, B. A., GROMOV, D. D., KRAVCHENKO, Ye. T., KRUGLOV, V. G.,
NIGMATOV, M. Kh., POPOV, Yu. S., PROKOV'YEV, S. I., and RYBIN, S. N.

"Isochronic Cyclotron With Controllable Ion Energy"

Abstract: A discussion of the isochronic cyclotron with controllable
ion energy built around the U-150-2 accelerator installed in the
Institute for Nuclear Physics of the Kazakh SSR Academy of Sciences
in 1965 is given. Calculations of the fundamental parameters made
with an electronic computer are presented, together with the results
of a theoretical analysis, a large part of which was based on approxi-
mation   methods. These results were verified by a numerical
method. The description is given of a program developed for in-
vestigating and modeling the magnetic field on a mock-up with a
scale of 1:3. An outline drawing of the magnetic arrangement is
given, along with curves of the magnetic field. The current correc-
tion for the magnetic field is explained, with an illustrative
photograph of the correction winding. Also discussed are the
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USSR   UDC: 631.384.6.5

ARZUMANOV, A. A., et al, Izvestiya AN KazSSR—Teriya Fiziko-matematicheskaya, No 4, 1973, pp 6-15

high-frequency system and the slit-type ion source, the ions entering the accelerator chamber radially. Curves for the change in beam intensity for accelerated alpha particles are plotted as a function of the accelerator radius. A photograph of the area of installation, showing a beam of protons in air with an energy of 30 Mev, is reproduced together with a photograph of the equipment itself.

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Radiobiology

USSR   UDC 617-001.28-06:616.441-089.87)-092.9-089:616.419-089.843

CHERTKOV, I. L., Professor, NEMENOVA, N. M., Professor, NOVIKOVA, M. N., KOTLYAROV, A. M., MALANINA, V. N., UDALOV, G. A., ROGACHEVA. L. S., and SHEPSHELEVICH, L. I., Laboratory of Myelo-Hemotherapy of Acute Radiation Sickness, Pathological Anatomy Laboratory, and Cytological Laboratory, Central Institute of Hematology and Blood Transfusion, USSR Ministry of Health, Moscow

"Transplantation of Allogenous Bone Marrow to Thymectomized Irradiated Monkeys"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 16, No 3, Mar 71, pp 45-53

Abstract: Since transplantation of allogenous bone marrow to irradiated animals for the purpose of alleviating radiation sickness gives rise to a secondary disease due to differentiation of the transplanted tissue into lymphocytes which enter into an immunological reaction with the host, a study was performed in which thymectomized monkeys were irradiated with 800-1,000 r and then given allogenous bone marrow transplants. The thymectomy did not prevent the development of the secondary disease, but made it

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CHERTKOV, I. L., et al., Problemy Gematologii i Perelivaniya Krovi, Vol 16,
No 3, Mar 71, pp 45-53

considerably milder and promoted regeneration of hematopoiesis of the
donor type. Histological examinations indicated that bone marrow stem
cells play an important role in the development of the secondary disease.

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1/2   008   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--RAISING BIOLOGICAL VALUE OF RATIONS WHICH INCLUDE BREAD WITH
 VARIOUS FOOD ADJUNCTS -U-
AUTHOR-(03)-POKROVSKIY, A.A., NEMENOVA, YU.M., PYATNITSKAYA, I.N.

COUNTRY OF INFO--USSR   N

SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 33-38

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIET, CEREAL CROP, NITROGEN, PROTEIN, CREATININE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1495   STEP NO--UR/0244/70/000/002/0033/0038

CIRC ACCESSION NO--AP0101579
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0101579
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NUTRITIONAL UTILITY OF BREAD WITH
VARIOUS FOOD ADJUNCTS (5PERCENT OF FISH MEAL, 20PERCENT SOYA AND
0.5PERCENT 1-LYSIN HYDROCHLORIDE BY WEIGHT OF WHEAT FLOUR) WAS STUDIED.
INVESTIGATIONS WERE CONDUCTED ON FIVE MALE VOLUNTEERS OF MIDDLE AGE.
SUBJECT TO CHANGES IN THE RATION WAS ONLY THE QUALITATIVE COMPOSITION OF
BREAD, WHICH ACCOUNTED FOR 30PERCENT OF THE TOTAL CALORIFIC VALUE OF THE
RATION. THE DYNAMICS OF THE NITROGEN BALANCE, NET PROTEIN UTILIZATION,
APPARENT PROTEIN DIGESTIBILITY, ALONG WITH THE URINARY CREATININE AND
URINOPEPSINOGEN CONTENT WAS STUDIED. THE INVESTIGATIONS DEMONSTRATED
THAT THE NUTRITIONAL USE OF BREAD WITH THE SAID FOOD ADJUNCTS
CONTRIBUTED TO A BETTER UTILIZATION OF THE PROTEINS IN THE RATION. IN
SPITE OF A CERTAIN STIMULATION OF ANABOLIC PROCESSES IN THE ORGANISM THE
ALIMENTARY USE OF LYSIN ENRICHED BREAD NEEDS FURTHER STUDIES. THE
REMAINING BREAD VARIETIES MAY BE RECOMMENDED FOR ALIMENTATION OF THE
POPULATION.

UNCLASSIFIED

USSR   UDC 666.764.1.001.4

KUKOLEV, G. V., NEMETS, I. I., DOBROVOL'SKIY, G. B., and NESTERT-
SOV, A. I., Kharkov Polytechnical Institute imeni V. I. Lenin

"Production and Properties of Dense Magnesia Refractories With
Increased Thermal Stability"

Abstract: It was found that magnesia refractories can be produced
with improved thermomechanical properties using a spinel binder
for synthesis instead of technical alumina. Experimental studies
revealed the substantial effect of crystallization and spatial
distribution of the spinel in the structure of the material on
the thermomechanical properties of magnesia parts. From a chemi-
cal analysis it was found that at 1070°C in MgO-Al$_2$O$_3$ mixtures
the spinel content was less than 1%, while in a mixture of MgO
and Al the spinel content was almost 1% at 750°C and increased
with temperature, so that at 1070°C the spinel content was 8.5%.
This confirmed the fact that in MgO-Al the spinel starts forming
at 770°C but in MgO-Al$_2$O$_3$ mixtures the spinel does not form until
a temperature of 1000°C is reached.
1/1

UNCLASSIFIED   PROCESSING DATE--17JUL70

TITLE--CONSTRUCTION ON THE AVENUE OF SCIENCE -U-

AUTHOR--NEMEIS, O.

COUNTRY CF INFO--USSR

SOURCE--PRAVDA UKRAINY, MARCH 31, 1970, P 2, COLS 5-8

DATE PUBLISHED--31MAR70

SUBJECT AREAS--PHYSICS

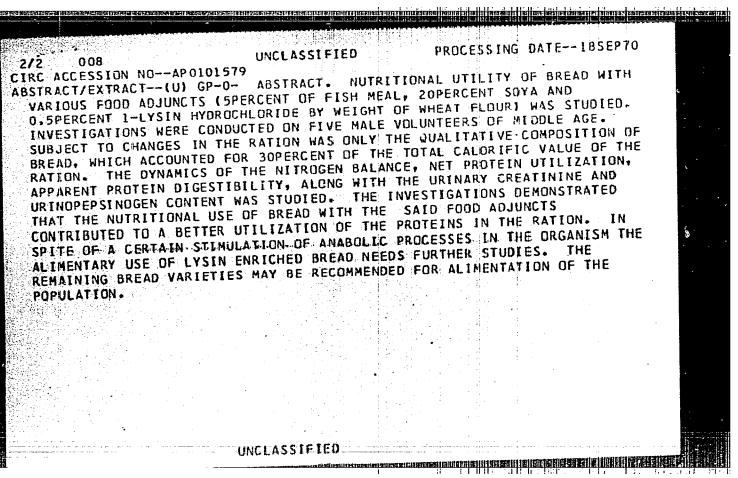TOPIC TAGS--PHYSICS INSTITUTE, BEV ACCELERATOR, NUCLEAR PHYSICS PERSONNEL
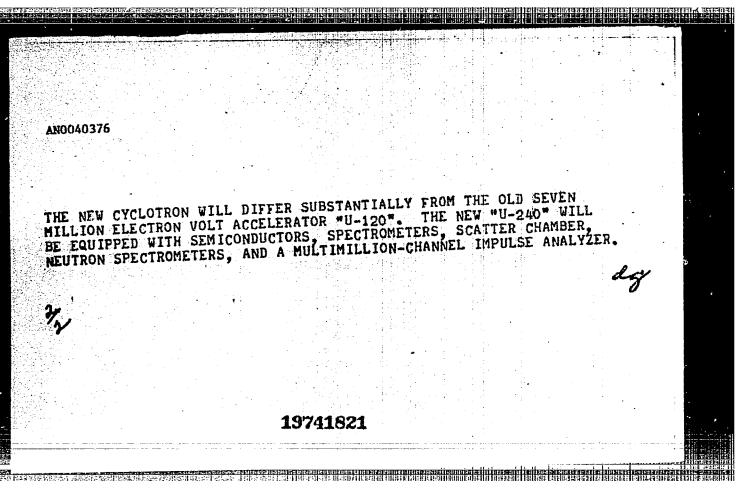

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1974/1820   STEP NO--UR/9013/70/COC/C00/0002/C002

CIRC ACCESSION NO--AN0040376
                    UNCLASSIFIED

AN0040376

UR 9013

AUTHOR-- NEMETS, O., DOCTOR OF PHYSICAL-MATHEMATICAL SCIENCES, DEPUTY DIRECTOR, INSTITUTE OF PHYSICS OF THE UKRAINIAN ACADEMY OF SCIENCES

TITLE-- CONSTRUCTION ON THE AVENUE OF SCIENCE

NEWSPAPER-- PRAVDA UKRAINY, MARCH 31, 1970, P 2, COLS 5-8

ABSTRACT-- CONSTRUCTION SITE OF THE "U-240" ACCELERATOR OF THE INSTITUTE OF PHYSICS IS ON THE PROSPEKT NAUKI IN KIYEV. THE 100 MILLION ELECTRON VOLTS ACCELERATOR IS BEING CONSTRUCTED BY THE 3RD TRUST OF THE MINISTRY OF INDUSTRIAL CONSTRUCTION OF THE UKRAINIAN REPUBLIC. ITS COMPLETION IS SCHEDULED FOR 1973. THE PROJECT IS SUPERVISED BY A DIRECTORATE SPECIALLY CREATED AT THE INSTITUTE AND HEADED BY R. DUDNIK. ALSO CONNECTED WITH THE CONSTRUCTION PROJECT ARE R. OFENGENDEN, CANDIDATE OF PHYSICAL-MATHEMATICAL SCIENCES, HEAD OF THE DEPARTMENT OF NUCLEAR ELECTRONICS, M. SHALEYKO, HEAD OF THE BESM SERVICE /COMPUTER SERVICE/, CANDIDATES OF SCIENCES A. LINEV, M. SOKOLOV, V. TOKAREVSKIY, N. ZAIKA, V. CHIRKO, P. LITOVCHENKO, V. VERTEBNYY, A. RUDCHIK, AND YU. GOFMAN, AND SCIENCE ASSOCIATES I. KASHUBA, G. KOSINOV, ET AL.

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19741820

AN0040376

THE NEW CYCLOTRON WILL DIFFER SUBSTANTIALLY FROM THE OLD SEVEN
MILLION ELECTRON VOLT ACCELERATOR "U-120". THE NEW "U-240" WILL
BE EQUIPPED WITH SEMICONDUCTORS, SPECTROMETERS, SCATTER CHAMBER,
NEUTRON SPECTROMETERS, AND A MULTIMILLION-CHANNEL IMPULSE ANALYZER.

19741821

Epidemiology

USSR

PETROVA, M. S., KNYAZEVA, N. I., and NEMETS, Z. M., Odessa Oblast Sanitary Epidemiological Station

"Epidemiological and Virological Characteristics of the 1969 Influenza Outbreak in Odessa and Odessa Oblast"

Translation: An outbreak of influenza epidemic in Odessa and Odessa Oblast was recorded in January-March 1969. It began with the last week in January and continued for sixty days. In late March the number of influenza cases was the same as the initial number of cases at the time of the outbreak of the disease, and by April 10th morbidity returned to the level of the interrepidemic period.

In January, 1969, the number of influenza cases was double that in December, and triple that in January, 1968. A comparison of the morbidity rate during January of the epidemic years 1969 and 1967 shows that the incidence of influenza and acute respiratory diseases during January of 1969 was 20% higher than that in the same month of 1967. This can be explained by the earlier outbreak of the influenza epidemic (beginning with 13 January) in 1967.

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PETROVA, M. S., et al., Terapevticheskiy Arkhiv, Vol 43, No 2, Feb 71, pp
105-107

The 1969 outbreak of the disease began on 20 January, seven days later.
On that day 2405 cases of influenza, a number equal to 40-50% of the cases
in a decade of the interepidemic period, were recorded in Odessa. The maxi-
mum increase in the number of cases occurred in February 1969 (a 4.8% increase
as compared with February 1968). The morbidity of the disease was 10%
higher than that in February 1967, and was to equal 33.8% of the number of
influenza cases during the entire year as against 31.4% in 1967. In 1969,
as in 1967, the peak of the epidemic was reached during early February. The
intensity of influenza and morbidity of acute respiratory diseases in the
oblast per 100,000 of the population equaled 20357.3 in 1969 and 19161.7 in
1967.
     Of the total number of the year's influenza cases in 1969, 52.2% occurred
in the period (first quarter) of outbreak of the disease, as against 62.3% in
1967. The morbidity of the disease was considerably lower in rural areas:
22.7% of the total number of cases in 1969 and 24.5% in 1967.
     In 1969, 11.6% of the oblast population was stricken with the disease;
in 1967 -- 11%. The intensity index per 100.00 of the population equalled
11642.5 in 1969 and 19163.4 in 1967.
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A considerable number of cases (80.7) occurred among the adult popu-
lation. Of the total number of cases in 1969, 18.1% occurred among children
up to 14 years of age; in 1967 -- 25%. The intensity index of morbidity in
1969 per 100,000 children under 14 equalled 16320.5; in 1967 -- 20907. The
largest number of cases, 75.5% of the year's total, in 1969 occurred in Odessa.
In 1967 this percentage equalled 75.5%. In 1969, as in 1967, the clinical
course of influenza was characterized by the predominance of light and moderate
forms of the disease. Severe cases of the disease and complications were
mainly noted in older persons, and children under one year of age. Post-
influenza penumonia was the most frequent complication. Hospitalizations
in 1969 reached 1.2% of all who were stricken with the disease.

The mortality rate in 1969 throughout the oblast was higher than that
in 1967 (respectively 0.050 -- 3.6 and 0.0066 -- 1.2 per 100,000). Lethality
was highest among children of under one year of age and people 60 and over
(30-35%).

The influenza epidemic in 1969, as in 1967, was characterized by a
rapid rise and a gradual decline in morbidity. The curve of the 1969 epi-
demic repeated the curve of 1967. However, on the basis of an analysis which

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was conducted, it may be concluded that the 1969 influenza epidemic was
characterized by higher indexes of morbidity and lethality. Influenza
morbidity was recorded in the form of sporadic outbreaks in all of the
organized collectives; local outbreaks in the oblast were not recorded.

The 1969 influenza outbreak was conditioned by the absence of a popula-
tion stratum immune to the Hong Kong type of A2 virus. The epidemic was
studied virologically. Tests of the blood serum of healthy people were
conducted during the years 1968 and 1969. A total of 3,117 people were
examined. The results of the investigations established that two months
prior to the epidemic, an increase in the incidence of influenza A2 cases,
an increase in the average antibody level against the agent of the approach-
ing epidemic (that is virus A2), was discovered in a practically healthy
segment of the population. The dynamics of anti-influenza antibody titers
attested to the intensified circulation of influenza A2 virus, despite the
normal seasonal level of the number of cases recorded.

Serological studies of 750 paired serum samples conducted in the first
quarter of 1969 revealed a fourfold and greater increase in antibodies
against A2 virus in 37.1% of the sera. During the epidemic, 84 strains of

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PETROVA, M. S., et al., Terapevticheskiy Arkhiv, Vol 43, No 2, Feb 71, pp 105-107

of A2 virus were isolated from nasopharyngeal smears obtained from influenza and acute respiratory disease patients. When typed, all of the strain were indentical to Hong Kong virus A2 1/68.

Dried mouse ascitic fluid immune to Hong Kong influenza virus A2 1/68 and standard influenza diagnostic sera A, Al, A2, and B were used in the typing. Study of 57 paired blood sera from influenza and acute respiratory disease patients with influenza diagnosticum Hong Kong A2 1/68 (experimental series) together with the use of standard diagnosticum A2 revealed a four-fold and greater increase of anti-influenza antibodies to virus Hong Kong A2 1/68 in 29 patients and to virus A2 (standard diagnosticum) in 36 cases. Investigation of 24 paried sera taken from influenza patients with the isolated Hong Kong A2 1/68 virus revealed an increase in antibodies to the isolated virus, which was typed as virus Hong Kong A2 1/68 virus 4-8-16-32 times in 19 paired sera.

During the 1968-1969 pre-epidemic period, considerable work was done in the organized collectives on mass influenza immunization. In all 317,128 people in the oblast were inoculated.

Conclusions: 1. As a result of the mass immunization against influenza

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PETROVA, M. S., et al., Terapevticheskiy Arkhiv, Vol 43, No 2, Fen 71, pp 105-107

conducted in the period of the 1969 epidemic, no local outbreaks of influenza in the organized collectives were recorded.

2. The possibility of forecasting an outbreak of influenza in a pre-epidemic period -- two months before the actual epidemic increase in the incidence of influenza cases -- by the increase in the average level of anti-bodies against the agent of the upcoming epidemic (virus A2) in practically healthy people has been established.

3. As a result of the virological studies which were conducted, the etiological role of influenza virus Hong Kong A2 1/68 in the 1969 outbreak of the disease was proved.

4. On the basis of the analysis of influenza morbidity during the years of 1967 and 1969, it may be concluded that the 1969 outbreak of the disease was characterized by higher indexes than that of 1967.

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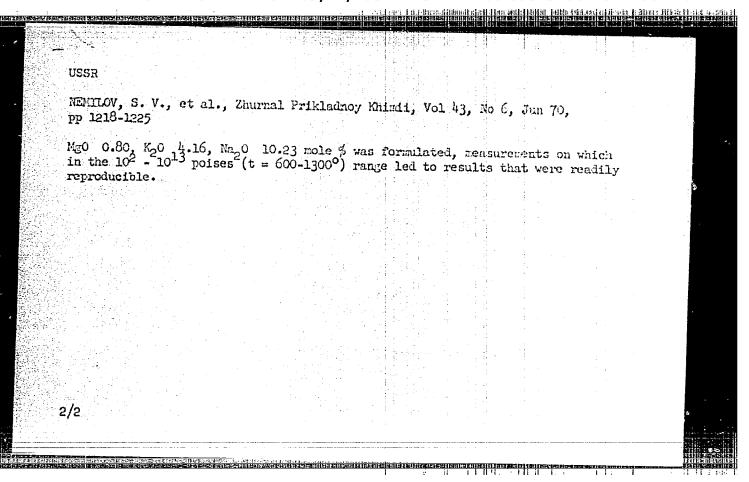
- 59 -

N

USSR

UDC 656.22:539.551

NEMILOV, S. V., KRYLOVA, L. A., ROMANOVA, N. V., ZHUKOVA, A. N., ALEKSEYEVA, R. A., NOVIKOVA, M. P., BESPAL'KO, Z. P., and TYNYANKINA, A. N.

"Viscosity of Optical Glasses"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70, pp 1213-1225

Abstract: The viscosity η of 120 grades of glass ($\eta = 10^2 - 10^{13}$ poises) in relation to the temperature was determined. The results are listed in tables showing values of $\lg \eta$ for various temperatures t. The values included in the tables were obtained in part by interpolation and extrapolation of experimental values to cover the complete $\eta = 10^1 - 10^{16}$ poises range ($t = 312-2010^0$). Determinations at $10^4 - 10^{13}$ poises were carried out by the method of pressing in described earlier, those at $10^1 - 10^4$ poises by means of GOI automatic rotational viscosimeters. Measurements of η carried out by the first method on glass No 710 of the USA National Bureau of Standards led to results which coincided with those reported by A. Napolitano and E. C. Hawkins, J. Res. Nat. Bur. Stand., A, Phys. a. Ch., 68A, 439, 1964. The rotational viscosimeters were calibrated at $10^2 - 10^4$ poises on the basis of values reported for glass No 710. Data obtained for B_2O_3 by means of these viscosimeters agreed with those reported in the literature. A glass with the composition SiO_2 69.60, R_2O_3 11.09, Al_2O_3 2.00, As_2O_3 0.10, BaO 0.65, CaO 1.57,
1/2

USSR

NEMILOV, S. V., et al., Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70, pp 1218-1225

MgO 0.80, K_2O 4.16, Na_2O 10.23 mole % was formulated, measurements on which in the 10^2 - 10^{13} poises (t = 600-1300°) range led to results that were readily reproducible.

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TITLE--COULOMB STRIPPING IN A WIDE ENERGY RANGE OF EMITTED PROTONS -U-

AUTHOR-(05)-LITVIN, V.F., NEMILOV, YU.A., KRASNOV, L.V., GRIDNEV, K.A.,
ZHEREBTSOVA, K.I.
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 273-6

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITED NUCLEUS, NICKEL ISOTOPE, DEUTERON BOMBARDMENT,
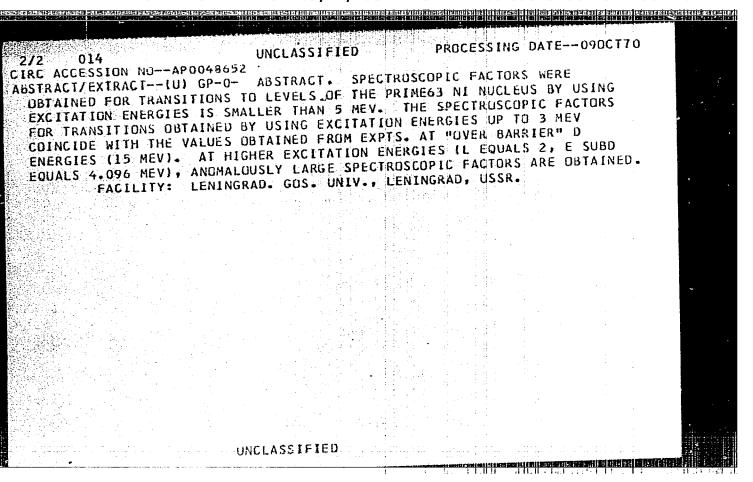EXCITATION ENERGY, ELECTRON TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0380   STEP NO--UR/0367/70/011/002/0273/0276

CIRC ACCESSION NO--AP0048652
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0048652
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC FACTORS WERE
OBTAINED FOR TRANSITIONS TO LEVELS OF THE PRIME63 NI NUCLEUS BY USING
EXCITATION ENERGIES IS SMALLER THAN 5 MEV. THE SPECTROSCOPIC FACTORS
FOR TRANSITIONS OBTAINED BY USING EXCITATION ENERGIES UP TO 3 MEV
COINCIDE WITH THE VALUES OBTAINED FROM EXPTS. AT "OVER BARRIER" D
ENERGIES (15 MEV). AT HIGHER EXCITATION ENERGIES (L EQUALS 2, E SUBD
EQUALS 4.096 MEV), ANOMALOUSLY LARGE SPECTROSCOPIC FACTORS ARE OBTAINED.
FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

TITLE--DETERMINATION OF THE VALUE OF CARRYING CABLE IN FREIGHT TRANSFER
DEVICES AT SEA -U-
AUTHOR--NEMIROV, B.S.

COUNTRY OF INFO--USSR

SOURCE--NIKOLAYEV, TRUDY NIKOLAYEVSKOGO KORABLESTROITEL'NOGO INSTITUTA
REFERENCE--REFERATIVNYY ZHURNAL, VODNYY TRANSPORT, NO 3, 1970, ABSTRACT NO
DATE PUBLISHED-------70

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

TOPIC TAGS--CARGO SLING, CARGO SHIP, CARGO HANDLING EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0767   STEP NO--UR/0000/70/029/000/0181/0187

CIRC ACCESSION NO--AR0128279
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AR0128279
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS PROPOSED FOR
CALCULATING THE SAG OF THE CABLE OF A LOAD TRANSFER DEVICE UNDER STATIC
CONDITIONS, WHICH CORRESPONDS TO TRAVEL OF THE SHIP IN QUIET WATER (UP
TO THREE POINTS), AND AT A STANDSTILL.

UNCLASSIFIED

USSR

NEMIROV, M. S., SAPOZHNIKOV, A. A.

"Estimate of Error of Determination of Water in Petroleum by Azeotropic Distillation"

Translation: The method of azeotropic distillation for determination of water in petroleum (GOST 2477-65) does not allow rapid and continuous determination of the quantitative content of water in specimens. In 1969, GOST 14203-60 was developed and approved for a dielcometric moisture meter for continuous measurement of the water content in a stream of oil. In order to determine the possible divergences between the results of analysis by the analytic method of GOST 2477-65 and the dielcometric method, the true error (E) of detemination of moisture in petroleum according to GOST 2477-65 was estimated in the range of moisture contents of 0 to 60%, with subsequent processing of the results by methods of mathematical statistics. Analyses were performed for 19 specimens of artificially prepared emulsion. For each specimen, 10 parallel determination were performed over the course of a year, gradually increasing the moisture content of the specimens, using 8 apparatus

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USSR

Nemirov, M. S., Sapozhnikov, A. A., Tr. Metrol. In-tov SSSR, 1972, No 136(196), pp 38-43.

provided by the manufacturer. Analysis of all 10 specimens with moisture content of 0.03% showed that in all cases, only traces of water were found in the receiver trap. Reliable determination of moisture can be performed in the specimens with moisture contents of 0.1 to 60%. The results of the experiments performed were used to calculate the limiting systematic component of the limiting relative E, not considering the limiting systematic E of traps, since it is less than the other component by an order of magnitude. The results of the experiments performed were used to construct curves of the influence of limiting systematic E on limiting relative E and divergence of the probabilis- tically based E of the method produced experimentally with extensive static material on E calculated from the standard. 2 figures, 5 biblio. refs.

2/2

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USSR   UDC 911.3:616.936

SERGIYEV, P. G., LYSENKO, A. Ya., NEMIROVSKAYA, A. I., and SEMASHKO, I. N.

Translation: The contemporary area of Plasmodium vivax was reduced to
almost half its size in connection with advances made in the eradication
of malaria. P. vivax in multiple foci of malaria disappears later than
P. falciparum. Strains with a prolonged incubation (primarily a long
latent period) were found to be more adaptable to sanitary measures than
were strains with a short incubation period and a secondarily long latent
period. In practically malaria-free territories, when malaria outbreaks
occurred because of previous cessation of sanitary measures, these out-
breaks started with 3-day malaria.

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YERMOL'YEVA, Z. V., BLINOVA, M. I., FURER, N. M., RITOVA, V. V., KUCHERENKO,
L. P., NEMIROVSKAYA, B. M., SHCHERBAKOVA, E. G., SCHASTNYY, E. I., ORLOVA,
L. N., and FAYNSHTEYN, S. L., Chair of Microbiology, Central Institute for
Advanced Training of Physicians, and Institute of Virology imeni D. I. Ivanov-
skiy, USSR Academy of Medical Sciences, Moscow

"Prophylaxis of Influenza and Other Acute Respiratory Diseases Among Children
Through Administration of Leukocytic Interferon and a Stimulant of Interferon
Production (UF Virus)"

Abstract: An express method of preventing influenza and other acute respira-
tory diseases was tested in childrens' institutions in Moscow during the in-
terepidemic period of March-June 1968 and during the influenza epidemic in
January-February 1969. The project was carried out under strictly controlled,
coded experimental conditions. The 750 children, aged 10 months to 7 years,
were divided into four groups at random, and the preventive agents were ad-
ministered intranasally. One group received leukocytic interferon two times
per day for 7 to 42 days. The second group received interferon with liquid
ecmoline. The third group received UF virus once daily for 3-4 days with

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USSR

YERMOL'YEVA, Z. V., et al, Voprosy Virusologii, No 4, Jul/Aug 71, pp 442-446

intervals of 3-4 days. The fourth group received placebos. The effectiveness index of interferon was 3.0 (frequency of diseases three times smaller than in the placebo group) in the interepidemic period and 2.2 during the epidemic. The effectiveness index of interferon with ecmoline was 1.8, and that of UF virus was 3.0 in the interepidemic period. All differences are statistically significant. Since no toxic effects were observed, the method is recommended for the prevention of influenza and other acute respiratory diseases.

2/2

NEMIROVSKAYA, I. A., and BELYAVSKAYA, T. A., Chair of Analytical Chemistry

"Swelling of Cation Exchange Resin KU-2 in Aqueous Organic Solutions of Mineral Acids"

Abstract: The swelling of cation exchange resin KU-2 was studied in aqueous methanol, propanol, acetone, dioxane, and dimethylformamide solutions of hydrochloric, sulfuric and nitric acids. The swelling was found to decrease with increasing molar fraction of the organic solvent in acid solutions. This phenomenon agrees with the rule that the ion exchange resins swell more extensively in water than in solvents with lower dielectric permeability. Thermodynamic properties of the solutions also show an effect on the swelling of exchange resins; in dioxane solutions in which the dielectric permeability is lower than in acetone solutions, the swelling nevertheless is greater. The swelling in dimethylformamide solutions is different from other organic media because this solvent is the most basic and polar agent and yet it cannot solvate the cations. The overall swelling depends on the water sorption as well as on the sorption of the solvent, except that acid sorption is negligible. In general, the acid shows no effect on the absolute value of swelling except for lowering it.
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USSR

UDC 543.544.6.546.45

BELYAVSKAYA, T. A., and NEMIROVSKAYA, I. A., Chair of Analytical Chemistry

"Study of Beryllium Complexing in Aqueous Organic Solutions of Mineral Acids by the Ion Exchange Method"

Moscow, Vestnik Moskovskogo Universiteta, Vol 12, No 6, Nov-Dec 71, pp 745-748

Abstract: Addition of an organic solvent to aqueous solutions facilitates dehydration of ions and formation of strong complexes. A study was carried out on the effect of methanol, isopropyl alcohol, acetone, dioxane, and dimethylformamide on the beryllium complexing in solutions of hydrochloric, sulfuric, and nitric acids by the ion exchange method. It was determined that in absence of organic solvent and with its concentrations up to 50%, the concentration of hydrochloric acid had no effect on the absorption of beryllium. Only when the concentration of organic solvent reached 80%, an effect of hydrochloric acid became noticeable: this indicates formation of a complex between the beryllium and Cl^- ions. In dimethylformamide solutions no effect of the acid is noticeable at all. An increase in the concentration of SO_4^{--} ions shows no effect on the distribution of beryllium, while NO_3^- facilitates absorption of beryllium by the ion exchange resin with increasing concentration.

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USSR

UDC 541.49+546.11

GINZBURG, A. G., NEMIROVSKAYA, I. B., SETKINA, V. N., KURSANOV, D. N., Corresponding Member of the USSR Academy of Sciences

"Characteristic Features of the η-Cyclopentadienyldiphosphine Complexes of Manganese in Hydrogen Exchange Reactions with Acids"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 6, 1973, pp 1353-1355

Abstract: It was demonstrated earlier [D. N. Kursanov, et al., Izv. AN SSSR, ser. khim., 2842, 1969; V. N. Setkina, et al., 434, 1971; A. G. Ginsburg, 177, 1971] that replacement of one of the Co ligands in the CpMn(CO)$_2$ (Cp = η-C$_5$H$_5$) by the tertiary phosphines PR$_3$ leads to acceleration of the acid hydrogen exchange by 2-4 orders depending on the nature of the R radical. A study has now been made of the reactivity in the acid hydrogen exchange reactions of cyclopentadienyl complexes of manganese containing bidentate ditertiary of phosphines with the structure Ph$_2$P(CH$_3$)$_n$PPH$_2$(n = 1 - 3).

The kinetics of the hydrogen exchange reaction were investigated by the deuterium content in the initial material isolated after interrupting the reaction by pouring the reaction mixture into a soda solution. The value s of the chemical shifts are presented on the δ-scale (internal standard — hexamethyl disiloxane for the paramagnetic resonance spectra and tetramethyl silane for the C^{13} nuclear magnetic resonance spectra).

USSR   UDC: 681.3,06:51

MALININ, S., NEMIROVSKAYA, V., RYABEN'KIY, S., YELTARENKO, Ye., RUMYAN-
TSEV, V., SUMAROKOV, L.

"Deterministic Model of Evaluating Variants for Construction of Systems
of Scientific-Information Servicing With Respect to Time and Cost Cri-
teria"

V sb. Vopr. modelir. i optimiz. sistem inform. obsluzh. (Problems of
Modeling and Optimizing Information Servicing Systems--collection of
works), vyp. 2, Moscow, 1970, pp 39-71 (from RZh-Kibernetika, No 7,
Jul 71, Abstract No 7V716)

Translation: In constructing the model, primary attention is given to
selecting the functional structures of systems of scientific-information
servicing. Two methods of data processing are taken into consideration:
centralized and decentralized.
    The process of functioning of the systems is represented in the
model by a set of linear expressions of the form

$$\lambda_{out} = \lambda_{in}^{x},$$

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MALININ, S. et al., Vopr. modelir. i optimiz. sistem inform. obsluzh.,
vyp. 2, Moscow, 1970, pp 39-71

where λ_{in} is the line vector $(1 \times m)$ which maps the intensity of the
flow of documents at the input of the process; X is a matrix which maps
conversion of the flow at the input into the flow at the output; λ_{out}
is the line vector $(1 \times n)$ which maps the intensity of the flow of docu-
ments at the output of the process. The time criterion is defined as
the two-dimensional vector $\bar{t} = \{\bar{t}(t); \bar{t}(c)\}$, where $\bar{t}(t)$ is the average
time for distribution of information counted from the moment when it ap-
pears in the medium external to the system; $\bar{t}(c)$ is the average time of
response to demands as reckoned from the instant the system receives the
demand from the user to the instant the user receives the response from
the system.

The cost criterion is understood to mean the intensity of expendi-
tures of materials, labor, equipment and monetary means necessary for
normal functioning of the system.

The proposed model is illustrated by an example of a system of
scientific-information servicing in electrical engineering.

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UNCLASSIFIED

PROCESSING DATE--27NOV70

1/2   018
TITLE--EXTRACTION AND COMPLEXOMETRIC DETERMINATION OF A CALCIUM TRACE
IMPURITY IN TUNGSTEN AND ITS COMPOUNDS -U-
AUTHOR-(03)-GORBENKO, F.P., VOLODKO, YE.U., NEMIROVSKAYA, YE.M.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 277

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--TUNGSTEN COMPOUND, TUNGSTEN ALLOY, TRACE ANALYSIS, CALCIUM,
METAL CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0430
STEP NO--UR/0032/70/036/003/0277/0277

..ON NU--AP0126183   ..... IED

CIRC ACCESSION NO--AP0126183
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISSOLVE 1-2 G OF SAMPLE IN 12 ML
OF 20PERCENT NAOH WITH HEATING. ADD DROPWISE 3 ML 50PERCENT SOLN. OF
TARTARIC ACID (TO DISSOLVE CAWO SUB4) AND BOIL TILL THE SOLN. BECOMES
CLEAR. COOL AND ADD H SUB2 O TO MAKE 35 ML.   EXT. CA WITH 35 AND 15 ML
OF AT (AZO,AZOXY BN IN CCL SUB4 PLUS 20PERCENT BU SUB3 PO SUB4).
COMBINE THE EXTS. AND REEXT. CA WITH 50 ML 0.1N HCL. ADD NH SUB4 OH AND
TITRATE WITH 0.01N EDTA UNTIL THE BLUE COLOR OF METHYLTHYMOL BLUE
CHANGES TO LIGHT GREY. PREP. A BLANK IN THE SAME WAY. FOR THE DETN. OF
LARGER THAN OR EQUAL TO 0.01PERCENT CA THE RELATIVE ERROR IS 3.5PERCENT.
     FACILITY: VNII REAKTIVOV KHIM. CHIST. MATER. ELEKTRON. TEKH.,
DONETSK, USSR.

UNCLASSIFIED

USSR

NEMIROVSKIY, A. B.

"Acoustic Logging Procedure"

USSR Author's Certificate No 370568 (from Otkrytiya, Izobreteniya, Promyshlen-
nyye obraztsy, Tovarnyye znaki (Discoveries, Inventions, Industrial Models,
Trademarks), No 11, 1973, page 144)

Translation: This acoustic logging procedure (1) by conversion of the informa-
tion signal frequency is distinguished by the fact that in order to increase
the measurement accuracy, the information signals are transformed into the
beginning and end pulses, they are shaped in the form of multiply recurring
signals, they sum the signals and convert them into a sequence of videopulses.
     (2) This is a procedure like (procedure 1) distinguished by the fact
that the transformation of the information signals into beginning and end
pulses and the shaping of the multiply recurring signals are carried out in
the same channel.

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USSR   UDC: 621.396.2:551.510.52

BERNOSKUNI, Yu. V., VAYZBURG, G. M., GUSYATINSKIY, I. A., KOZLOV, V. V.,
NEMIROVSKIY, A. S., PLEKHANOV, V. V.

"Experimental Research on a New Method of Combatting Signal Fading on
Long-Range Tropospheric Transmission Lines ('Accord')"

Translation: The paper presents the results of experimental studies of
the "Accord" system on a long-range ultrashort-wave tropospheric trans-
mission line. The gain over standard quadrupled reception is determined.
Resumé.

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USSR   UDC 621.396.621.59:621.391.812.7(088.8)

VAYSBURG, G. M., GUSYATINSKIY, I. A., KOZLOV, V. V., NEMIROVSKIY, A. S., PLEKH-
ANOV, V. V., BERNOSKUNI, YU. V.

"Device for Signal Reception with Equivalent Frequency Spacing"

Translation: A device is introduced for signal reception with equidistant fre-
quency spacing containing heterodynes and two frequency converters connected in
series to it, the input signal to the first of which is fed directly and the
input signal to the second of which is fed via a delay line. The device also
includes a phase detector one of the inputs of which is connected to the output
of the first converter via a band filter. For reception of N - 1 signals with
equidistant frequency spacing by one device, for a decrease in distortions, a
phase modulator the control input of which is connected to the output of the
phase detector is included between the output of the mentioned heterodyne and
the other input of the phase detector. The delay of the delay line is selec-
ted equal to the inverse of the frequency separation, and the pass band of the
band filter is selected not exceeding twice the magnitude of the frequency
separation.
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NEMIROVSKIY, A.

THE USE OF A COMPOUND SIGNAL ON VHF TROPOSPHERIC SCATTERING LINES

Introduction. Multi-beam propagation of radio waves in long-range tropospheric propagation of VHF (very high frequency) leads to the appearance of multiplicative noise, the control of which requires (as also in a case of additive noise) the introduction of overflow in the information transmission channel. For example, a very effective method of controlling multiplicative noises, frequency spacing, may be considered as a method of introducing information overflow, in which the pair of spaced signals, carrying one of the same information, form a new "compound" signal. In a more general case, a compound signal may consist of several elementary signals, part of which may be obtained in reception in three-dimensional spacing.

A parallel compound signal, obtained by the method of additional frequency modulation by a sine tone of an HF (high-frequency) signal, already frequency-modulated by the signal, and the statistical characteristics of the ratio of the signal power to the noise power at the output of devices for optimum joint processing of the elements of the compound signal in reception "as a whole" are considered below. The method of reception may be represented as integration of the product of the signal a(t) received and the reference oscillation a(t), performed by a correlator. The reference oscillation $\Omega = 2\pi F$ may be either synthesized in reception, or defined from the compound signal received. The latter makes it possible to control both multiplicative noises and distortions of the shape of frequency oscillation...

Following the definition given in [reference 1], a compound signal is an arranged set of elementary signals, each of which carries the same information as the compound signal as a whole.

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VAYSBURG, G.M., NEMIROVSKIY, A.S.

"Use Of Composite Signal On Lines Of Tropospheric Scattering Of USW"

Abstract: Parallel composite signals are considered, obtained by the method of complementary frequency modulation by a sinusoidal tone of a high-frequency signal already modulated with respect to frequency by a signal, as well as the statistical characteristics of the ratio of the signal power to the noise power at the output of a device for optimum joint processing of the elements of a composite signal during reception "as a whole." The optimum frequency modulation indices for a complementary tone are found as well as the statistical laws of distribution of the ratios of the signal and noise powers at the output of a system of optimum processing of a composite signal. 6 fig. 5 ref. Received 30 Apr 71.

1/1

USSR   UDC 519.2:62-50

NEMIROVSKIY, A. S.

"Errors in Discrete Statistical Integration"

Leningrad, Metody predstavleniya i apparaturn. analiz sluchayn.
protsessov i poley. 3-y Vses. simpozium. Sekts. 1 -- Sbornik
(Methods of Representation and Machine Analysis of Random Pro-
cesses and Fields, Third All-Union Symposium, Section 1 -- Col-
lection of Works), 1970, pp 22-27 (from Referativnyy Zhurnal --
Matematika, No 6, June 71, Abstract No 6V249, by Ya. Kogan)

Translation: The possibility of a correlation between the truncation error
when integrating a random process and the error of statistical measurement is
examined, and the probability characteristics of these errors are determined.
It is noted that the error dispersion of statistical summation increases with
an increase in the dispersion of the integrated process, proportionally to
the number of integration cycles, and decreases with an increase in the number
of statistical tests per cycle.

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UDC: 621.395.237

NEMIROVSKIY, A. S.

"Methods of Countering Multiplicative Noise in Transmitting Analog Signals Over Tropospheric Radio Relay Lines"

Moscow, Elektrosvyaz', No 5, 1970, pp 23-34

Abstract: Remote tropospheric propagation of ultra-short waves is defined as the reradiation of radio waves by the nonuniformities of the troposphere's dielectric constant, a process which is accompanied by interference and fading at the point of reception, the so-called multiplicative noise. This article considers the present state and the path of future development of the various methods for combatting multiplicative noise in analog signal transmission. These methods require the introduction of redundancy into the information transmission channel. The first of these methods is that of accumulation, in which copies of the signal can be obtained in various ways. The best researched of these ways are spatial and frequency separation, both of which are discussed. Also explained are the optimal method using wide-band signals and the adaptive method. Block diagrams of the optimal receivers for the various methods discussed are shown. The author finds that the accumulation method has been most thoroughly researched, with the optimal method a poor second and the adaptive method practically untouched. He

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NEMIROVSKIY, A. S., Elektrosvyaz', No 5, 1970, pp 23-34

also finds that although the last two methods are closest to the ideal, their
gain is more than outbalanced by the necessary complication in the equipment.
His conclusion is that optimal transmission methods using wide-band signals and
closed adaptive methods promise the greatest rewards in future research.

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NEMIROVSKIY L.N.

SPRS
4-73

3

IX. 4b. STUDY OF THE MECHANISM OF GROWTH AND ALLOYING OF AUTOEPITAXIAL LAYERS ON CONDENSATION FROM MOLECULAR BEAMS IN A VACUUM

[Article by L. A. Szydman, L. N. Nemirovskiy, Yu. D. Chistyakov; Novosibirsk, III Simpozium po Protsessam Rosta I Sinteza Poluprovodnikovykh Kristallov: Plenok, Russian, 12-17 June 1972, p 119]

A report is given on the results of studying the growth of autoepitaxial layers of germanium with condensation from molecular beams in a vacuum of $1 \cdot 10^{-6}$ mm Hg obtained by means of a vapor-oil pump. Studies were made of the initial growth stages of the Ge autoepitaxial layers at condensation temperatures of 620-720°C and with a growth rate of 160 Å/sec. It is demonstrated that growth begins with nucleation, growth and coalescence of three-dimensional growth islets. The higher temperatures correspond to larger dimensions of the islets and lower density of them. The stage of islet growth defines the surface morphology of the epitaxial layer in the following growth stages.

It is demonstrated that the degree of perfection of the crystal lattice of the epitaxial layer and its surface morphology essentially depend on the surface structure of the substrate. The substrate surface was bombarded with argon ions in a vacuum of $2 \cdot 10^{-5}$ mm Hg directly before growing. This treatment cleans the surface of the oxide layer and other contaminants. Here, the number of defects in the crystal lattice of the autoepitaxial layer of germanium is reduced by two or three orders.

Studies were made of the condensation, diffusion and reevaporation of impurity atoms with growth of the germanium autoepitaxial layers. It was demonstrated that it is possible to find conditions which insure reproducible deposition of the epitaxial layers with a high alloying level.

A study was made of the possibility of the occurrence of the mechanism by the vapor → autoepitaxial layer and vapor → liquid → autoepitaxial layer scheme.

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USSR

UDC 621.52:539.23

TERENT'YEV, YU.P., ISHIMBAYEV, R.V., LIKHTMAN, A.YE., NEMIROVSKIY, L.N., SEYDMAN, L.A., SUVOROV, V.N., MOROZOV, G.A.

"Vacuum Deposition Unit With Electron Beam Evaporator [DE-394, 11 pp, 2 fig]

Elektron. prom-st'. Nauch.-tekhn. sb (Electronics Industry. Scientific-Technical Collection), 1971, No 3, p 62 (from RZ--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3A45)

Translation: A vacuum deposition device was developed with an electron beam evaporator for deposition of layers of metals and semiconductors during their evaporation by the non-crucible method. The evaporator consists of an electron gun, a focusing and defocusing system and a magnetic prism. Use of the magnetic prism, which turns the electron beam by 90°, makes it possible to eliminate completely covering up [zapyleniye] of the electron gun by the material being evaporated. The gun is removed from the evaporation zone and consequently heating of the substance being evaporated and the gas precipitated on it does not affect it. This assures great reliability of evaporation, the period of continuous operation of which $\geq$ 50 hours and is determined only by the lifetime of the cathode of the electron gun. The diameter of the evaporation zone with an accelerating voltage of 20 kv and a beam current up to 25 mA is not more than 1 mm. The distance from the evaporation zone to the substrate is 60 mm. A.F.

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KULEYEV, KH. F., NEMIROVSKIY, N. B., ROKHLIN, F. Z.

"One-Level Memory"

Translation: The most common methods of constructing a single-level memory,
distinguished from each other by the automatic memory allocation algorithm
and the algorithm for organization of information exchange between the differ-
ent memory stages based on analysis of use of the stages at preceding points
in time, are described. It is pointed out that the known algorithms have a
deficiency consisting in the fact that they are based either on use of a large
amount of peripheral equipment or on the use of quite large auxiliary sub-
routines. A procedure is proposed for organizing a single-level memory using
an adaptive priority system requiring minimum equipment expenditures. The
program for solution of any problem is subdivided into a series of sequences of
commands and numbers called "books". Part of the program is entered in the
ready-access memory of the digital computer and is called the "book stack", and
the unplaced part of the program is entered in an external memory. The books
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USSR

KULEYEV, KH. F., et al., Tr. Kazan. aviats. in-ta (Works of Kazan' Aviation Institute), 1970, vyp. 104, pp 64-67

forming a stack are assigned so-called priority numbers beginning at the top of the stack. The high-order part of the addresses of the words making up a given book is called the "label". The memory location where the part of the program with the required word is located is defined by these labels. If the required book is in ready-access memory, then after extraction of it, it is assigned a priority number I, and the priority numbers of the higher-lying books are incremented by one. If the required book is not present in ready-access memory, then the book with the highest priority number is sent from ready-access memory to the external memory, and the required book replaces it in ready-access memory with assignment of the priority number I to it. There is 1 illustration and a 3-entry bibliography.

2/2

TITLE--ULTRASONIC DEFECTOSCOPY OF GRILLED TUBES -U-

AUTHOR-(05)-PRONYAKIN, V.T., ANIKEYEV, YA.F., GORSHKOV, A.V., LOVYAKIN,
YE.M., NEMIROVSKIY, M.G.
COUNTRY OF INFO--USSR

SOURCE--SVERDLOVSK, DEFEKTOSKOPIYA, NO. 1, 1970, PP 16-19

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT,
MATERIALS
TOPIC TAGS--NONDESTRUCTIVE TEST, QUALITY CONTROL, ULTRASONIC INSPECTION,
CERAMIC MATERIAL, PIEZOELECTRIC MATERIAL/(U)TSTS19 CERAMIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1903/0140 STEP NO--UR/0301/70/000/001/0016/0019

CIRC ACCESSION NO--AP0100670
UNCLASSIFIED

2/2 - 030

CIRC ACCESSION NO--AP0100670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALTHOUGH MANY DEFECTOSCOPIC DEVICES HAVE BEEN SUCCESSFULLY USED FOR QUALITY CONTROL OF THIN WALLED TUBES, THEIR USE FOR THE CONTROL OF GRILLED TUBES IS IMPOSSIBLE BECAUSE OF THE INTERFERING PULSES REFLECTED FROM THE RIBS OF THE TUBE. EXPERIMENTAL STUDY OF HOW THE AMPLITUDES OF THE TRANSMITTED AND REFLECTED ULTRASONIC PULSES ARE AFFECTED BY THE RIBBED SECTION OF THE TUBE HAS SHOWN THAT A DIFFERENCE IN THE INTERFERENCE EFFECTS OF THE TRANSMITTED AND REFLECTED SIGNALS IS OBSERVED DEPENDING ON THE SHAPE OF THE RIBBING. AS A RESULT, THIS FACTOR PREDETERMINES THE CHOICE OF CONTROL METHOD. THIS PAPER DESCRIBES EXPERIMENTS OF DEFECTOSCOPIC CONTROL OF THIS TUBING TYPE USING PIEZOELECTRIC ELEMENTS MADE OF THE TSTS-19 CERAMIC WITH RESONANT FREQUENCIES FROM 2 TO 5.25 MHZ. IT WAS FOUND THAT DEFECTS WITH A DEPTH OF MORE THAN 25 MICRONS ON THE INNER SURFACE OF THE TUBES UNDER THE RIBBING WERE RELIABLY RECORDED; SENSITIVITY TO DEFECTS ON THE OUTER SURFACE WAS MUCH LOWER, WITH A DEPTH THRESHOLD OF 60 MICRONS. THE AUTHORS EXPRESS THEIR GRATITUDE TO P. I. VIT'KO, WHO ASSISTED IN THE EXPERIMENTS.

USSR

UDC 539.142

NEMIROVSKIY, P. E. and CHEPURNOV, V. A.

"On the Hermitian Character of a Spin-Orbital Operator"

Moscow, Izvestiya Akademii Nauk SSSR -- Seriya Fizicheskaya, Vol XXXV, No 8, 1971, pp 1758-1759

Abstract: Spin-orbital interaction plays an important role in the investigation of single-particle nuclear states. In this very short article, the authors present three expressions for the spin-orbital operator -- a general expression, an expression for the case of a spherical nucleus, and an expression for the case of a deformed nucleus -- and proceed to demonstrate that the operator is Hermitian in all three cases. If it were not, this would lead to an incorrect solution of Schrödinger's single-particle equation because the wave functions of the different states would not be mutually orthogonal.

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TITLE--ANTIPROTON DEUTERON INELASTIC INTERACTION IN A PULSED APPROXIMATION
-U-

AUTHOR-(02)-NEMIROVSKIY, P.E., DYAKONOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(1), 131-9

DATE PUBLISHED------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INELASTIC INTERACTION, ANTIPROTON, DEUTERON, APPROXIMATION
METHOD, NUCLEAR CROSS SECTION, PARTICLE ANNIHILATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1976/0427   STEP NO--UR/0367/70/011/001/0131/0139

CIRC ACCESSION NO--AP0042463
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0042463
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INELASTIC DISINTEGRATION IS
STUDIED WHICH IS INDUCED BY INCIDENT BAR P AND CHARGE EXCHANGE OF BAR P
TO THE D WITHIN THE ENERGY RANGE OF THE INCIDENT BAR P OF SIMILAR TO
25-100 MEV. INELASTIC DISINTEGRATION CROSS SECTIONS AND CHARGE EXCHANGE
ARE CALCD. NUMERICALLY, BY USING APPROX. METHODS. A CRITERION FOR ESTG.
THE VALUE OF THE CROSS SECTION OF BARP D ANNIHILATION IS GIVEN. THE
CHARGE EXCHANGE AND ANNIHILATION IN BAR P D PROCESSES ARE COMPARED WITH
CORRESPONDING CROSS SECTIONS OF THE BAR P N PROBLEM FOR EQUIV. ENERGIES.
FACILITY: MOSK. INZH.-FIZ. INST., MOSCOW, USSR.

UNCLASSIFIED

Communications

Abstract: The circuits of two bridge automatic gain controls are examined. It is found that with a change of the differential resistance in the direct branch of the voltage-current characteristic, nonlinear distortions do not depend on the magnitude of the control voltage. The highest level of the signal during operation in the direct branch corresponds to a d-c voltage close to zero. At this point it is necessary to control the distortions. With a change of the differential resistance of a diode in the limits of the back branch of the voltage-current characteristic, and also in capacitance bridges, the nonlinear distortions depend on the magnitude of the control voltage. The distortions can be calculated by means of formulas derived in the paper. 2 fig. 3 ref. Received 15 July 71.

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USSR

NEMTROVSKIY Ye. L.

"An Attempt to Develop a Binary Classification (Sophisticated Indexing Scheme)"

Moscow, Nauchno-Tekhnicheskaya Informatsiya: Seriya 2 - Informatsionnyye Protsessy i Sistemy; March, 1972; pp 22-4

ABSTRACT: The principles for developing a sophisticated indexing scheme, to be applied in conjunction with a binary classification, are set forth. The scheme allows indexing of objects characterized by a combination of a pair of mutually exclusive characteristics of the same order. It also enables one to assign definite total indices to such objects whose higher-order (more general) characteristics are unknown. The procedure for developing such a binary classification scheme with sophisticated indexing is illustrated by the example of typesetting machines.

1/1

USSR   UDC: 681.3.06;51

NEMIROVSKIY, Ye. L.

"Experiment in Setting up a Binary Classification"

Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.
(Scientific and Technical Information. Collection of the All-
-Union Institute of Scientific and Technical Information),
1971, ser. 2, No 1, pp 8-11, 35 (from RZh-Matematika, No 11,
Nov 71, Abstract No 11V815)

Translation: The paper is a report on construction of a
system of binary classification which is an aggregate of
equivalent or cosubordinate headings grouped into classes,
each class having a common basis of division represented in
the form of two mutually exclusive features. Principles are
proposed for compilation of an adequate thesaurus of an ag-
gregate of concepts which can be systemized by means of binary
classification. Such a thesaurus would contain positions for
all logically possible combinations of features of the ag-

1/2

USSR

NEMIROVSKIY, Ye. L., Nauch.-tekhn. inform. Sb. Vses. in-t
nauch. i tekhn. inform., 1971, ser. 2, No 1, pp 8-11, 35

gregate of objects to be classified. The advantages of the
system are its exhaustive nature, conformity to the logical
requirements imposed on scientific classifications, the pos-
sibility of realizing multi-aspect search, and the comparative
ease of developing a data retrieval system based on this
system. V. Mikheyev.

2/2

- 31 -

USSR

UDC: 681.3.06:51

NEMIROVSKIY, Ye. L.

"Experiment in Constructing a Binary Classification"

Translation: The paper is a report on construction of a system of binary classification which is an aggregate of equivalent or cosubordinate headings grouped into categories, each category having a common basis of division represented as two mutually exclusive characteristics. Principles are presented for constructing an adequate thesaurus of an aggregate of concepts systematized by means of the binary classification, which includes positions for all logically possible combinations of characteristics of the classified aggregate of objects. The advantages of the system are its exhaustiveness, Its accord with the logical requirements imposed on scientific classifications, the possibility of carrying out a multiple-aspect search, and the comparative ease of developing a data retrieval system based on this classification system. V. Mikheyev.
1/1

USSR

UDC 539.374

NEMIROVSKIY, YU. V., SHABLIY, O. N., MIKHALISHIN, M. S., Novosibirsk, Ternopol'

"Limiting State of Structural Elements Made of Materials with Different Yield Points under Tensile and Compressive Loads"

Kiev, Prikladnaya Mekhanika, Vol IX, No 10, 1973, pp 3-11

Abstract: This paper was given at the Symposium on New Methods of Calculating Strength and Rigidity held in Nikolayev on 24-27 May 1972. A study was made of the limiting equilibrium of thin plates and shells executed from material with different yield points under tensile and compressive loads. The yield hypersurfaces were constructed for cases where the material of the structural element is subjected to linearizations of the Balandin plasticity condition of the Tresk type [P. P. Balandin, "Problem of Strength Hypotheses," Vestnik inzhenerov i tekhnikov, No 1, 1937] and maximum reduced stress. The complete solutions of the problems of limiting equilibrium of circular and annular plates were obtained as examples. Known solutions were obtained in the special case of "unimodular" material.

1/1

USSR

UDC 539.374.385

NEMIROVSKIY, YU. V., and SAKS, E. E., Institute of Hydrodynamics, Siberian Department of the Academy of Sciences, USSR (Novosibirsk)

"The Complex Elastoplastic Torsion of Cylindrical Shafts"

Abstract: Consideration is given to axially symmetric problems of the torsion of shafts of variable and constant diameter, with complex static and mixed boundary-value conditions. In the general case the material of the shaft is considered to be isotropic and subject to the deformation theory of plasticity, with arbitrary strengthening, during an active process of loading. For determining the values of the dislocation function in application to arbitrary bodies of revolution, finite-difference equations are derived which are solved by the method of successive approximations. As an example, consideration is given to problems of the torsion of a cylindrical shaft when a tangential load of constant intensity is acting upon some sector of the lateral surface, or when a zero angle of rotation is given. 6 figures. 8 references.

1/1

USSR   UDC 539.3

NEMIROVSKIY, YU. V. and STAROSTIN, G. I. (Novosibirsk)

"Zero-Moment Coupling of Reinforced Shells of Rotation"

Moscow, Mekhanika Tverdogo Tela, No 5, 1973, pp 73-86

Abstract: In this paper, axisymmetric problems of the realization of a zero-moment stressed state in composite shells of rotation are dealt with by effecting changes in the rigidity of the shell as a result of selection of the laws of reinforcement of each sector, or by selecting the laws of distribution of the thickness at sectors, as well as by means of selecting stiffening rings and force factors acting upon them. The reasoning is illustrated by examples.
        Problems having to do with the realization of a zero-moment state in coupled shells as a result of changing the configuration of the shell or by means of supplementary loads upon the surface of the shell are to be dealt with by the authors in subsequent papers.
        4 figures. 3 tables. 7 references.

1/1

Abstract: The general problem of realization of a momentless stressed condition in axisymmetrically loaded and fixed reinforced shells of revolution is divided into four categories as follows. 1). Determination of the form of the meridian by which the momentless condition in the shell is realized under the action of given forces and by known distribution of the thickness of the shell and the assigned character of the axisymmetrical anisotropy. 2). Determination of the type of load effecting a momentless condition in the shell of revolution of given geometric form and by assigned thickness distribution and character of reinforcement (anisotropy and heterogeneity). 3). Determination of the rule of thickness distribution by which the momentless stress condition in the shell of revolution with given axisymmetrical external loads and given reinforcement rule is realized. 4). Search for the rule of additional reinforcement guaranteeing a momentless axisymmetrical stressed condition for the shell of revolution of given geometric form, loaded with assigned axisymmetrical loads and possessing assigned rules of thickness, anisotropy, and heterogeneity

1/2

USSR

NEMIROVSKIY, Yu. V. and STAROSTIN, G. I., Izvestiya Akademii Nauk, Mekhanika
Tverdogo Tela, No 3, May-Jun 72, pp 82-91

changes. Some composite problems are discussed, e.g. the possession of a
momentless condition in the shell at the expense of a joint change of the
shell geometry or thickness and the character of reinforcement. Four illustr.,
thirty one formulas, fourteen biblio. refs.

2/2

USSR

NEMIROVSKIY, Yu. V.

"The Theory of Elastic-Plastic Deformation of Reinforced Envelopes"

Teoriya Plastin i Obolochek [Theory of Plates and Envelopes -- Collection
of Works], Moscow, Nauka Press, 1971, pp 192-198, (Translated from Refera-
tivnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V542 by the author).

Translation: Basic equations are produced for description of elastic-
plastic deformation of reinforced envelopes. It is demonstrated that, in
contrast to the case of isotropic or "physically" anisotropic envelopes,
the deformed states of reinforced envelopes can be characterized by the pre-
sence of several different areas of elastic-plastic deformation, each of
which corresponds to a separate dependence between stresses and deformations.
It is noted that equations as used for an elastic, ideally plastic anisotropic
medium are inapplicable for reinforced envelopes. As the example, the problem
is studied of the bending of a cantilever cylindrical envelope loaded with
internal evenly distributed pressure. The envelope is reinforced in the
longitudinal and circumferential directions. Conditions are determined for
development of plastic deformations in the longitudinal or circular reinforce-
ment or in the binder, and conditions of development of plastic deformations
in other elements are determined with further loading of the envelope. 10
Biblio. Refs.

USSR   UDC 539.4.013.0.15

NEMIROVSKIY, YU. V., and STAROSTIN, G. I.

"The Possibility of Realizing the Zero-Moment State of Shells by the Method of Reinforcement"

Novosibirsk, Doklady Akademii Nauk SSSR, Vol 196, No 4, 71, pp 797-800

Abstract: This article poses the problem of ensuring the zero-moment state.
Solution to this problem appears to be promising for practical realization.
Assuming a sufficient number of identical reinforcing layers, the following
assumptions are made:
    (1) The material of the shell is macrouniform and the model used
in reference (1) is valid for each elementary layer in the direction of the
normal coordinate z to the middle surface;
    (2) The shell is thin and the Kirchhoff-Love hypotheses are valid;
    (3) The material is different for all the elements of the reinforced
composition and possesses elastic properties;
    (4) Each of the reinforced layers contains N families of reinforcing
fibers, comprising angles γ_n, $n = 1, 2, \dots N$, with the direction α_1 of the
orthogonal coordinate system α_1, α_2 with axes along the lines of the main
1/2

USSR

NEMIROVSKIY, YU. V., and STAROSTIN, G. I., Doklady Akademii Nauk SSSR, Vol 196, No 4, 71, pp 767-800

curvature of the surface z = const.
     Equations are given to support and prove the problem as stated. One figure is supplied to illustrate the reinforcement factor as a function of the zero-moment instantaneous radius.

2/2

1/2   026   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--SERVICE LIFE AND FAILURE OF A STRUCTURE UNDER CONDITIONS OF CREEP
-U-
AUTHOR--NEMIROVSKIY, YU.V.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, MAR. 1970, P. 47-54

DATE PUBLISHED--------70

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

TOPIC TAGS--CREEP, APPROXIMATION, COMPONENT LIFE EXPECTANCY, MODEL,
STRUCTURE STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0890   STEP NO--UR/0198/70/006/000/0047/0054

CIRC ACCESSION NO--AP0116400
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0116400
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A MODEL OF AN
   IMAGINARY SOLID BODY EXPERIENCING CREEP TO THE DERIVATION OF A SIMPLE
   METHOD OF OBTAINING APPROXIMATE ESTIMATES OF THE SERVICE LIFE AND TIME
   TO FAILURE OF A STRUCTURE IN THE PRESENCE OF CREEP. IT IS SHOWN THAT,
   ALL LOADS BEING EQUAL, THE SERVICE LIFE (OR TIME TO FAILURE) IS THE SAME
   FOR THE MODEL EMPLOYED AND FOR AN ACTUAL MATERIAL. THE SERVICE LIFE AND
   TIME TO FAILURE ARE DETERMINED, AS AN EXAMPLE, FOR A ROTATING DISK,
   USING THE TRESCA YIELD CONDITION AND THE MAXIMUM INDUCED STRESS
   CRITERION.   FACILITY: AKADEMIIA NAUK SSSR, INSTITUT
   GIDRODINAMIKI, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR   UDC: 539.293.621.315.592

NEMISH, I. Yu., MALYUTENKO, V. K., ZARUBIN, D. N., Institute of Semicon-
ductors, Academy of Sciences of the UkrSSR

"Possibilities for Using Cadmium Antimonide in Semiconductor Technology"

Abstract: The paper cites the basic properties of cadmium antimonide, and
describes the technique for synthesizing this semiconductor compound. It
is shown that cadmium antimonide single crystals containing appropriate
dopants can be used to good effect as detectors of infrared radiation at
wavelengths down to 3000 nm, and as active elements in semiconductor
thermogenerators. A comparison of the parameters of conventional semi-
conductor devices with their CdSb-based counterparts shows a promising
future for use of this semiconductor compound in instrument making.

1/1

USSR   UDC: 539.3

NEMISH, Yu. A., Institute of Mechanics, Academy of Sciences of the UkrSSR

"On the Stressed State of Nonlinearly Elastic Bodies"

Moscow, Izvestiya AN SSSR: Mekhanika Tverdogo Tela, No 4, Jul/Aug 71, pp 81-89

Abstract: Some three-dimensional problems of elasticity theory are considered for homogeneous isotropic physically nonlinear materials. The relationships between the components of the stress tensor and the tensor of small deformations are taken in a form suitable for using the small parameter method. In studying the stressed and deformed state of physically nonlinear bodies bounded by noncanonical surfaces, the small parameter method is combined with the "boundary perturbation" method developed by Morse and Feschbach in a form which is applicable to three-dimensional problems in fluid mechanics. The problem of stress concentration around an ellipsoidal cavity in a nonlinearly elastic medium is considered. Numerical calculations prove the satisfactory convergence of the process of successive approximations.

1/1

USSR   UDC 539.3

NEMISH, YU. N., Kiev

"Elastic Equilibrium of Three-Dimensional Deformed Solids of Finite Non-Circular Cylindrical Surfaces"

Moscow, Mekhanika Tverdogo Tela, No 2, Mar-Apr 73, pp 77-86

Abstract: Three-dimensional boundary problems are examined by mathematical theory of elasticity for uniform isotropic elastic solids of finite non-circular cylindrical surfaces of epitrochoidal shape. Investigation of the stress-strain state was done by the method of "boundary shape disturbance" which had been previously developed and is applicable to three-dimensional problems of solid state mechanics for noncanonical surfaces. The complete system was constructed of three-dimensional harmonic functions in cylindrical coordinates as required for accurate satisfaction of boundary conditions on a cylindrical surface stressed per an arbitrary polynomial law. 3 figures, 6 bibliographic references.

1/1

A70-23298 #   Bending of transversely isotropic plates with
curvilinear inclusions (Izgib transversal'no izotropnykh plastin s
krivolineinymi vkliucheniiami). Iu. N. Nemish (Akademiia Nauk
Ukrainskoi SSR, Institut Mekhaniki, Kiev, Ukrainian SSR) and B. L.
Pelekh (L'vovskii Politekhnicheskii Institut, Ternopol, Ukrainian
SSR), Prikladnaia Mekhanika, vol. 6, Jan. 1970, p. 119-124. 6 refs.
In Russian.

Application of the generalized Timoshenko theory to an analysis
of the stress-strain state of transversely isotropic plates with
curvilinear inclusions under bending loads. A system of algebraic
equations is derived to describe the stress-strain state of an infinite
transversely isotropic plate with a rigid inclusion under biaxial
bending. A method of 'boundary perturbation' modified by Savin
and Gus' (1964) is used in the process.   V.Z.

ACS

REEL/FRAME
19780963

UNCLASSIFIED   PROCESSING DATE--18SEP70

1/2   030
TITLE--THERMODYNAMIC ANALYSIS OF THE REDUCTION OF POLYDISPERSE IRON ORE
CONCENTRATES AT IS GREATER THAN 1400DEGREES -U-

AUTHOR-(02)-NEMKIN, V.M., MOREV, I.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1) 208-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--IRON ORE, THERMODYNAMIC ANALYSIS, IRON OXIDE, METAL REDUCTION,
GAS FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/0941   STEP NO--UR/0076/70/044/001/0208/0209

CIRC ACCESSION NO--AP0053865
                        UNCLASSIFIED

2/2   030   UNCLASSIFIED   PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0053865

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THERMODYNAMIC CALCN. OF THE
STABILITY OF THE FE OXIDES IN POLYDISPERSE FE ORE CONCS. IS GIVEN.
OWING TO THE REDN. GAS CAPACITIES, IT CAN BE USED IN REDN. OF THE FE
OXIDES OF THE POLYDISPERSE CONCS. WITH A FINAL OUTFLOW OF GAS THAT IS
FREE FROM EXCESS REDN. COMPONENTS AND CONSISTENT WITH THE EQUIL. FOR THE
PURE OXIDES.

UNCLASSIFIED

114080t Desulfurization of an iron-ore concentrate at a concentrating mill in a reducing gas medium. Zudina, O. V.; Nankin, V. M.; Morev, I. I. (Magnitogorsk. Gorn.-Met. Inst., Magnitogorsk, USSR). Zh. Fiz. Khim, 1970, 44(1), 210-12 (Russ). Thermodynamic anal. was used to evaluate the desulfurization capacities of H, CO, and gas mixts. (32% CO + 68% H and 34% CO + 28% H + 38% CO_2) during redn. of the concs. The highest degree of desulfurization is achieved with pure H (95%), and the lowest with CO (33%). The degree of desulfurization with use of gas mixts. has an intermediate value, but increases with increasing H content.   M. Braunovic   177C

REEL/FRAME
19830973

USSR

UDC 669.14.018.262

ADAMESKU, R. A., VOSTRIKOV, A. A., GUBCHESKIY, V. P., MARKOV, YU. N., and
NEMKINA, E. D., Ural Polytechnic Institute and the Magnitogorsk Metallurgical
Combine

"Recrystallization Texture of Low-Carbon Steel"

Moscow, Stal', No 7, Jul 73, pp 650-652

Abstract: The recrystallization texture of low-carbon steels 08Yu and 08Fkp
in all the investigated deformations (3-90%) was multi-component and can be
mainly described by three orientations: (111) $[112]$, (211) $[011]$, and (100)
$[011]$. The ratio between components varies with degree of deformation. The
main component in the recrystallization texture of low-carbon steels 08Yu and
08Fkp is the orientation (111)$[112]$, the intensity of which is increased with
rise in the degree of reduction during cold rolling. A low temperature of
uncoiling hot-rolled strip for steel 08Yu and high for steel 08Fkp is necessary
for producing the strong component (111) $[112]$ in the weak component (100)
$[011]$ with the goal of improving the mechanical properties of low-carbon
steel. Here the degree of deformation during cold rolling should be not less
than 50%. Two figures, one table, 11 bibliographic references.

1/1

Analysis and Testing

_1_

USSR   UDC 669.14-41:620.186.5

VOSTRIKOV, A. A., GUBCHEVSKIY, V. P., ZBOROVSKIY, A. A., NEMKINA, E. D.,
RADAYEV, G. D.

"Ultrasonic Method of Studying Recrystallization of Sheet Steel"

ABSTRACT: Specimens of Type 08 kp steel 1 mm thick, annealed at 50°C inter-
vals in the 100-1,200°C range, were used to study the dependence of attenua-
tion of ultrasound (inclination of piezoelement 40°, frequency 2.5 MHz) on
angle of beam deflection in relationship to the rolling direction. Parallel
x-ray structural studies of the process of recrystallization of these speci-
mens confirmed the possibility of determining the temperatures of beginning
and ending of recrystallization on the basis of approximate attenuation curves
of ultrasound, and also of studying the kinetics of the process of recrystal-
lization of sheets of this steel. 3 Figures; 1 Table; 2 Biblio. Refs.

1/1

U.SR   UDC 669.29:537.312.62

NEMNONOV, S. A. and KURMAYEV, E. Z.

"Zonal Structure of the Energy Spectrum and Its Relationship to Superconduc-
tivity of Transition Metals and Alloys"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting
Materials — Collection of Works], Moscow, Nauka Press, 1970, pp 5-38

Translation: Data are collected and summarized for the transition metals
concerning their electron heat capacity, critical transition temperature to
the superconducting state, results of theoretical calculation of density of
electron states $N(E)$, and on X-ray emission spectra, reflecting the structure
of the bands of valance electrons. This combined approach allows the pro-
duction of reliable information on the structure of the energy spectrum of
electrons, necessary for a deep understanding of the various properties of
transition metals and alloys.

It is established that the energy bands for the various transition metals
and alloys, at least up to electron concentrations of 7-7.5 el/at, have a
homogeneous structure. The transition metals and alloys show a strong effect
1/2

USSR

NAMNONOV, S. A., and KURMAYEV, E. Z., Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pp 5-38

of collectization of the valance d- and s- electrons (formation of a generalized conductance band).

11 figures, 72 bibliographic references.

1/2   028   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--X RAY SPECTRA, ENERGY BAND STRUCTURE, AND SUPERCONDUCTIVITY OF V
SUB3 X TYPE COMPOUNDS -U-
AUTHOR-(03)-NEMNONOV, S.A., KURMAEV, E.Z., BELASH, V.P.

CCUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR 1, PP 39-47

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--X RAY SPECTRUM, ENERGY BAND STRUCTURE, ELECTRON STRUCTURE,
SUPERCONDUCTIVITY, VANADIUM COMPOUND, SILICIDE, CHROMIUM SILICIDE

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0082   STEP NO--GE/0030/70/039/001/0039/0047

CIRC ACCESSION NO--AP0111276
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0111276
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. X RAY K EMISSION BANDS OF THE
METAL ATOMS FROM ME SUB3 X,COMPOUNDS (V SUB3 GA, V SUB3 SI, V SUB3 GE,
CR SUB3 SI) ARE INVESTIGATED. A MULTIPLE BAND STRUCTURE OF THE ENERGY
SPECTRUM IS FOUND CHARACTERIZED BY A NUMBER OF OVERLAPPING BANDS RELATED
TO NONMETALLIC S, P, AND METALLIC DP,STATES. THE RESULTS OF
THEORETICAL CALCULATIONS FOR V SUB3 GA, V SUB3 SI, AND V SUB3 GE
(MATTHEISS (9)) ARE FOUND TO CORRELATE WELL WITH EXPERIMENTAL DATA.
SOME DEVIATIONS, ESPECIALLY IN THE LOWER PART OF VALENCE BAND ARE
ATTRIBUTED TO THE CHOICE OF THE CRYSTAL POTENTIAL. ON THE BASIS OF
EXPERIMENTAL RESULTS IT SEEMS POSSIBLE TO SUGGEST THEORETICAL
CALCULATIONS USING A CRYSTAL POTENTIAL CORRESPONDING TO THE 3D PRIME3 4S
PRIME2 VANADIUM ATOM CONFIGURATION. THE RELATIONSHIP BETWEEN THE
ELECTRONIC STRUCTURE OF ME SUB3 X,COMPOUNDS AND THE CHANGE OF THEIR
SUPERCONDUCTING PROPERTIES IS DISCUSSED. FACILITY: INSTITUTE OF
THE PHYSICS OF METALS, ACADEMY OF SCIENCES OF THE USSR, SVERDLOVSK.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--23OCT70

1/2   016
TITLE--X RAY SPECTRA AND STRUCTURE OF 3D, 4SP ENERGY BANDS OF BETA BRASS
-U-
AUTHOR-(02)-NEMNONOV, S.A., ZYRYANOV, V.G.

COUNTRY OF INFO--USSR.

SOURCE--FIZ. METAL METALLOVED. 1970, 29(3), 585-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BRASS, COPPER ALLOY, X RAY SPECTRUM, ENERGY BAND STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1764   STEP NO--UR/0126/70/029/003/0585/0588

CIRC ACCESSION NO--AP0120471
                       UNCLASSIFIED

2/2   016
CIRC ACCESSION NO--AP0120471
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY MEANS OF X RAY SPECTRA STUDIES
AND BY COMPARING THOSE RESULTS WITH THE RESULTS OF THEORETICAL CALCNS.
OF ENERGY BANDS, THE ELECTRONIC STRUCTURE OF ORDERED BETA BRASS
(52PERCENT CU, 48PERCENT Z AS INVESTIGATED. THE X RAY K AND L SUBIII
EMISSION SPECTRA WERE COEXAMD. AND COMPARED WITH THE AVAILABLE
LITERATURE DATA.   CERTAIN QUESTIONS ARE DISCUSSED ASSOCD. WITH THE
ELECTRONIC STRUCTURE AND THE NATURE OF THE FINE STRUCTURE DETAILS OF THE
X RAY SPECTRA OF THE ALLOY. IN BETA PRIME BRASS THERE ARE TWO D SIMILAR
NONOVERLAPPING BANDS, THE ENERGY POSITION OF WHICH CAN BE DETD. BOTH
FROM THE POSITION OF THE L SUBIII SPECTRA AND FROM THE POSITION OF THE
DETAILS OF THE K EMISSION SPECTRA OF THE COMPONENTS OF THE ALLOY
STUDIED.   FACILITY: INST. FIZ. METAL., SVERDLOVSK, USSR.

1/2   020   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--ION EXCHANGE SEPARATION OF SMALL AMOUNTS OF SILICIC ACID FROM OTHER
ELEMENTS FOR ITS PHOTOMETRIC DETERMINATION -U-
AUTHOR-(03)-NEMODRUK, A.A., PALEY, P.N., BEZROGOVA, YE.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 15(2), 319-23

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, PHOTOMETRIC ANALYSIS, SILICON COMPOUND,
INORGANIC ACID, CHEMICAL SEPERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0677   STEP NO--UR/0075/70/025/002/0319/0323

CIRC ACCESSION NO--AP0113548
                    UNCLASSIFIED

2/2   020
CIRC ACCESSION NO--AP0113548
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALPHA SILICIC ACID PASSES
COMPLETELY THROUGH COLUMNS PACKED WITH CATION EXCHANGERS OR WITH WEAK
BASE ANION EXCHANGERS DURING ITS SEPN. FROM OTHER ELEMENTS IN THE
ABSENCE OF THE POLYMERIC FORMS OF SILICIC ACID AND CAN BE DETD. QUANT.
IN THE FILTRATE. IN THE PRESENCE OF POLYMERIC FORMS (BETA AND GAMMA)
THE ALPHA FORM CONCN. IN THE FILTRATE IS CONSIDERABLY OVERESTD.,
PARTIALLY DUE TO CONVERSION OF THE POLYMERIC FORMS TO THE ALPHA FORM
DURING THE ION EXCHANGE PROCESS. ION EXCHANGE CANNOT BE USED FOR THE
SEPN. OF SILICIC ACID FROM OTHER ELEMENTS DURING THE DETN. OF ITS TOTAL
CONTENT BECAUSE THE POLYMERIC FORMS ARE MOSTLY DETAINED BY THE ION
EXCHANGERS. THUS IT IS NECESSARY TO CONVERT ALL FORMS TO THE ALPHA FORM
PRIOR TO PASSAGE THROUGH THE ION EXCHANGE COLUMN BY HEATING THE SOLN.
WITH AN EXCESS OF NAOH. DIL. AN ALIQUOT CONTG. 10,500 UG SI IN A
TEFLON FLASK TO 10ML WITH H SUB2 O, NEUTRALIZE WITH A 20PERCNET NAOH TO
PH 2, 3, AND THEN ADD ANOTHER 3 ML 20PERCENT NAOH AND BOIL FOR 30 MIN.
COOL POUR DROPWISE INTO 2 ML HNO SUB3 WHILE MIXING, NEUTRALIZE WITH 2N
NAOH TO PH 1, DIL. WITH H SUB2 O TO 20 ML AND PASS AT A RATE OF 0.25
ML-MIN THROUGH A COLUMN FILLED WITH KU-2 OR DOWEX 50X8 (H POSITIVE
FORM). WASH THE COLUMN WITH 20 ML H SUB2 O INTO THE FILTRATE. DIS.
THE FILTRATE TO 50 ML WITH H SUB2 O AND DET. SI IN AN ALIQUOT CONTG. 4,
50MUG SI.

UDC 51:621.391

USSR

NEMOLOCHNOV, O. F., USVYATSKIY, A. Ye.

"One Modification of the *-Algorithm of J. P. Roth for Production of Strict Boolean Function Implicants"

Avtomatiz. i Algoritmiz. Proyektir. Tsifr. Ustroystv. i Sistem. Ch. 1 [Automation and Algorithmization of Planning of Digital Devices and Systems, Part 1], Leningrad, 1971, pp 45-49, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V441).

Translation: A modification of the *-algorithm of Roth (see Voprosy Teorii Matematicheskikh Mashin [Problems of the Theory of Mathematical Machines -- Collection of Works], 1964) is suggested. Certain characteristics of its machine realization are presented.

Abstract: Single-phase alloys of nickel with 25, 50, 60, and 75
at. % Al were studied. The emission K spectra of nickel and
aluminum were studied and compared with the L spectra presented
in the literature. The data produced indicated that the forma-
tion of aluminides in the nickel-aluminum system involves a signi-
ficant redistribution of electrons between the atoms of aluminum
and nickel. In contrast to aluminides of the first half of the
period, nickel aluminides apparently include both covalent bonds
and ionic bonds, the share of ionic bonds being quite high in
comparison with the iron-aluminum and cobalt-aluminum systems
studied earlier. The change in the form of the Al $K\beta_x$ band in
the nickel-aluminum system indicated that, in contrast to the

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to the other systems, localization of all p electrons does not
occur, some of them supporting conductivity together with the s
electrons and participating in the formation of ionic bonds
between the atoms of the alloy components.

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DEKHTYAR, I. Ya., and NEMOSHKALENKO, V. V. Elektronnaya Struktura i Elektron-
nyye Svoystva Perekhodnykh Metallov i ikh Splavov (Electron Structure and
Electronic Properties of Transition Metals and Their Alloys, Izd-vo "Naukova
Dumka", Kiev, 1971, 304 pp

Translation of Annotation: This monograph deals with the most recent investi-
gations in the field of the electron structure of transition metals and their
alloys. Reported and analyzed are recent models of the electron structure of
transition metals, results obtained with the help of new physical investigation
methods of the electron structure of transition metals (gamma-resonance
spectroscopy, positron spectroscopy, and others), and such classical methods as
x-ray spectroscopy, electron heat capacity, and magnetic susceptibility. Lab-
oratory results obtained by the authors are discussed. The book is intended
for physicists working in solid-state physics, materials specialists working
in the development of new materials, aspirants and students taking advanced
courses in physics, metal physics, and metallurgy.

Translation of Table of Contents:

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