/ 3

USSR   UDC 669.245.018.44(088.8)

PANASYUK, I. O., BRUSILOVSKIY, B. S., VILKOV, V. I., VORONIN, G. M., YEGOROV,
YE. YE., YELKIN, I. S., KLIMOV, L. YA., KOVROVA, YE. A., KONTSEVAYA, YE. M.,
LYUBINSKAYA, M. A., MILENINA, YE. G., MIKHAYLOV, I. A., RAZUVAYEV, YE. I.,
SIROTKIN, A. I., SOLDATCHENKO, V. A., SPILITSIN, R. I., SHAPIRO, S. M.

"Nickel-Chromium Base Alloy"

USSR Author's Certificate No 276418, Filed 2 Jun 69, Published 16 Oct 70 (from
RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I766P)

Translation: The heat-resistant alloy has the following composition (in %):
C 0.03-0.1, Cr 30-40, W 3-5.5, Mo 2-4, Ti 0.5-1.5, Al 0.5-1.5, Nb 0.5-1.5,
Ce 0.01-0.3, B 0.003-0.008, Ni, the rest. The alloy has increased heat re-
sistance and also the following mechanical and physical-chemical properties
at 1,100°: σ_B 8 kg/mm^2, δ 65%, $\sigma_{stress-rupture}$ 1 kg/mm^2, coefficient of
linear expansion $15 \cdot 10^{-6}$ deg^{-1}, increase in weight after 100 hours of heating
at 1,200° in the air 0.6 g/m^2. It is corrosion-resistant in a moist atmosphere
under tropical conditions, in sea water, and in the products of combustion of
highly sulfurous fuel.
1/1

USSR

KLOCHKOV, V. P., GRIGOR'YEV, O. N., POLUDIN, V. I., SOLDATENKO, N. N., TORCHUN, N. M., and TKHORIK, Yu. A.

"Preparing and Investigating Germanium-Silicon Heterosystems"

Abstract: Experiments are described for investigating the hetero-epitaxial growth and quality of germanium films deposited on silicon substrates by a molecular beam in a vacuum. The results obtained by these experiments are compared with those found earlier in experiments with Ge-GaAs systems used as models of heterojunctions made of semiconductor pairs with very similar crystallographic parameters, such as Ge-GaAs, or very different parameters, such as Ge-Si. The method of diffraction of fast electrons in reflection and electron microscopy, as well as double crystal spectrometry and x-ray topographical pictures by the Berg-Barrett method are used. The temperature of the silicon substrates varied from 240 to 800° C and the condensation rate from 5 to 4000 Å per second. The vacuum was maintained in the limits of 1 to $5 \cdot 10^{-5}$ mm Hg and the film thickness varied from tens of angstroms to tens of microns. The authors are connected with the Semiconductor Institute, Ukrainian Academy of Sciences.

1/1

KLOCHKOV, V. P., GRIGOR'YEV, O. N., POLUDIN, V. I., SOLDATENKO, N. N., TORCHUN,
N. M., TKHORIK, YU. A.

"Obtaining and Studying the Germanium-Silicon Heterosystem"

Abstract: A study was made of the heteroepitaxial growth and degree of per-
fection of germanium films deposited from a molecular beam in a vacuum on sub-
strates made of silicon. The previously obtained results for the Ge-GaAs
system [A. P. Klimenko, et al., Protsessy rosta i struktura monokristalliches-
kikh sloyev poluprovodnikov, Part 1, Nauka Press, Novosibirsk, 478, 1968] are
presented for comparison. The indicated systems were used as models of hetero-
junctions in which the semiconductor pairs are either very close with respect
to crystallographic parameters (Ge-GaAs) or these parameters are essentially
different (Ge-Si). The crystal structure, mechanism of nucleation and growth
and structural defects are studied. The mechanism of occurrence of twins in
the germanium films on (100) silicon is discussed. On GaAs substrates in the
initial stages of nucleation there is a tendency toward the formation of flat
(platelike) nuclei, the tangential growth rate of which turns out to be
appreciably higher than the normal growth rate. The germanium films have a
1/2

USSR

KLOCHKOV, V. P., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 24-30

mosaic structure. The data on the angles of disorientation of the films and substrates obtained from the corresponding rocking curves confirm the conclusions obtained from topographic studies: the film growing on the surface of the crystal is not only distorted itself, but it distorts the substrate.

2/2

1/2   021
UNCLASSIFIED
TITLE--CHOHNESTERASE ACTIVITY IN DIFFERENT PARTS OF THE BRAIN IN
EXPERIMENTAL GANGULETERAKIDOSIS -U-
AUTHOR-(02)-SAVCHUK, N.A., SOLDATENKO, T.A.

PROCESSING DATE--02OCT70

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITCLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL 39
NR 2, PP 205-206
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHOLINESTERASE, ACETYLCHOLINE, ENZYME ACTIVITY, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1435

STEP NO--UR/0358/T0/039/002/0205/0206

CIRC ACCESSION NO--AP0109495
UNCLASSIFIED

CIRC ACCESSION NO--AP0109495

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTS IN WHITE RATS
DEMONSTRATED THAT IN EXPERIMENTAL GANGULETERAKIDOSIS CAUSED BY
GANGULETERAKIS SPUMOSA THE CAPACITY OF DIFFERENT PARTS OF THE BRAIN FOR
HYDROLYSIS OF ACETYLCHOLINE WAS REDUCED CONSIDERABLY. THE GREATEST FALL
IN THE ACTIVITY OF THE ENZYME HAS FOUND IN THE BRAIN HEMISPHERES OF
INFECTED RATS.   FACILITY: ODESSKIY UNIVERSITET IM. I. I.
MECHNIKOBA.

UNCLASSIFIED

1/2   021
UNCLASSIFIED
TITLE--CHOHNESTERASE ACTIVITY IN DIFFERENT PARTS OF THE BRAIN IN
EXPERIMENTAL GANGULETERAKIDOSIS -U-
AUTHOR-(02)-SAVCHUK, N.A., SOLDATENKO, T.A.

PROCESSING DATE--02OCT70

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL 39
NR 2, PP 205-206
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHOLINESTERASE, ACETYLCHOLINE, ENZYME ACTIVITY, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1435

STEP NO--UR/0358/70/039/002/0205/0206

CIRC ACCESSION NO--AP0109495
UNCLASSIFIED

CIRC ACCESSION NO--AP0109495

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTS IN WHITE RATS
  DEMONSTRATED THAT IN EXPERIMENTAL GANGULETERAKIDOSIS CAUSED BY
  GANGULETERAKIS SPUMOSA THE CAPACITY OF DIFFERENT PARTS OF THE BRAIN FOR
  HYDROLYSIS OF ACETYLCHOLINE WAS REDUCED CONSIDERABLY. THE GREATEST FALL
  IN THE ACTIVITY OF THE ENZYME WAS FOUND IN THE BRAIN HEMISPHERES OF
  INFECTED RATS.   FACILITY: ODESSKIY UNIVERSITET IM. I. I.
  MECHNIKOBA.

1/2   024   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--WHY THE AIRCRAFT PITCHED UP DURING LANDING -U-

AUTHOR--SOLDATENKOV, A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AVIATSIYA I KOSMONAVTIKA, NO. 2, 1970, PP 34-35

DATE PUBLISHED-------70

SUBJECT AREAS--AERONAUTICS, PHYSICS

TOPIC TAGS--JET AIRCRAFT, BOMBER AIRCRAFT, AIRCRAFT LANDING, AIRCRAFT
   STABILITY, AIRCRAFT CONTROL EQUIPMENT, AERODYNAMIC CHARACTERISTICS,
   AIRCRAFT PILOT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1414   STEP NO--UR/0209/70/000/002/0034/0035

CIRC ACCESSION NO--AP0104728
                            UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0104728   PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR CITES A GENERAL
INSTANCE WHERE JET BOMBERS TEND TO OSCILLATE AND PITCH UP DURING THE
LANDING MANEUVER. REFERRING TO AERODYNAMICS AND SUPERSONIC AIRCRAFT
STABILITY, THE CONDITIONS LEADING UP TO INSTABILITY AND OSCILLATION ARE
EXAMINED. THE OPERATION AND ROLE OF THE PITCH DAMPER, CONTROL STICK
MOTION RATE LIMITER, THE AUTOMATIC STABILIZER UNIT, AND THE AUTOMATIC
UNIT FOR THE PARTIAL COUNTERING OF THE PILOT'S PULL ON THE CONTROL
COLUMN ARE REVIEWED IN TERMS OF GENERAL AIRCRAFT CONTROL. WHEN STRONG
VERTICAL WINDS ARE ENCOUNTERED, IT IS RECOMMENDED THAT THE PITCH DAMPER
BE SET AT FULL, AND THAT THE PILOT NOT DEFLECT THE STABILIZER TO THE
SAME SIDE AS THE PITCH DAMPER, SINCE HE IS LIABLE TO CAUSE OVERLOADING.
SMOOTH, SHORT DEFLECTIONS OF THE CONTROL COLUMN WILL COUNTERACT AIRCRAFT
OSCILLATION. IN THE CASE CITED AT THE BEGINNING OF THE ARTICLE, THE
PILOT HAD GIVEN THE COMMAND TO SWITCH TO BATTERY POWER FOR ALL THE
INSTRUMENTS AND, IN DOING SO, HAD SHUT DOWN THE PITCH DAMPER AND FORCE
COMPENSATORS JUST PRIOR TO LANDING.

UNCLASSIFIED

1/2   033
UNCLASSIFIED

TITLE--PENETRATION OF AN ELECTROMAGNETIC FIELD INTO A PLASMA IN THE CASE
OF A NONLINEAR OHM'S LAW -U-

PROCESSING DATE--23OCT70

AUTHOR--SOLDATENKOV, T.R.

COUNTRY OF INFO--USSR

SOURCE--NUCLEAR FUSION, VOL. 10, MAR. 1970, P. 69-73

DATE PUBLISHED----MAR 70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RF FIELD, PLASMA INSTABILITY, CURRENT DENSITY, ELECTROMAGNETIC
WAVE PROPAGATION, ELECTROMAGNETIC INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1838

STEP NO--AU/0000/70/010/000/0069/0073

CIRC ACCESSION NO--AP0101885

UNCLASSIFIED

CIRC ACCESSION NO--AP0101885

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF ION ACOUSTIC INSTABILITY ON THE PENETRATION OF A HIGH FREQUENCY FIELD INTO A PLASMA IS INVESTIGATED. THE SLOWING DOWN OF THE PLASMA ELECTRONS AS THE INSTABILITY DEVELOPS IS TAKEN INTO ACCOUNT BY MEANS OF A NONLINEAR OHM'S LAW WHICH ENABLES ONE TO CONSIDER CONTINUOUS VARIATIONS OF THE DEPTH TO WHICH THE FIELD PENETRATES THE PLASMA AS A FUNCTION OF THE PARAMETER ALPHA, WHICH IS THE RATIO OF THE PEAK ELECTRIC FIELD VALUE TO THE FILED VALUE AT WHICH ION ACOUSTIC INSTABILITY OCCURS IN THE PLASMA. THE DEPTH OF PENETRATION BY THE FIELD INTO THE PLASMA IS DETERMINED AS A FUNCTION OF ALPHA. FOR LARGE ALPHA, THE PENETRATION DEPTH INCREASES BY A FACTOR OF ALPHA TO THE ONE HALF POWER RELATIVE TO THE SKIN LAYER THICKNESS OF THE LINEAR THEORY. FACILITY: GOSUDARSTVENNYI KOMITET PO ISPOL'ZOVANIIU ATOMNOI ENERGII, FIZIKO TEKHNICHESKII INSTITUT, SUKHUMI, GEORGIAN SSR.

UNCLASSIFIED

AN O 017835

UR 9022

AUTHOR--   SOLDATENKOV, V.

TITLE--   GLUED BRIDGES

NEWSPAPER-- SOVETSKAYA ROSSIYA, JANUARY 31, 1970, P 4, COL 1

ABSTRACT--   A STATE SCIENTIFIC-RESEARCH INSTITUTE FOR ROADS HAS
DEVELOPED A METHOD OF SETTING THE ADHESIVE BY ELECTRIC HEATING.
HENCE, THE ADHESIVE WITH THE FURIL ALCOHOL PLASTICIZER, ALSO
DEVELOPED BY THE INSTITUTE, CAN BE USED IN THE WINTER TIME.
PRESENTLY IT IS BEING USED IN THE CONSTRUCTION OF A BRIDGE IN
KOSTROMA.

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UDC 621.791.16.037

MOLOPOV, YU. V., Candidate of Technical Sciences, ZAYTSEV, L. P., Candidate of Technical Sciences, SMIRNOV, A. S., Engineer, SOLDATENKOV, V. A., Engineer, and ERLIKH, M. G., Engineer VNIIESO (All-Union Scientific Research Institute of Electric Welding Equipment)

"The MTU-0.4-3 Machine for the Ultrasonic Welding of Metals"

Moscow, Svarochnoye Proizvodstvo, No 5, May 70, pp 47-48

Abstract: A description is given of the MTU-0.4-3 machine for the ultrasonic welding of metals. Exploitation of the machine under industrial conditions shows that it is simple and reliable in its operation. Wear-resistant welding tips may produce up to 81,000 spot welds before servicing, and up to 250,000 before being replaced. The use of the machine in the production of K50-6 and K50-7 aluminum electrolytic condensers resulted in a 14.5% reduction of rejects, and in increased welding reliability, greater service life of the article, and a 39% increase in labor productivity. Specifications of the machine are as follows:

Power in kw   0.4
Operational frequency in kc $22 \pm 7.5\%$

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USSR

KHOLOPOV, YU. V., et al, Svarochnoye Proizvodstvo, No 5, May 70, pp 47-48

Contact pressure in kg	8-60
Thickness of welded articles in mm	0.01-0.2
Productivity	15-90 spots per min.
Welding tip feeding in mm	120 x 47 or 120 x 74
Gap between tips in mm	0-20
Dimensions in mm	1300 x 600 x 1235

2/2

USSR

UDC: 621.396.6-181.5

YEVTIFEYEV, P. I., SOLDATENKOV, V. A., VLADIMIROV, Ye. A.

"A Tool for Unilateral Thermocompression Welding"

USSR Author's Certificate No 274630, filed 4 Mar 69, published 7 Oct 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V216 P)

Translation: This Author's Certificate introduces a unilateral thermo-compression tool for welding parts covered with a layer of insulation without prestripping. Two V-shaped heating elements of refractory metal plate are welded together to form a W-shaped electrode. The gap between the elements is equal to the thickness or diameter of the part to be welded. The working sections of the heating elements are pointed to ensure local heating. The points are placed on the uppermost part to be welded. A current is passed through the free ends. The insulation is burned through, and the parts to be welded come into contact. The current in the tool changes direction and goes through the parts being welded from one pointed section to the other, i. e. there is an automatic switch to welding by two points. Heating of the elements ceases, and they act as unilateral contact welding electrodes with a microgap between them. The tool redis-tributes the currents in the heating and welding circuits, stabilizes the welding process, extends the useful life of the heating elements, extends

1/2

YEVTIFEYEV, P. I. et al., USSR Author's Certificate No 274630

the range of sizes of weldable parts from 70 to 150 microns for insulation coated parts, and from 150 to 300 microns for uncoated parts, and increases the strength and reliability of joints. Two illustrations, I. M.

2/2

- 120 -

1/2   018
TITLE--MTU 0.4-3 FOR ULTRASONIC METAL WELDING --U--   UNCLASSIFIED   PROCESSING DATE--11DEC70

AUTHOR-(05)-KHOLOPOV, YU.V., ZAYTSEV, M.P., SMIRNOV, A.S., SOLDATENKOV,
V.A., ERLIKH, M.G.

COUNTRY OF INFO--USSR, UNITED KINGDOM, UNITED STATES

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO. 5, 1970, PP 47-48

DATE PUBLISHED--------70

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

TOPIC TAGS--PATENT, WELDING EQUIPMENT, FOREIGN TECHNICAL RELATION,
ULTRASONIC WELDING, MACHINERY MANUFACTURING PLANT/(U)MTU04 3 ULTRASONIC
WELDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605041/B10 STEP NO--UR/0135/70/000/005/0047/0048

CIRC ACCESSION NO--AP0142720
                        UNCLASSIFIED

2/2   018
CIRC ACCESSION NO--AP0142720   UNCLASSIFIED   PROCESSING DATE--11DEC79
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE MACHINE FOR ULTRASONIC WELDING
OF METALS CONSISTS OF AN ACOUSTICAL SECTION, USING A MECHANICALLY
OSCILLATORY SYSTEM, THE WELDING HEAD, FIXED TO A TABLE, A HORIZONTAL
DRIVE SERVO FOR THE ACOUSTICAL SECTION, A CONTACT PRESSURE SERVO,
CONTROL EQUIPMENT FOR THE ENERGY FEED SOURCE, AND CONTROL PEDALS.   THE
ACOUSTICAL SECTION HAS A MAGNETOSTRICTIVE TRANSDUCER, A KNIFE
EXPONENTIAL CONCENTRATOR, AND A RESONATING ROD OPERATING IN THE BENDING
OSCILLATION MODE.   A PHOTOGRAPH OF THE MACHINE IS GIVEN TOGETHER WITH
FURTHER DETAILS OF ITS CONSTRUCTION, AND A CROSS SECTIONAL DIAGRAM OF
THE ACOUSTICAL SECTION IS PRESENTED.   OPERATION OF THE MACHINE UNDER
PLANT CONDITIONS HAS SHOWN TAHT IT IS SIMPLE AND RELIABLE IN OPERATION.
EXPERIMENTS WERE CONDUCTED ON THE MECHANICAL STABILITY OF WELDS MADE BY
THE MACHINE IN THE COURSE OF FILM TRANSFORMER AND ELECTRICAL CAPACITOR
MANUFACTURE; THE RESULTS OF THOSE EXPERIMENTS ARE GIVEN IN TABULAR FORM.
ASSEMBLY LINE MANUFACTURE OF THE MTU 0.4-3 MACHINE HAS BEEN ORGANIZED
IN THE "ELEKTROSVARKA" PLANT IN KALININGRAD.   PATENTS HAVE BEEN OBTAINED
FOR THE MACHINE IN GREAT BRITAIN AND THE UNITED STATES.
FACILITY: VNIIESO.

UNCLASSIFIED

USSR

SOLDATKIN, I. S., RODNIKOVSKIY, V. B., and RUDENCHIK, Yu. V., All Union
Scientific Research Antiplague Institute, Saratov, Computer Center, Saratov
State University, and Central Asian Scientific Research Antiplague Institute
Alma-Ata

UDC 59:616.981.452:681.142.33

"Statistical Modeling of a Plague Epizootic"

Abstract: The authors constructed a probabilistic model of the spread of
plague based on numerical characteristics of the process and used it to study
the development of epizootics under changing conditions of transmission of the
pathogen. With "input" data on various elements of the process (fleas feeding
on gerbils with bacteremia, geographic range of infected fleas, etc.), they
successively simulated on a computer the situations that might arise and
obtained in the "output" the number and distribution of infected gerbils at a
given moment. Tests of the model showed that the spread of epizootics with
preassigned parameters is greatly inhibited by "extinction" of some of the
infected fleas as a result of their entering colonies of gerbils that have
recovered from the disease.

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USSR

SOLDATKIN, I. S. and SEVEROVA, E. A.

"The Problem of Possible Development of Plague Epizootic Among Great Gerbils in the Winter"

Translation: The climatic conditions of the Southern desert regions have a considerable influence on characteristics of development of plague epizootic. Propagation of Xenopsylla fleas proceeds here all year around, although with less intensity during the winter period. In the Meshched sands (Southwestern Turkmenia) an experiment in modeling the epizootic process was set up with radioactive isotopes. In winter, fleas feed on great gerbils; whereas in the northern regions of the desert, Khadinopsylla and Paradoxopsyllus predominate, Xenopsylla and Coptosylla are the more effective plague vectors in the southern desert lands. A high intensity of transfer of labeled fleas among neighboring colonies was observed.

1/1

- 35 -

SOLDATKIN

SOLDATKIN

- 486 -

TECHNICAL TRANSLATION

FSTC-HT-23-2015-72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV.
SEPTEMBER 1960

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statement contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information.

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Environmental and Ecological Problems

USSR

SOLDATKINA, S. A., NOVIKOV, Yu. V., and YUDINA, T. V., Moscow Scientific
Research Institute of Hygiene imeni F. F. Erisman, Moscow

UDC 613.164(47-21

"A Hygienic Assessment of the Effects of City Noise"

Moscow, Gigiyena i Sanitariya, No 3, Mar 73, pp 16-20

Abstract: Rats were exposed to the action of city traffic noises with an
intensity of 80 dBA for 6 hrs per day during one month. Adverse effects of
the noise on the nervous and cardiovascular systems were found to take
place. Disturbances in ascorbic acid metabolism were induced which resulted
in a decrease of the content of this vitamin in a number of organs (adrenals,
brain, liver, kidneys, spleen, testes) during the initial part of the period
of exposure, followed by an increase towards the end of this period. A
decrease of the content of ascorbic acid in the adrenals may be regarded
as indicating development of protective reactions forming a part of a
general adaptation syndrome. The content of histamine in the brain in-
creased by 87 percent towards the 15th day of exposure, dropping to 8.7
percent above that of controls on the 30th day. The permeability of the
histohematic barriers of the kidneys was increased.

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USSR   UDC 632.954:633.3

SOLDATOV, A. B., Belorussian Agricultural Academy, Gorkiy, Magilev Oblast, Ministry of Agriculture USSR

"Investigation of the Action of Pyramine in Sugar Beet Platings"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 7, Jul 70, pp 40-43

Abstract: Studies were conducted of the effect of pyramine application in sugar beet plating. The pyramine was applied on the soil surface in doses of 3-5 kgm/ha with expenditure of the liquid preparation at 500 l/ha. For the experiments, Uladovskaya 752 and Ramonskaya 6 beet seeds were used with norm of agriculturally suitable seed sowing at 20 kgm/ha. It was found that general weediness of the sugar beet crops dropped by 75-85%, and the green mass of weeds in comparison with the control dropped by 82.7-87.2%. It was also noted that the herbicidal action of pyramine on weeds intensified after heavy rains. In dry weather, effectiveness of the preparation diminished. The weeds were mostly sensitive to the herbicide in the sprout phase. Three-year investigations revealed that the phytotoxic action on weeds lasted throughout the entire vegetational period.
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USSR

SOLDATOV, A. S., et al., Mocow, Khimiya v Sel'skom Khozyaystve,
Vol 8, No 7, Jul 70, pp 40-43

Studies were also conducted of the effect of pyramine on
soil microflora, soil catalase, NO_3, P_2O_5, and K_2O content in the
soil and harvest and sugar content of sugar beet roots. It was
established that the application of pyramine had no deleterious
effects on these items. It was found that the best beet root
harvests were obtained upon application of pyramine in doses of 4-5
kgm/ha.

2/2

USSR

SOLDATOV, A. N.

UDC 537.52

"Special Features of the Energy Distribution of Electrons in a Hollow-Cathode Discharge in Helium"

Leningrad, Optika i Spektroskopiya, Vol XXXI, No 2, Aug 71, pp 181-189

Abstract: The purpose of the present article is to study the effects of inelastic processes on the energy distribution function of the electrons in a hollow-cathode discharge in helium. In contrast to an ordinary discharge, the anode, which was in the form of a thin-walled gauze cylinder, was placed within the hollow cathode, and the distance between them was approximately equal to the magnitude of the dark cathode space. The use of this type of discharge makes it possible to "regulate" to some extent the distribution of the electrons in the discharge and thereby to select the best conditions for specific levels of excitation and decay.

In the experiments described in this article, measurements were carried out at 4-8 millimeters of mercury, with the strength of the discharge current varying from 5 to 100 milliamperes. The plasma of the discharge was longitud- inally and radially symmetric.

The main conclusion reached was that it is possible to study elementary

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USSR

SOLDATOV, A. N., Optika i Spektroskopiya, Vol XXXI, No 2, Aug 71, pp 181-189

inelastic processes involving electrons and taking place in a gas discharge source by analyzing the energy distribution function of the electrons. In addition, some interesting features of the distribution function were dis- covered. Besides its basic maximum, other maxima were observed at energies of 15 and 20 electron volts for all current strengths and pressures. These additional maxima were associated with collisions of the second kind between slow electrons and metastable 2^3S_1 helium atoms and with collisions of the metastables among themselves. It was also established that the magnitude of the electric field affected the basic maximum: the smaller the field, the lower the energy at which the position of this maximum occurred.

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1/2   007
TITLE--ANGULAR ANISOTROPY OF PLUTONIUM 239 PHOTOFISSION -U-

UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR-(03)-SOLDATOV, A.S., TSIPENYUK, YU.M., SMIRENKIN, G.N.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(5), 992-1000

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ANTISOTROPY, PLUTONIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0579

STEP NO--UR/0367/70/011/005/0992/1000

CIRC ACCESSION NO--AP0137664

UNCLASSIFIED

CIRC ACCESSION NO--AP0137664   UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ENERGY DEPENDENCE OF THE CROSS   PROCESSING DATE--27NOV70
SECTION AND THE ANGULAR ANISOTROPY NEAR THE THRESHOLD WAS MEASURED FOR
THE REACTIONS PRIME239 PU (GAMMA,F) AND PRIME238 PU(GAMMA,F). A QUASI
STATIONARY PRIME239 PU LEVEL WAS FOUND AT 5.6 MEV, 0.5 MEV BELOW THE
THRESHOLD.
     FACILITY: FIZ.-ENERG. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2   013

TITLE--MINERAL COMPOSITION OF BOTTOM SEDIMENTS FROM THE ROMANCHE TRENCH
UNCLASSIFIED
-U-
PROCESSING DATE--23OCT70
AUTHOR-(02)-SOLDATOV, A.V., MURDMAA, I.O.

COUNTRY OF INFO--USSR

SOURCE--OKEANOLOGIYA, 1970, VOL 10, NR 3, PP 488-495

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MECH., IND., CIVIL AND
MARINE-ENGR
TOPIC TAGS--SUBMARINE TRENCH, BEDROCK, OCEAN BOTTOM PHOTOGRAPHY, BOTTOM
SEDIMENT, SEDIMENTATION, MINERAL/(U)AKADEMIK KURTSHATOV SHIP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1854

STEP NO--UR/0213/70/010/003/0488/0495

CIRC ACCESSION NO--AP0129214

UNCLASSIFIED

2/2   013
CIRC ACCESSION NO--AP0129214'   UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MINERAL COMPOSITION OF SANDY
ALEURITIC FRACTIONS OF RECENT CLASTIC (RIFTOGENOUS) SEDIMENTS AND
CONSOLIDATED SEDIMENTS SAMPLED FROM THE BOTTOM OF THE ROMANCHE TRENCH ON
THE 1ST CRUISE OF THE R.V AKEDEMIK KURCHATOV WAS STUDIED. THE SEDIMENTS
AND BEDROCK FRAGMENTS (ULTRABASITE, GABBROIDE, DIABASE) ARE FOUND TO
HAVE SIMILAR MINERAL COMPOSITION. BASED ON THIS SIMILARITY, ONE HAVE
EVERY REASON TO REGARD THE MINERAL COMPLEX OF SEDIMENTS AS THE
DERIVATIVE OF BEDROCK FROM THE SLOPES OF THE TRENCH FORMED AS A RESULT
OF THEIR UNDERWATER DENUDATION AND ACCOMPANIED BY TECTONIC CRUSHING.
THE SAME MINERAL COMPLEX WAS FOUND IN FRAGMENTS OF OLDER CONSOLIDATED
SEDIMENTS. THIS FACT MAKES POSSIBLE A SUPPOSITION OF THE LONG EXISTENCE
IN THE ROMANCHE TRENCH OF SEDIMENTATION CONDITIONS SIMILAR TO THE RECENT
ONES.   FACILITY: INSTITUT OKEANOLOGII IM. P. P. SHIRSHOVA AN
SSSR.

PROCESSING DATE--23OCT70

UNCLASSIFIED

USSR

SOLDATOV, G. P.

UDC 539.374

"On the Rise of Small Fractures in an Elastic-Plastic Material With a Variable Elastic Limit"

Aerodinamika. Mezhvuz. sb. (Aerodynamics. InterVUZ Collection), 1972, No. 1(4), pp 128-133 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V500)

Translation: The problem of the propagation of an initial strong rupture of secondary derivatives from a displacement in a rod of a nonlinear elastic-plastic material with an increasing elastic limit is considered. Equations are obtained for determining the time of the degeneration of a strong rupture to a weak rupture. 6 ref. N. A. Veklich.

1/1

1/2   041
TITLE--MOMENT OF SHOCK WAVE FORMATION IN A TWO DIRECTIONAL TRAFFIC FLOW
-U-   UNCLASSIFIED   PROCESSING DATE--23OCT70
AUTHOR--SOLDATOV, G.P.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MATEMATIKA I MEKHANIKA, VOL. 34, JAN.-FEB. 1970, P.
135-137
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HYDRODYNAMIC THEORY, SHOCK HYDRODYNAMICS, SHOCK WAVE
FORMATION, SHOCK WAVE PROPAGATION, MATHEMATIC MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1449
                                 STEP NO--UR/0040/70/034/000/0135/0137
CIRC ACCESSION NO--AP0106205
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0106205 UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF A HYDRODYNAMIC MODEL

PROCESSING DATE--23OCT70

OF TWO DIRECTIONAL TRAFFIC FLOW BASED PM TWP CONTINUITY EQUATIONS AND
TWO EMPIRICAL RELATIONS BETWEEN THE VELOCITY AND DENSITY OF DISCRETE
OBJECTS MOVING IN OPPOSITE DIRECTIONS. THE HYDRODYNAMIC MODEL IS SUED
TO PREDICT SHOCK WAVE FORMATION AND TO ANALYZE THE NUMEROUS CASES OF
SHOCK WAVE PROPAGATION IN THE FLOW. ATTENTION IS GIVEN TO WAVE
PROPAGATION IN A REGION OF UNIFORM MOTION, ASSUMING THAT THE INITIAL
DENSITY DISTRIBUTION IS DISCONTINUOUS.

UNCLASSIFIED

USSR

SOLDATOV, I., and KHRAPPO, N., Meditsinskaya Gazeta, 26 May 72, p 3

reduction of the number of shots to 10. A variety of other treatments are
also described, including the use of nicotinic acid, vitamin A, the B group,
and E, glucose, manganese sulfate, and others. In general, for the majority
of cases of Meniere's disease, the surgical method may be used on the vege-
tative nervous system.

2/2

SOLDATOV, M. M., Moscow

"On the Investigation of Non-Linear Properties of Composite Materials with Linear-Elastic Components"

Abstract: Problems of the meridional-axially symmetric and geometrically non-linear theory of elasticity are discussed in connection with composite materials. Non-linear properties were found experimentally for layered composite materials used as thin-layer elements for antivibration purposes. Equilibrium equations in explicity form were derived and analyzed for possible cases of their linearization. A general form of boundary conditions in stresses is given in geometrically non-linear formulation. The solution of the problem of compression-elongation of a layered composite material in the direction perpendicular to the layers is analyzed on the basis of linear equilibrium equations and non-linear static boundary conditions. Twenty-eight formulas, three bibliographic references.

1/1

- 8 -

UDC: 8.74

USSR

SOLDATOV, V. A.

"Construction of a Piecewise-Linear Regression"

Tr. Zap.-Sib. n.-i. geologorazved. neft. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 154-159 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V641 [author's abstract])

Translation: A program in Minsk-22 computer codes is designed for constructing an m-link piecewise-linear regression in accordance with the set of points $\{x_k; f(x_k)\}$ $k = 1, 2,...,N$, with the restriction that each link approximates at least r points.

1/1

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1/2   022   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--EMULSION POLY,VINYL CHLORIDE, FOR LOW VISCOSITY PLASTISOLS -U-

AUTHOR-(04)-SOLDATOV, V.M., KIRILLOV, A.I., MOLKOV, A.D., SHARIKOVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (6), 5-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--EMULSION POLYMERIZATION, POLYVINYL CHLORIDE, FLUID VISCOSITY,
  ORGANOSODIUM COMPOUND, SULFONIC ACID, LATEX, PARTICLE SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0920   STEP NO--UR/0191/70/000/006/0005/0006

CIRC ACCESSION NO--AP0134640
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0134649
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING FINER PARTICLES TO COARSE
PARTICLES OF EMULSION POLYMD. POLY(VINYL CHLORIDE) (I) LOWERED THE
VISCOSITY OF PLASTISOLS OF I IN DIOCTYL PHTHALATE. THE SIZE OF I
PARTICLES FROM EMULSION POLYMN. DEPENDED ON THE QUANT. AND TYPE OF
EMULSIFIERS NA C SUB12-18 ALKANESULFONATES (II), NA DODECANESULFONATES
(III), OR NA DECANESULFONATES AND C SUB17-20 FATTY ALCS. (IV). ADDING
9PERCENT 0.25 MU I PARTICLES TO 1 MU I PARTICLES FROM DRIED LATEXES
STABILIZED WITH 1-1.2PERCENT III (0.5PERCENT ADDED AT THE BEGINNING AND
THE REST DURING AND AFTER POLYMN.) AND 0.5PERCENT IV GAVE LOWER
PLASTISOL VISCOSITY THAN THOSE OF PLASTISOLS CONTG. 1 MU PARTICLES OR 1
MU PARTICLES AND 18-36PERCENT 0.25 MU PARTICLES. LATEXES PREPD. WITH
0.01PERCENT IV AND 1-1.2PERCENT II AND SEEDED WITH LATEXES CONTG.
0.7-0.8MU AND 0.4 MU PARTICLES IN 2:1 AND 3:1 RATIOS HAD 0.1-1.5 MU
PARTICLES, WHICH GAVE THE LOWEST VISCOSITY PLASTISOLS.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EFFECT OF THE SUPERCONDUCTING TRANSITION ON THE CREEP IN LEAD -U-

AUTHOR-(03)-SOLDATOV, V.P., STARTSEV, V.I., VAINBLAT, T.I.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 1, PP 47-51

DATE PUBLISHED--------70

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

TOPIC TAGS--LEAD, METAL CREEP, CREEP MECHANISM, SUPER CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0634   STEP NO--GE/0030/70/037/001/0047/0051

CIRC ACCESSION NO--AP0107231

UNCLASSIFIED

CIRC ACCESSION NO--AP0107231

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE SUPERCONDUCTING TRANSITION ON THE VELOCITY OF CREEP IN LEAD HAS BEEN INVESTIGATED AND FOUND TO INCREASE SHARPLY AT THE TRANSITION TO THE SUPERCONDUCTING STATE. THE VALUE OF THE JUMP OF CREEP VELOCITY DEPENDS ON THE SAMPLE PURITY. THE MAGNETIC FIELD DOES NOT EFFECT THE CREEP VELOCITY. THE POSSIBLE CAUSES (CHANGE OF INTERACTION BETWEEN ELECTRONS AND DISLOCATIONS, CHANGE OF BARRIERS DETERMINING THE MOBILITY OF DISLOCATIONS AT THE SUPERCONDUCTING TRANSITION) OF THE EFFECT OBSERVED ARE DISCUSSED.

UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

1/2   007

TITLE--MOBILITY OF TWINNING DISLOCATIONS IN CALCITE -U-

AUTHOR--SOLDATOV, V.P., STARTSEV, V.I., CHAYKOVSKAYA, N.M., DANILEVICH, T.O.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(1) 79-82

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL DISLOCATION, CALCITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0638

STEP NO--UR/0181/70/012/001/0079/0082

ACCESSION NO--AP0105617

UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHODS OF SELECTIVE ETCHING
AND IMPULSE LOAD OF THE CRYSTALS WERE USED TO INVESTIGATE THE MOBILITY
OF TWINNING DISLOCATIONS IN CALCITE. THE VELOCITIES OF THE TANGENTIAL
MOVEMENTS OF TWINNING DISLOCATIONS ALONG THE TWINNING BOUNDARY WERE
MEASURED IN THE REGION OF SHEAR STRESS TAU 30-35 G-MM PRIME2. IN THE
ABOVE INTERVAL OF STRESSES, THE TWINNING DISLOCATION VELOCITY V CHANGES
FROM 2 TIMES 10 PRIME NEGATIVE4 TO 6.9 CM-SEC. THE MOBILITY CURVE FOR
THE TWINNING DISLOCATIONS IN CALCITE IN THE COORDINATES LOG V VS TAU HAS
LINEAR (THERMALLY ACTIVATED BRANCH OF THE MOBILITY CURVE) AND NONLINEAR
(ATHERMAL BRANCH) SECTIONS, WITH THE INFLECTION POINT IN THE STRESS
REGION OF 45 G-MM PRIME2. THE ACTIVATION VOL. (GAMMA) FOR THE LINEAR
SECTION OF THE V-GAMMA CURVE IS 2.8 TIMES 10 PRIME NEGATIVE19 CM PRIME2,
AND THE SENSITIVITY (M) OF V TO THE STRESS IS 15.

Ion Exchange

USSR

UDC 541.183.12

SOLDATOV, V. S., Institute of General and Inorganic Chemistry, Acad. Sc. BSSR, Minsk

"Calculation of Thermodynamic Values Characterizing Ionic Exchange Equilibrium"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1078-1082

Abstract: In a previous paper it was shown that the free energy of ion exchange processes depends on the change in the concentration of the resinate, on the activity and content of the solvent with changing ionic composition of the ion exchange resin. Using mathematical equations derived in that study, practical calculations of free energies of the exchange processes in swelling ion exchange resins are attempted. It is proposed to use the method of the evaluation of solvent activity in the ion exchange resin, according to the Gregor theory. The activity coefficients of resinates in the monoionic forms are calculated from the equation of Gibbs-Dugem. Simplified equations for the calculation of free energy of the exchange process in case of the most frequently observed case of the relationship of swelling and the activity of the solvent as a function of the resin composition. Results of thermodynamic calculations for real ion exchange systems will be reported in the next publication.
1/1

UDC 541.183.12

USSR

PESTRAK, A. F., and SOLDATOV, V. S., Institute of General and Inorganic Chemistry, Academy of Sciences Belorussian SSR

"The Effect of the Degree of Cross-Linking of Ion Exchangers on the Selectivity of Ion Exchange"

Minsk, Vestsi Akademii Navuk BSSR, Seryya Khimichesnykh Navuk, No 5, 1971, pp 127-129

Abstract: The effects of the degree of cross-linking of Dowex-50 ion-exchangers with 1, 4, 8, and 12% divinylbenzene on the selectivity of ion exchange in the processes $Ca^{2+} - Ag^+$, $Ca^{++} - K^+$, $Ca^{++} - H^+$ were studied. It was established that the degree of cross-linking affected the selectivity in a different manner in each of the three systems in question. This was due to the combined effect of two factors, the apparent equilibrium constant and the normality referred to weight in the exchanger phase. The results showed that there is no single rule for the relation between the degree of cross-linking of an ion exchanger and the selectivity.

1/1

UDC 541.183.12

USSR

SOLDATOV, V. S., Institute of General and Inorganic Chemistry, Belorussian Academy of Sciences, Minsk

"Formation of Ion Pairs in Ionites"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLV, No 11, Nov 71, pp 2882-2884

Abstract: There are frequent references to the possible formation of ion pairs in ionites between the counter-ion and the functional group, but no quantitative evaluation of this phenomenon has appeared. Actually, no precise quantitative formulation is yet possible, but a lower limit can be assigned to the phenomenon, on the basis of N. BJERRUM'S association theory. Using this theory, the author calculates the lower boundary of ion-pair formation in sulfostyrene ionites containing 6.5, 10.5, and 25% divinylbenzene which are saturated with H^+, L^+, Na^+, K^+ and Cs^+ ions. Degree of association in ion pairs increases with transition from Li^+ to Cs^+, and with increase in reticulation of the resins. For the H^+ and Li^+ forms of the least reticulated of the ionites studied, the degree of association was found to be not less than 7%. In the Cs^+ of a highly reticulated ionite, virtually all the ions are associated.

1/1

UDC 541.182.13

USSR

SOLDATOV, V. S., Institute of General and Inorganic Chemistry, Academy of Sciences of the BSSR

"Free Energy of Ion Exchange Processes"

Minsk, Doklady AN BSSR, Vol 15, No 8, Aug 71, pp 716-719

Abstract: A strict thermodynamic equation is derived for the free energy of ion exchange processes with regard to the tranfer of solvent during ion exchange and the change in solvent activity in the ion-exchange resin phase. It is shown that this equation consists of four terms having independent physical significance. These terms reflect the changes in free energy due to the exchange process proper, changes in the concentration of resinates in the exchange process, transfer of solvent between phases, the change in solvent activity, and the variation in degree of deviation from the ideal state of monoionic forms of ion-exchange resin.

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UDC 631.811:631.589.2:541.183.12

USSR

SOLDATOV, V. S., PERYSHKINA, N. G., KHOROSHKO, R. P.;
SUDARIKOVA, N. I., Institute of General and Inorganic Chemistry,
Academy of Sciences Belorussian SSR, Minsk

"Ionite-Base Synthetic Nutrient Media for Plant Growth.
Communication III. Methods of Regenerating Ionite Substrata"

Moscow, Agrokhimiya, No 12, Dec 71, pp 86-91

Abstract: Analysis of substrata after 5-7 vegetation cycles in-
dicates nearly complete depletion of potassium and partial de-
pletion of nitrogen. Earlier research points to a theoretical
possibility of producing artificial ionite-base media for plant
cultivation. Detailed here are two new experimental procedures
involving rapid regeneration of depleted substrata and restora-
tion of productivity. The first method specifies individual
additions of potassium and nitrogen in the form of potassium
hydroxide and nitric acid in amounts equivalent to the deficit of
the appropriate element. The second method involves the treatment
of soil with a diluted solution of potassium nitrate containing

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USSR

SOLDATOV, V. S., et al, Agrokhimiya, No 12, Dec 71, pp 86-91

both basic regenerated ions in the form of a neutral salt.
Preference is given to the second variant since it places no
stringent requirements on dosage additives or thorough mixing of
the soil. Subsequent treatment of the substrates with H_2O_2
solutions to inactivate the plant metabolites and increase the
soil's productivity is suggested. The optimum H_2O_2 concentration
is cited as 0.2% (27 ml of 30% H_2O_2 per 1 kg of dry soil).
Higher concentrations are said to have adverse effects on the
plants. (2 tables, 3 biblio. references)

UDC 541.183.12

USSR

SOLDATOV, V. S., and BYCHKOVA, V. A., Institute of General and Inorganic Chemistry, Academy of Sciences, BSSR, Minsk

"Ion Exchange in Polycomponent Systems. Calculation of the Ion Exchange Equilibrium in the Ternary System $K^+-NH_4^+-H^+$ From Binary System Data"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 9, Sep 70, pp 2293-2298

Abstract: Using the method for calculation of the equilibrium liquid-vapor in ternary systems from data obtained in binary systems, the authors calculated activity coefficients for NH_4^+, K^+, and H^+ resinate in ternary mixture from data on exchange equilibria of $NH_4^+-H^+$, K^+-H^+, and $K^+-NH_4^+$ systems. Comparison of the data on phase composition of the solution obtained experimentally and by calculation showed a remarkable agreement.

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UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2   015
TITLE--ADSORPTION OF COPPER AMMONIA COMPLEXES BY SULFOSTYRENE ION
EXCHANGERS -U-
AUTHOR-(02)-NOVITSKAYA, L.V., SOLDATOV, V.S.

COUNTRY OF INFO--USSR

SOURCE---VESTSI AKAD. NAUK BELARUS. SSR, SER. KHIM. NAUK 1970, (1), 109-11

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADSORPTION, COPPER COMPLEX, AMMONIA, ION EXCHANGE RESIN/(U)KU2
ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0436   STEP NO--UR/0419/70/000/001/0109/0111

CIRC ACCESSION NO--AP0119372
UNCLASSIFIED

UNCLASSIFIED

2/2   015
CIRC ACCESSION NO--AP0119372
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF ION EXCHANGE OF CU PRIME2 POSITIVE NH SUB4 OH SOLNS. (0.1 N CU PRIME2 POSITIVE AND CU PRIME2 POSITIVE-NH SUB4 OH MOLAR RATIO WAS 6, 7, 8, 9, AND 10) ON DOWEX 50 TIMES 1, TIMES 4, TIMES 8, AND TIMES 12, AND KU-2 TIMES 25 IONITES WITH EXCHANGE CAPACITIES IN H PRIME POSITIVE FORM OF 5.11, 5.06, 4.98, 5.02, AND 4.60 MG EQUIV.-G RESP. WAS EXAMD. IN THE ADSORPTION OF COPPER AMMONIA COMPLEXES BY THE H PRIME POSITIVE FORM OF IONITES, PPTN. OF CU (OH)SUB2 OCCURRED (NH SUB3 CONCN. IN SOLN. WAS HIGHER THAN IN THE IONITE). DURING ABSORPTION OF NH SUB3 SOLNS. BY IONITES IN THE CU PRIME2 POSITIVE FORM THE SATN. OF (CU(NH SUB3)SUB2)PRIME2 POSITIVE IN THE IONITE OCCURRED AT 0.112 M NH SUB3 CONCN.   FACILITY: INST. OBSHCH. NEORG. KHIM., MINSK, USSR.

UNCLASSIFIED

ELECTRICAL ENGINEERING

Materials

UDC: 621.317.8(088.8)

USSR

GAL'PERIN, B. S., SOLDATOVA, L. P., MIRETSKAYA, I. Ye.

"A Resistive Composition"

USSR Author's Certificate No 283367, filed 24 Jun 69, published 22 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V364 P)

Translation: This Author's Certificate introduces a resistive composition
based on a resin binder containing particles of a current-conducting sub-
stance in the form of carbon black distributed through the resin. As a
distinguishing feature of the patent, resistance limits are extended and
resistance characteristics are improved by using highly dispersed partially
oxidized destroyed carbon black as the current-conducting material. The
carbon black is used in quantities of 6-40 volumetric percent.

1/1

Steels

USSR

SOLENOV, V. M. and SOKOLOV, L. D.: Gor'kiy Polytechnic Institute

"Low-Temperature Strength of Kh18N9T Austenitic Steel"

Abstract: This study concerns the strength characteristics of Kh18N9T
austenitic steel within -196 to +600°C, at strain rates from 10^{-3} to 10^{-1}
sec^{-1}. The steel's chemical composition was: 0.07% C; 1.20% Mn; 0.44% Si;
0.30% P; 0.014% S; 0.46% Ti; 9.24% Ni; 17.30% Cr. The experiment used the
uniaxial compression system on cylindrical specimens. The experimental data
show an increased deformation resistance at low temperatures (-196 to +200°C)
and at high deformation ratios. The results indicate support of the
"martensitic" theory of strengthening Kh18N9T austenitic steels for the low-
temperature region. For temperatures ranging from 300 to 600°C the higher
stresses are related to the thermally activated mechanism of dislocation
blocking by "atmospheres" of intrinsic chromium atoms. (3 illustrations;
10 bibliographic references).

1/1

UDC 539.4

USSR

SOLENOV, V. M., SKUDNOV, V. A., SOKOLOV, L. D., GLADKIKH, A. N., Gor'kiy
Polytechnical Institute, Gor'kiy

"Study of the Temperature-Rate Dependence of the Strength and Plasticity Charac-
teristics of Lutecium"

Abstract: A technique is described for studying the effect of temperature-rate
factors on the strength and deformation characteristics of lutecium. The lute-
cium sample in this case had the following chemical composition: Lu -- 95.72
wt. %; Er -- 0.25, Tu -- 3.5, Ib <0.1, Ca -- 0.4, Fe -- 0.025, Cu <0.005.
Samples for stretching had a diameter of 1.5 mm and a working length of 8 mm,
and samples for sag tests had a diameter of 1.5 mm and a height of 0.25 mm.
Experiments were conducted at temperatures of -80, 110, 304, 497, 689, and
882°C and at various deformation rates ($4 \cdot 10^{-3}$, $2 \cdot 10^{-2}$, $2 \cdot 10^{-2}$ sec^{-1}); destruc-
tion tests were conducted at temperatures of -80, 304, 497 and 689°C with a
deformation rate of $2 \cdot 10^{-2}$ sec^{-1}. Samples were deformed in an argon medium and
the experiments were conducted after holding for 10-15 min at a given temperature.

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SOLENOV, V. M., et al, Problemy prochnosti, No. 8, Aug 71, pp 61-63

The device used for the sag tests is described. Graphs of the deformation of lutecium at different temperatures and rates of deformation show that the strength rises with a drop in temperature and with an increase in the deformation rate. The temperature dependence of the stress σ shows a nonmonotonic graph with a hump at the deformation aging temperature. The studies showed the possibility of the plastic working of Lu over a wide temperature range by using soft deformation techniques. It is noted that a purer metal should have even higher plasticity.

2/2

UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--HEAT RESISTANCE PROPERTIES OF CERTAIN PURE METALS -U-

AUTHOR--SOKOLOV, L.D., SOLENOV, V.M., SKUDNOV, V.R., SHNEYIBERG, A.M.,
GLADKIKH, A.N.
COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, METALLY, MAR. APR. 1970 P. 181-189

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--DIAMOND, CRYSTAL LATTICE STRUCTURE, HEAT RESISTANT METAL,
PLASTIC DEFORMATION, INTERNAL STRESS, THERMAL EFFECT, LANTHANUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0339   STEP NO--UR/0370/70/000/000/0181/0189

CIRC ACCESSION NO--AP0108637
ZZZZZZZZZZZZ   UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0108637

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE RESISTANCE TO
UNIAXIAL DEFORMATION AND OF THE PLASTIC PROPERTIES OF POLYCRYSTALLINE
LANTANIDES AND OTHER METALS SUBJECTED TO COMPRESSION AND TENSION AT
DIFFERENT TEMPERATURES AND STRAIN RATES. IT IS FOUND THAT FOR EQUAL
HOMOLOGOUS TEMPERATURES AND STRAIN LEVELS, THE SENSITIVITY TO CHANGES IN
THE TEMPERATURE AND STRAIN RATE INCREASES WITH AN INCREASE IN THE
STACKING FAULT ENERGY AND A DECREASE OF THE LATTICE COORDINATION NUMBER
ACCORDING TO THE SEQUENCE FCC, HCP, BCC, AND DIAMOND TYPE LATTICE.

UNCLASSIFIED

USSR   UDC 669.76:79

SOKOLOV, L. D. (Editor), SKUDNOV, V. A., SOLENOV, V. M., GLADKIKH, A. N.,
SHETULOV, D. I., SHNEYBERG, A. M., GUSLYAKOVA, G. P., and DMITRIYEV, N. P.

Mekhanicheskiye Svoystva Redkikh Metallov (Mechanical Properties of Rare
Metals), Moscow, Izdatel'stvo Metallurgiya, 1972, 288 pp

Translation of Annotation: A study is made of the mechanical properties
(deformation resistance, plasticity, fatigue, creep, and stress-rupture
strength) of rare and other metals, and their dependence on temperature and
deformation rate. Characteristics of strain hardening, the stress and
plasticity dependencies on temperature and deformation rate parameters, and
other experimental data are discussed on the basis of the theory of defects
and other contemporary concepts regarding the type of bonds in crystals.

The book is intended for scientists, engineers, and technicians at institutes,
design institutions, nonferrous metallurgy plants, machinebuilding plants,
and power engineering stations. It can also be useful to aspirants and
students in higher educational institutions.

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USSR

SOKOLOV, L. D. (Editor), et al., Mekhanicheskiye Svoystva Redkikh Metallov
(Mechanical Properties of Rare Metals), Moscow, Izdatel'stvo Metallurgiya,
1972, 288 pp

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USSR

SOKOLOV, L. D. (Editor), et al., Mekhanicheskiye Svoystva Redkikh Metallov
(Mechanical Properties of Rare Metals), Moscow, Izdatel'stvo Metallurgiya,
1972, 288 pp

3/4

USSR

SOKOLOV, L. D. (Editor), et al., Mekhanicheskiye Svoystva Redkikh Metallov
(Mechanical Properties of Rare Metals), Moscow, Izdatel'stvo Metallurgiya,
1972, 288 pp

3/4

USSR

SOKOLOV, L. D. (Editor), et al., Mekhanicheskiye Svoystva Redkikh Metallov
(Mechanical Properties of Rare Metals), Moscow, Izdatel'stvo Metallurgiya,
1972, 288 pp

4/4

Public Health, Hygiene and Sanitation

KIRICHINSKIY, B. R., SHEPELEV, V. N., MEDVEDOVSKAYA, TS. P., LYSINA, G. G.,
LOGANOVSKIY, N. G., SOLETSKAYA, A. S., VOL'FOVSKAYA, R. KH.

"Effect of Laser Emission on the Organism of Industrial Workers"

Translation: A report is presented on examination of 40 people working 3.4
years on the average with laser emission (200-200 bursts per week with a pulse
duration of 20-40 nanoseconds and an energy of 1-10 joules and up to 1 joule
in the continuous mode). It was calculated that the radiation level on the
cornea was $5 \cdot 10^{-6} - 5 \cdot 10^{-7}$ joules, which is approximately 2 orders higher than
the levels which the majority of authors recommend as the maximum allowable
and approaches the threshold values (causing minimum damage to the retina).
For people with low sensitivity, pronounced shifts in autonomic vascular
regulation were established with some lowering of visual function and
histology of the pupil and head; this kind nature of func-
tional dynamic disturbances.

1/1

USSR

UDC: 519.2

SOLEV, V. N.

"Absolutely Regular Trajectories in Hilbert Space"

Zap. nauch. seminarov Leningr. otd. Mat. in-ta AN SSSR (Notes of Scientific Seminars. Leningrad Department of the Mathematics Institute, Academy of Sciences of the USSR), 1971, 22, pp 139-160 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V198)

Translation: Let $x(t)$ be a stationary (in the broad sense) random process, H_a^b is closure of the linear shell of values of $x(t)$ for $t \in [a, b]$. P_-, P_+^s are operators of projection on the subspaces $H_{-\infty}^0$, H_s^∞ respectively. A process $x(t)$ is called absolutely regular if

$$sp \, P_- P_+^s P_- \to 0 \text{ when } s \to \infty.$$

The principal result of the work is contained in the following theorem which describes a class of absolutely regular processes with continuous time in terms of spectral density. An analogous problem for processes with discrete time has been previously solved (RZh-Mat, 1969, 8V45).

1/2

USSR

SOLEV, V. N., <u>Zap. nauch. seminarov Leningrad. otd. mat. in-ta AN SSSR,</u> 1971, <u>22</u>, pp 139-160

Theorem. In order for a stationary process (in the broad sense) $x(t)$ with continuous time to be absolutely regular, it is necessary and sufficient that spectral density $f(\cdot)$ represented as

$$f(\lambda) = \frac{|B(\lambda)|}{(1+\lambda^2)^k} f_1(\lambda),$$

exist for this process, where k is a non-negative whole number, B is an entire function of finite degree lying in space L^2 with weight $(1+\lambda^2)^{-(k+1)}$, $f_1(\lambda) = \tilde{f}_1\left(\frac{\lambda-i}{\lambda+i}\right)$, the function $\tilde{f}_1$ satisfying the condition

$$\ln \tilde{f}_1 \in L^1, \quad \ln \tilde{f}_1(z) = \sum_{-\infty}^{\infty} c_k z^k, \quad z = e^{i\lambda}, \quad \sum_{-\infty}^{\infty} |c_k|^2 |k| < \infty.$$

V. Prelov.

2/2

USSR

SOLEV, V. N.

"The Mean Quantity of Information per Unit Time Contained in One Guassian Stable Process Relative to Another"

Zap. Nauch. Seminarov Leningr. Otd. Mat. In-ta AN SSSR [Writings of Scientific Seminars Leningrad Division Mathematics Institute, Academy of Sciences, USSR], 1972, Vol 29, pp 18-26 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V643 by V. Prelov).

Translation: A known formula is proven for the mean quantity of information per unit time contained in one stable Gaussian process relative to another for the case of generalized stable Gaussian processes, at least one of which is weakly regular.

1/1

USSR

SOLEV, V. N.

"Condition of Absolute Regularity for Fields"

Zap. Nauch. Seminarov Leningr. Otd. Mat. In-ta AN SSSR [Writings of Scien-
tific Seminars of Leningrad Division Institute of Mathematics, Academy of
Sciences, USSR], 1972, Vol 29, pp 27-29 (Translated from Referativnyy
Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V155 by G. Molchan).

Translation: Let x(t) be a homogeneous Gaussian field in R^n, absolutely
regular in n independent directions $\alpha \in R^n$, i.e.

$$M \sup |P\{A \mid U_s^-(\alpha)\} - P(A)| \to 0, \ s \to \infty,$$

where the supremum is taken with respect to $A \in U_s^+(\alpha)$, and $U_s^{\pm}(\alpha)$ is a
σ algebra, generated by field $\{x(t), \pm(\alpha, t) \geq s\}$. It is shown that x(t)
has absolutely continuous spectral measure $f(\lambda)d\lambda$, where f is a first
order finite goal function.

1/1

1/2   015
UNCLASSIFIED
PROCESSING DATE--11SEP70
TITLE--CRYSTAL STRUCTURES OF BARIUM MOLYBDATE AND BARIUM TUNGSTATE -U-

AUTHOR--BYLICHKINA, T.I., SOLEVA, L.I., POBEDIMSKAYA, YE.A., PORAYKOSHITS, N.A., BELOV, N.V.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(1) 165-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTAL STRUCTURE, BARIUM COMPOUND, TUNGSTATE, X RAY
DIFFRACTION, MOLYBDATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0017   STEP NO--UR/0070/70/015/001/0165/0167

CIRC ACCESSION NO--AP0102117
UNCLASSIFIED

CIRC ACCESSION NO--AP0102117
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE CRYSTALS WERE
  SYNTHESIZED HYDROTHERMALLY. RESULTS OF THE GONIOMETRIC MEASUREMENTS AND
  UNIT CELL PARAMETERS COORDINATES OF THE ATOMS, AND INTERAT. DISTANCES
  OBTAINED FROM X RAY DIFFRACTION DIAGRAMS ARE GIVEN FOR BAWO SUB4, BAMOO
  SUB4, CAWO SUB4, SRWO SUB4, SRMOO SUB4, AND COMOO SUB4. THE LATTICE
  PARAMETERS FOR THE TITLE CRYSTALS ARE A EQUALS 5.614 PLUS OR MINUS 0.003
  AND C EQUALS 12.719 PLUS OR EQUAL 0.003 ANGSTROM FOR BAWO SUB4 AND A
  EQUALS 5.62 PLUS OR MINUS 0.03 AND C EQUALS 12.82 PLUS OR MINUS 0.03
  ANGSTROM FOR BAMOO SUB4. THE INTERAT. DISTANCES IN THE BAWO SUB4
  POLYHEDRON ARE CLOSE TO THOSE IN SRWO SUB4, AND THE INTERAT. DISTANCES
  IN BAMOO SUB4 ARE CLOSE TO THOSE IN SRMOO SUB4 AND COMOO SUB4.

UNCLASSIFIED

USSR S UDC 548.735.5

BYLICHKINA, T. I., SOLEVA, L. I., POBEDIMSKAYA, YE. A., PORAY-KOSHITS, N. A.
and BELOV, N. V., Moscow State University imeni M. V. Lomonosov

"Crystal Structures of Ba-Molybdate and Ba-Tungstate"

Abstract: Well faceted tetragonal crystals of $BaWO_4$ and $BaMoO_4$ were measured
on the GD-1 optical goniometer. Clear crystals of $BaWO_4$ and $BaMoO_4$ of diamond
brightness were obtained by the hydrothermal method at the Institute of Crystal-
lography by L. N. Dem'yanotes. The lattice parameters of the crystals were
found to be the following: for $BaWO_4$, $a = 5.614\pm0.003$ Å, $c = 12.719\pm0.003$ Å
and $c:a = 2.26$; for $BaMoO_4$, $a = 5.62\pm0.03$ Å, $c = 12.82\pm0.03$ Å and $c:a = 2.28$.
The coordinates of $BaWO_4$ and $BaMoO_4$ atoms are also given in a table. The inter-
atomic distances of Ca-, Ba-, Sr-, and Cd-polyhedra were calculated. It was ob-
served that the crystal structure of both crystals is of the Scheelite type.

1/1

Semiconductors and Transistors

USSR

UDC: 621.382.2

LUK'YANCHIKOVA, N. B., SOLGANIK, B. D., SHEYNKMAN, N. K., PROTASOV, I. I., and TROFIM, V. G.

"Excess Noise in Heterogeneous p-Al$_x$Ga$_{1-x}$As--n-GaAs Photodiodes"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1851-1855

Abstract: Stating that research on the noise characteristics of heterojunctions has been neglected, the authors present the results of experimental investigations into the low-frequency noise characteristics, at 20-2·10^3 Hz, of p-Al$_x$Ga$_{1-x}$As--n-GaAs specimens. The specimens were obtained by the growth of solid solution AlAs-GaAs p-type epitaxial layers on n-GaAs substrates. The current noise spectral density was measured in darkness with the heterojunctions biased in the forward as well as inverse directions, and with the heterojunctions illuminated in the gate and photodiode modes. The measurements were conducted at temperatures of 77-300° K and the wavelength of the illuminating light was 0.68 microns. It was found that the current noise was in all cases much higher than the shot noise level, and that illumination of the specimens did not vary the current noise spectral density with the specimens biased

1/2

USSR

UDC: 621.382.2

LUK'YANCHIKOVA, N. B., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1851-1855

in the inverse direction. Current noise spectral densities and families of volt-ampere characteristics of the specimens are plotted.

2/2

Abstract: A detailed study was made of the volt-ampere characteristics, complex
conductivity and noise of a CdSe-electrolyte barrier contact during irradiation
of it in the band-band absorption region. The lifetime of the minority current
carriers was determined, and the threshold sensitivity of the contact was found.
The photothreshold is limited by the noise of the charge capture process in
the traps in the CdSe barrier layer region. The noise of the limiting photo-
current of the contact is caused by power fluctuations of the incident photon
flux. The threshold sensitivity of a number of semiconductor-electrode con-
tacts with different width of the forbidden band was determined. From the
tabulated data it follows that the semiconductor cadmium chalcogenides with a
sufficiently broad forbidden band have the best photosensitivity. Decreasing
the width of the forbidden band (or high admixture concentration, as in the
case of GaP) leads to an increase in the dark currents, and the sensitivity
becomes appreciably worse. The photothreshold for Ge and CdTe crystals of the
1/2

USSR

TYAGAY, V. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 248-253

p-type is appreciably below that for the corresponding samples of the n-type. This behavior is partially caused by a decrease in the phenomenological quantum yield and can be connected with the high rate of surface pair recombination on the surface of the semiconductors in the negative bias region.

2/2

USSR

SOLIKH, R.

"Problem of Calendar Planning for Cyclically Repeating Production"

Zh. vychisl. mat. i mat. fiz. [Journal of Computer Mathematics and Mathematical Physics], 1973, 13, No 2, pp 326-342 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V502 by Yu. Finkel'shteyn)

Translation: Suppose a plant produces m different products, each product is processed by n machines as it passes along technological path C_1, C_2, ..., C_n (identical for all products u_1, u_2, ..., u_n). A sequence of processing of products on the machines is sought (with fixed schedules for processing each product) such that the total time of processing of all products is minimal. If exactly one processing schedule is assigned for each product, the travelling salesman problem is produced. If several possible versions of a processing graph can be assigned for the same product, then the problem of assignments with the additional condition of zero cycles (corresponding to the model of integer linear programming for the travelling salesman problem) is replaced by a transport problem with the additional condition
1/3

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USSR

SOLIKH, R., Zh. vyshisl. mat. i mat. fiz., 1973, 13, No 2, pp 326-342

$$F(x) = \sum_{p=1}^{l+m} \sum_{r=1}^{l+m} l_{pr} x_{pr} \to \min,$$

$$\sum_{r=1}^{l+m} x_{pr} = 1, \quad p = 1, 2, \ldots, l,$$

$$\sum_{r=1}^{l+m} x_{pr} = i_k - 1, \quad p = l + k, \quad k = 1, 2, \ldots, m,$$

$$\sum_{p=1}^{l+m} x_{pr} = 1, \quad r = 1, 2, \ldots, l,$$

$$\sum_{p=1}^{l+m} x_{pr} = i_k - 1, \quad r = l + k, \quad k = 1, 2, \ldots, m,$$

$$x_{pr} \geq 0, \quad p, r = 1, 2, \ldots, l + m.$$

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USSR

SOLIKH, R., Zh. vyshisl. mat. i mat. fiz., 1973, 13, No 2, pp 326-342

The (integer!) solution of this problem must satisfy one additional condition. The set of variables $x_{pr}=1$ (for $p, r \le I$) forms the maximal cycle

$$(x_{p_1 p_1}, x_{p_1 p_2}, \ldots, x_{p_{m-1} p_m}, x_{p_m p_1}).$$

A combinatorial method is suggested for the solution of this problem using the idea of branching. An illustrative numerical example is discussed in detail.

3/3

USSR   UDC: 539.4.015.1

SOLIN, Yu. V., ROZHKOV, B. G., and TSVELEV, E. A., Engineers

"Controlling Layer Shifts in the Manufacture of Multilayer Printed
Circuit Plates by the Open Contact Area Process"

Moscow, Pribory i sistemy upravleniya, No. 10, 1970, p 54

Abstract: The open contact area method is now used in many enter-
prises in the Soviet Union. Since the printed circuit layers are
glued together in manufacture, one above the other, open areas
must be allowed between layers for the insertion of leads to con-
tact points within the printed circuit block. The purpose of this
article is to present information on the electrical requirements
this type of construction involves. Such requirements also in-
volve specifications in the amount of tolerable shifts in the
layers to avoid arcing between leads or between layer components.
A table of the recommended dimensions of the various structural
characteristics of the layer blocks is given together with a
second table listing the minimum distances required to separate
leads carrying different voltages. A photomicrograph of a sec-
tion of the multilayer printed-circuit block is reproduced.
1/1

USSR

UDC 621.3.049:75

SOLIN, Yu. V., ODINOKOV, V. G., ROZHKOV, B. G., TSVELEV, E. A., MOROZOV, K. K.

"A Method of Applying the Drawing of a Printed Circuit"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 25, Soviet Patent No 277897, class 21, filed 19 Nov 68, published 5 Aug 70, p 54

Translation: This Author's Certificate introduces a method of applying the drawing of a printed circuit to a light-sensitive layer. The method is implemented by a device which utilizes a light pipe for image transmission. As a distinguishing feature of the patent, manufacturing is simplified, image quality is improved and provision is made for making images of any configuration. Light flux acts on the various input ends of the light pipe in accordance with a predetermined program, resulting in formation of the necessary elements of the printed-circuit module on the outlet end of the light pipe which has a special configuration.

1/1

Working Out Standard for Designing Multi-Layer Printed Circuits. Yu. V. Selin. "Standarty i kachestvo". 1970, No. 1.

Described are the peculiarities of the typified manufacturing processes for production of multi-layer printed circuits (MLPC). The precision characteristics cited in the standards for designing MLPC depend on the typified manufacturing processes. Much attention is given to the best choice of the reference grid used in designing the layers of an MLPC.

MT

REEL/FRAME
19750637

USSR

UDC 595.775:591.1

VASHCHENOK, V. S., and SOLINA, L. T., Leningrad Antiplague Station

"Age-Determined Changes in the Fat Tissue of Female Xenopsylla cheopis Fleas"

Moscow, Zoologicheskiy Zhurnal, Vol 51, No 1, Jan 72, pp 79-85

Abstract: During the imaginal period of its life, the female Xenopsylla cheopis fleas undergoes substantial changes in fat tissue which, under conditions of permanent access to the host, are of an age-determined nature. Large specimens have an abundance of reserve inclusions which, in the form of fat vacuoles, glycogen granules and large spherical protein granules, comprise the principal cellular content. Weakly active cytoplasm is represented in the form of narrow layers between the inclusions. With the onset of feeding, the protein granules are rapidly destroyed. As the ectoparasites remain with the host, the fat vacuoles gradually dwindle in size, and the cell diameters increase due to the increase in volume of cytoplasm; the cytoplasm becomes constantly more basophilic due to increase of the RNA concentration. In fleas living more than 35 days, and in some specimens still earlier, some changes are noted in trophocytes, which are due probably to senile degeneration of fatty tissue.

1/1

TITLE--COERCIVE FORCE AND STRUCTURE OF AN IRON PLATINUM ALLOY -U-

AUTHOR-(05)-MAGAT, L.M., IVANOVA, G.V., SOLINA, L.V., SHCHEGOLEVA, N.N.,
SHUR, YA.S.
COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(2), 400-3

DATE PUBLISHED------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--IRON ALLOY, PLATINUM CONTAINING ALLOY, METAL MICROSTRUCTURE,
MAGNETIC COERCIVE FORCE, MAGNETIC ANISOTROPY, CRYSTALLOGRAPHY, PLASTIC
DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0337   STEP NO--UR/0126/70/029/002/0400/0403

CIRC ACCESSION NO--AP0126093
                       UNCLASSIFIED

CIRC ACCESSION NO--AP0126093

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRUCTURE WAS STUDIED FOR
FE,PT ALLOYS WITH A HIGH COERCIVE FORCE. THE EFFECT WAS STUDIED OF
PLASTIC DEFORMATION AND TEMPERING ON THE COERCIVE FORCE. IN A 1:1
ALLOY, THE MAX. COERCIVE FORCE OCCURRED IN THE SINGLE PHASE ORDERED
STATE. THE SIZE OF THE TETRAGONAL PHASE CRYSTALLITES (FOR A MAGNETIC,
CRYSTALLOGRAPHIC, ANISOTROPY CONST. OF THE ORDER OF 10 PRIME7 ERGS-CM
PRIME3) IS THE MAIN FACTOR DETG. THE VALUE OF THE COERCIVE FORCE.
FACILITY: INST. FIZ. METAL., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2   017   UNCLASSIFIED
TITLE--SETUN, AWAITS ASSIGNMENT -U-   PROCESSING DATE--13NOV70

AUTHOR--SOLIYEV, I.

COUNTRY OF INFO--USSR

SOURCE--DUSHANBE, KOMMUNIST TADZHIKISTANA, 3 FEB 70, P 3

DATE PUBLISHED--03FEB70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--COMPUTER CAPACITY, COMPUTER PROGRAM, COMPUTER
  TECHNOLOGY/(U)SETUN DIGITAL COMPUTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0998   STEP NO--UR/9006/70/000/000/0003/0003

CIRC ACCESSION NO--AN0116477
                          UNCLASSIFIED

CIRC ACCESSION NO--AN0116477   UNCLASSIFIED   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS AN ELECTRONIC COMPUTER,
THE "SETUN'," IN THE LABORATORY OF COMPUTER MATHEMATICS OF TADZHIK STATE
UNIVERSITY. IT HAS BEEN IN OPERATION SINCE MAY OF 1964 AND HAS BEEN
USED EFFECTIVELY IN THE ACADEMIC PROCESS AND ALSO HAS PERFORMED
COMPUTATIONAL WORK ASSOCIATED WITH SCIENTIFIC RESEARCH BY THE CHAIRS OF
THE UNIVERSITY. THE PRODUCTIVITY OF THE MACHINE IS ABOUT 5,000
OPERATIONS PER SECOND. IN THE MACHINE'S LIBRARY OF MATHEMATICAL
SERVICES THERE ARE AVAILABLE STANDARD PROGRAMS WHOSE USE PROVIDES
RESULTS BASED ON THE INITIAL INFORMATION ASSIGNED IN A SHORT PERIOD OF
TIME. THERE IS A PROGRAM FOR SCHEDULE PLANNING AND MANAGEMENT FOR 620
EVENTS, WHICH PERMITS MANAGING CONSTRUCTION AND OTHER SITES, A PROGRAM
FOR CORRELATING AND SPECTRAL ANALYSIS OF STATISTICAL DATA, A STANDARD
PROGRAM FOR INTEGRATING A SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS, A
STANDARD PROGRAM FOR SOLVING A SYSTEM OF ALGEBRAIC EQUATIONS, AND
OTHERS. IN USING THESE PROGRAMS, COMPLEX TASKS FOR ENTERPRISES OF
VARIOUS BRANCHES OF THE NATIONAL ECONOMY OF THE REPUBLIC CAN BE SOLVED
USING ELECTRONIC COMPUTERS. IN ONE MINUTE, THE MACHINE CAN DO MORE THAN
EXPERIENCED SPECIALISTS CAN DO IN A MONTH. AND WHAT HAPPENS? OUR
REMARKABLE MACHINE STANDS IDLE, ALTHOUGH THERE IS CERTAINLY WORK FOR IT
AT OUR ENTERPRISES AND IN OUR ORGANIZATIONS. WE WOULD BE GLAD TO
RECEIVE REQUESTS FOR THE SOLUTION OF ECONOMIC TASKS HERE AT OUR
LABORATORY. THE ELECTRONIC COMPUTER AWAITS ASSIGNMENTS.

UNCLASSIFIED

USSR

UDC 51.621.391

RUMYANTSEV, B. YA., SOLIYEV, I. U.

"Structure of Noise Proof Codes in a Three-Valued Symmetric Alphabet"

V sb. Vopr. tekhn. i mat. obespech. ETsVM Setun' and Minsk-22. Vyp. 1 (Problems of the Hardware and Software for the Setun' and Minsk-22 Digital Computers. Vyp. 1--collection of works), Dushanbe, 1971, pp 42-52 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V302)

Translation: The algorithm for decoding a ternary Hamming code is presented.

1/1

- 24 -

USSR

LAYNER, D. I., TSYPIN, M. I., NOVIKOV, A. V., SHEVAKIN, Yu. F., SOLLER-TINSKAYA, Ye. S., AFONIN, M. P., State Scientific Research and Design Institute of Alloys and Nonferrous Metalworking, Moscow

"Ductility, Brittleness and Superplasticity of Copper"

Abstract: The authors investigate the particulars of behavior of specimens cut from copper ingots and deformed by tension over a broad temperature range (from -196 to 1000°C, tests at 100°C and higher being done in vacuum) at strain rates from 10^{-5} to 10^{-2} s^{-1}. The deformation curves were processed on the "Minsk-32" digital computer. The results show the existence of two fundamentally different mechanisms of high-temperature plastic deformation of copper, in one of which superplasticity is observed due to periodic recrystallization of the metal at the focus of deformations. The existence of such a mechanism of superplasticity may be considered proved, at least for pure metals.

1/1

Acc. Nr: Abstracting Service:
AP0047682   CHEMICAL ABST.5/70   Ref. Code:
                                                  4R 0032

S

104871n   Determination of crystallographic textures on an x-
ray diffractometer.   Lainer, D. L.; Radishevskii, A. I.; Sollur-
tinskaya, E. S. (USSR).   Zavod. Lab. 1970, 36(1), 31-3 (Russ).
Complete data on the crystallographic texture of metals usually
originate from the pole figures.   An exptl. comparison of existing
methods for the construction of the pole figures by means of x-
ray ionization devices in the study of rolled metals is made.
                                                  J. Hejduk

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REEL/FRAME
19791258   18mt

USSR

KARAMYAN, A. I., SOLLERTINSKAYA, T. N., and BALANOV, L. Ya., Institute of
Evolutional Physiology and Biochemistry imeni I. M. Sechenov, Academy of
Sciences USSR, Leningrad

"An Electrophysiological Analysis of the Psycholytic Action of Chlorpromazine
and Barbamil"

Abstract: Effects of chlorpromazine and barbamil on deep brain structures
were studied on rabbits. Preliminary electrostimulation tests demonstrated
that stimulation of the posterior and anterior hypothalamus, the reticular
formation, and thalamic nuclei produced generalized exaltative reactions in
the cortex specific to the particular formation stimulated. Moreover it was
found that the nature of the reaction depends on the activity level of these
structures. For example, stimulation of the reticular formation and posterior
hypothalamus after prior, repeated stimulation of the anterior hypothalamus
produces a reaction characteristic to stimulation of the anterior hypothalamus.
Tests with the drugs themselves showed that chlorpromazine increases the
activity of the anterior hypothalamus, causing diffuse inhibition of the brain's
nonspecific systems: It decreases the activity of the brain stem reticular
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USSR

formation, posterior hypothalamus, nonspecific thalamic nuclei, and caudate nuclei. Barbamil activates nonspecific thalamic systems and caudate nuclei, producing differential effects on brain activity: It decreases the activity of the brain stem reticular formation and posterior hypothalamus, blocks their communication with the neocortex, increases the activity of nonspecific thalamic nuclei and caudate nuclei, and facilitates pulse transmission both ways along corticothalamic routes. In both cases the affected structure dominates in response production as was noted with electrostimulation. Such changes in the source of generalized effects on the brain produced by the drugs are also reflected in changes of background activity and the nature of cortical reactions to afferent stimuli. For example in the presence of chlorpromazine, light, acoustic, and olfactory stimuli cause desynchronization of high-amplitude irregular slow waves, which is a reaction characteristic of a sensitized anterior hypothalamus. The animal's emotional responses to chlorpromazine and barbamil are identical to those produced by stimulating, respectively, the anterior hypothalamus on one hand and the nonspecific thalamic systems and caudate nuclei on the other. A comparison of these results with data obtained on human reactions supports the suggestion that when particular deep brain

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USSR

KARAMYAN, A. I., et al., Biologicheskiy Zhurnal Armenii, Vol 25, No 6-7, Jun/
Jul 72, pp 80-94

structures are activated, they dominate other structures in affecting the
cerebral cortex, causing particular emotional and behavioral responses. This
study indicates the usefulness of employing psycholytic drugs in demonstrating
the function of deep brain structures.

3/3

USSR

LAYNER, D. I., TSYPIN, M. I., NOVIKOV, A. V., SHEVAKIN, Yu. F., SOLLERTINSKAYA, Ye. S., AFONIN, M. P.

"Ductility, Brittleness and Superplasticity of Copper"

Abstract: This work studies the peculiarities of the behavior of specimens (gage section 6 x 30 mm) cut from copper ingots and deformed by extension over a broad range of temperatures (from -196 to +1000°C, tests at 100°C and over conducted in a vacuum) and deformation rate (10^{-5}-10^{-2} sec^{-1}). Deformation curves were processes on a Minsk-32 computer. Three types of copper were tested: M1, containing 99.95% Cu, 0.02% O_2; MOB, containing 99.99% Cu and (5-10)·10^{-4}% O_2; and MVCh, containing 99.994% Cu and (5-10)·10^{-4}% O_2. The work establishes the existence of two mechanisms for plastic deformation of copper at high temperatures. One exhibits superplasticity by periodic recrystalization of the metal in the deformation center. The existence of this superplasticity mechanism can be considered experimentally proven at least for pure metals.

1/1

TITLE--STRUCTURE AND DEVELOPMENT OF THE EARTH'S CRUST IN THE UKRAINE AND ADJACENT REGIONS -U-

AUTHOR-(03)-SOLLOGUB, V.B., CHEKUNOV, A.V., PAVLENKOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--GEOPHYSICAL INSTITUTE ACADEMY OF SCIENCES UKRSSR; MOSCOW, SOVETSKAYA GEOLOGIYA, NO 5, 1970, PP 20-30

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--EARTH CRUST, GEOTECTONICS, MOHOROVICIC DISCONTINUITY, GEOSYNCLINE, GEOLOGIC FAULT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605017/B10 STEP NO--UR/0215/70/000/005/0020/0030

CIRC ACCESSION NO--AP0140719
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0140719   UNCLASSIFIED   PROCESSING DATE--04DEC7

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE AUTHORS HAVE DETERMINED THE
FOLLOWING EVOLUTIONARY SERIES OF GEOSTRUCTURES IN THE UKRAINE AND
ADJACENT AREAS.   ANCIENT (RUSSIAN) CONTINENTAL PLATFORM.   AULACOGENS AND
OTHER PLATFORM DOWNWARPS (DNEPR DON AND BLACK SEA KUBAN).
PARAGEOSYNCLINE (DONBASS).   ORGENS WITH FORDEEPS (CAUCASUS, GREATER
KRIVOY ROG REGION, AND OTHERS).   AGING OROGENS (DONBASS).
INTRAGEOSYNCLINAL SUPERPOSED DEPRESSIONS OF THE OROGENY STATE (GREATER
HUNGARIAN REGION, BLACK SEA).   IT IS SHOWN THAT THE MOST CHARACTERISTIC
FEATURES OF GEOSYNCLINAL DEVELOPMENT IS INVERSION OF THE GEOTECTONIC
REGIME; THIS IS ACCOMPANIED BY DEEP CHANGES IN THE EARTH'S CRUST LEADING
TO THE INVERSION OF ITS BOTTOM RELIEF, THE MOHOROVICIC DISCONTINUITY.
THIS EVOLUTIONARY SERIES IS COLLECTIVE BECAUSE CONTINENTAL PLATFORMS CAN
BE TRANSFORMED INTO SUBOCEANIC DEPRESSIONS, BYPASSING THE GEOSYNCLINAL
STAGE AND THE REGENERATION OF A GEOSYNCLINE IN THE BODY OF THE PLATFORM
IS NOT NECESSARILY TERMINATED IN THE APPEARANCE OF SUBOCEANIC
DEPRESSIONS.   ON THE WHOLE, THE CRUST IN THIS REGION HAS A COMPLEX
LAYERED BLOCK STRUCTURE.   NUMEROUS DEEP FAULTS BOUND THE PRINCIPAL
GEOLOGICAL REGIONS AND SECOND ORDER STRUCTURAL ELEMENTS WITHIN THEM.
MINERAL DEPOSITS ARE CONSISTENTLY FOUND TO BE ASSOCIATED WITH FAULT
ZONES.

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