REEL # 19
Lyubkin, A.A.

USSR

LYUBKIN, A. A.

"A Problem in Linear Boolean Programming with Non-negative Matrix of Limitations"

Vopr. Ekon.-mat. Modelir [Problems of Economic and Mathematical Modeling -- Collection of Works], Moscow University Press, Moscow, 1971, pp 225-237, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V583 by Yu. Finkel'shteyn).

Translation: The following problem 1 is studied (multidimensional pack problem)

$$z = \sum_{j=1}^{n} c_j x_j \to \max,$$

$$\sum_{j=1}^{n} a_{ij} x_j \leq b_i, \quad i = 1, \ldots, m,$$

Here $a_{ij} \geq 0$, $i = 1, \ldots, m$, $j = 1, \ldots, n$. This problem is reduced to the somewhat less general problem 2:

1/5

- 27 -

USSR

LYUBKIN, A. A., Vopr. Ekon.-mat. Modelir, Moscow University Press, Moscow,
1971, pp 225-237.

$$z = \sum_{j=1}^{n} c_j x_j \to \max,$$

$$\sum_{j=1}^{n} a_{ij} x_j \leq 1, \; i = 1, \ldots, m,$$

$$0 \leq x_j \leq 1, \; x_j - \text{целое}, \; j = 1, \ldots, n.$$

Here $\quad 0 < a_{ij} < 1, \; c_j > 0, \; \sum_{j=1}^{n} a_{ij} > 1, \quad i = 1, \ldots, m;$. Plan $\overline{x}$ for problem 2 the
author calls maximal if any plan x' of problem 2 satisfying the condition
$x'_j \geq \overline{x}_j$, $j = 1, \ldots, n$, also necessarily satisfies the condition $x'_j = \overline{x}_j$,
$j = 1, \ldots, n$. The analysis of the author, related to the concept of the
maximum point, is similar to that of V. K. Korobkov [RZhMat, 1965, 11V205),
relating the multidimensional pack problem to the investigation of the cor-
responding monotonic function of logical algebra.
    Theorem 1. Problem 2 is equivalent to a problem, the goal function of
which is the same as problem 2, the variables are Boolean, and all limitations
are

2/5

USSR

LYUBKIN, A. A., Vopr. Ekon.-mat. Modelir, Moscow University Press, Moscow, 1971, pp 225-237.

$$\sum_{i \in I_N} x_i < R_i, \ i = 1, \ldots, N.$$

The proof of Theorem 1 is ineffective.
Subsequently, the well-known problem of coatings is studied (problem 3)

$$z = \sum_{j=1}^{n} c_i x_i \rightarrow \min,$$

$$\sum_{j=1}^{n} a_{ij} x_j \geq 1, \ i = 1, \ldots, m,$$

$$x_j = 0 \ \text{или} \ 1, \ j = 1, \ldots, n.$$

Here all $a_{ij} = 0$ or 1.

Theorem 2. Problem 2 is equivalent to the coating problem. The proof of Theorem 2 is based on Theorem 1 and is also ineffective.

3/5

- 28 -

USSR

LYUBKIN, A. A., Vopr. Ekon.-mat. Modelir, Moscow University Press, Moscow, 1971, pp 225-237.

Based on Theorem 1, Theorem 2 and the results from it, the author states that the difference between the coating problem and problems I. $z = (c, x) \to$ max, $Ax \leq b$, $x_j = 0$ or 1, II. $z = (c, x) \to$ min, $Ax \geq b$, $x_j = 0$ or 1 ($A \geq 0$, $b > 0$, $c > 0$) are purely computative. This statement should be approached quite cautiously, since the reduction to the equivalent problem discussed in Theorems 1 and 2 may result in a great increase in the number of limitations.

Next, a number of pack problems are studied, which can be used to estimate the values of the goal function of problem 2, in particular problem 5:

$$z = \sum_{j=1}^{n} c_j x_j \to \max.$$

$$\sum_{j=1}^{n} (\max_i a_{ij}) x_j \leq 1.$$

$$x_j = 0 \text{ или } 1, \ j = 1, \ldots, n.$$

4/5

USSR

LYUBKIN, A. A., Vopr. Ekon.-mat. Modelir, Moscow University Press, Moscow, 1971, pp 225-237.

and problem 6, similar to problem 5, but with replacement of $\max_{i} a_{ij}$ by

$\sum\limits_{i=1}^{m} \dfrac{a_{il}}{m}$.   . Methods are given for construction of upper and lower estimates

for $\sum\limits_{j=1}^{n} \bar{x}_j$,   , where $\bar{x}$ is the maximum point of problem 2. A diagram is pre-

sented reducing the solution of problem 2 to the solution of a series of problems of coatings or similar problems.

S/5

UDC: 512.25/.26+519.3:330.115

USSR

LYUBKIN, A. A.

"Solution of the Generalized Traveling Salesman Problem for Finite Symmetric Graphs"

V sb. Modelir. ekon. protsessov (Modeling Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 251-287 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V725)

Translation: The author considers a traveling salesman problem where the number of trips in an optimum cycle at the vertex of the graph is not stipulated. A method is presented which is a generalization of the method of branches and boundaries. The given problem stems from the practical job of delivering hot water to predetermined points in such a way that heat losses, which are proportional to the length of the network, are minimized. D. Epshteyn.

1/1

USSR

UDC: 512.25/.26+519.3:330.115

LYUBKIN, A. A.

"On the Problem of Improving the Convergence of the Method of Branches and Boundaries for Traveling Salesman Problems With Symmetric Distance Matrix"

V sb. Modelir. ekon. protsessov (Modeling of Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 289-296 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V724)

Translation: A certain modification of the method is proposed. An example is presented.

1/1

- 29 -

1/2   021   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--EFFECT OF THE INITIAL STRUCTURE ON THE DEPTH AND HARDNESS OF A
  NITRIDED LAYER -U-
AUTHOR-(02)-LAKHTIN, YU.M., LYUBKIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (3), 50-2

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NITRIDATION, ALLOY DESIGNATION, METAL HEAT TREATMENT, LOW
  ALLOY STEEL, ALUMINUM CONTAINING STEEL, METAL DECARBURIZATION, METAL
  BRITTLENESS/(U)38KHMYUA LOW ALLOY STEEL, (U)40KH CHROMIUM STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1705   STEP NO--UR/0129/70/000/003/0050/0052

CIRC ACCESSION NO--AT0118683
                           UNCLASSIFIED

CIRC ACCESSION NO--AT0118683

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. THE EFFECTS OF TEMPERING
CONDITIONS, DECARBURIZATION, AND VARIOUS COMPNS. OF THE ATM. ON DEPTH
AND HARDNESS OF NITRIDED LAYER WERE STUDIED WITH STEELS 38KHMYUA AND 40
KH. SPECIMENS FROM THESE STEELS WERE QUENCHED IN OIL FROM 940 AND
850DEGREES AND TEMPERED AT 530, 550, 575, 600, AND 650DEGREES.
NITRIDING WAS DONE IN NH SUB3 ATM. WITH 25-45PERCENT DISSOCN. AT
520DEGREES FOR 24 HR. DECARBURIZATION WAS CARRIED OUT BY HEATING
SPECIMENTS FOR 12 HR AT 800DEGREES IN A CLOSED CONTAINER CONTG. STEEL
TURNINGS. THUS PRODUCED DEPTH OF DECARBURIZED LAYER WAS 0.7 MM FOR
STEEL 38KHMYUA AND 0.2 MM FOR STEEL 40 KH. THE TEMPERING TEMP. HAD NO
EFFECT ON THE AMT. OF N ABSORBED BY BOTH STEELS. UNDER THE SAME
CONDITIONS STEEL 38KHMYUA (CONTG. AL) ABSORBED TWICE AS MUCH N AS STEEL
40KH. THE DECARBURIZATION TREATMENT OF STEEL 40KH HAD NO EFFECT ON
NITRIDING; THE DEPTH OF THE LAYER, ITS HARDNESS, AND AMT. OF ABSORBED N
REMAINED UNCHANGED AFTER DECARBURIZATION AS COMPARED TO C CONTG. STEEL;
HOWEVER, IN STEEL 38KHMYUA THE DECARBURIZATION INCREASED BOTH THESE
VALUES, WHICHOUT BRITTLENESS FORMATION. INCREASED TEMPERING TEMP.
CAUSED A DECREASE OF DEPTH AND HARDNESS OF NITRIDED LAYER IN BOTH
STEELS. THE NH SUB2 DISSOCN. TO GREATER THAN 60PERCENT DECREASED THE
HARDNESS AND DEPTH OF THE NITRIDED LAYER.

LYUBKIN, A. P.

UR 0482

AAC052688

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, *9-70*

244578 GANTRY CRANE comprising trolley with
polyspast hoist mechanism has the polys-
pasts set horizontally and symmetrically about the
lateral axis of the trolley. This increases the
height to which the load can be lifted. The crane
consists of a rigid rectangular frame 1 with
running wheels 2, driven by electric motor 3 via
reduction gear 4 and pivoted shafts 5. The
trolley is in the form of bearing beam 6 with
running wheels 7 driven by electric motor 8 via
reduction gear 9 and shafts 10. The hoist
mechanism with two load suspensions is made in
the form of two horizontal polyspasts. The fixed
pulleys 12 are set at the edges of the trolley,
and the moving pulleys 13 are connected to running
nuts, moving in guide beams 6 along a screw
driven by electric motor 16 via a reduction gear
Traction cables 18 pass round the fixed and moving

19821469

AA0052688

pulleys. When motor 16 is switched on the screw
is rotated via its reduction gear. Due to its
two-way thread, the nuts are moved opposite ways,
thus moving apart or together the moving pulleys
13, shortening or lengthening the freely hanging
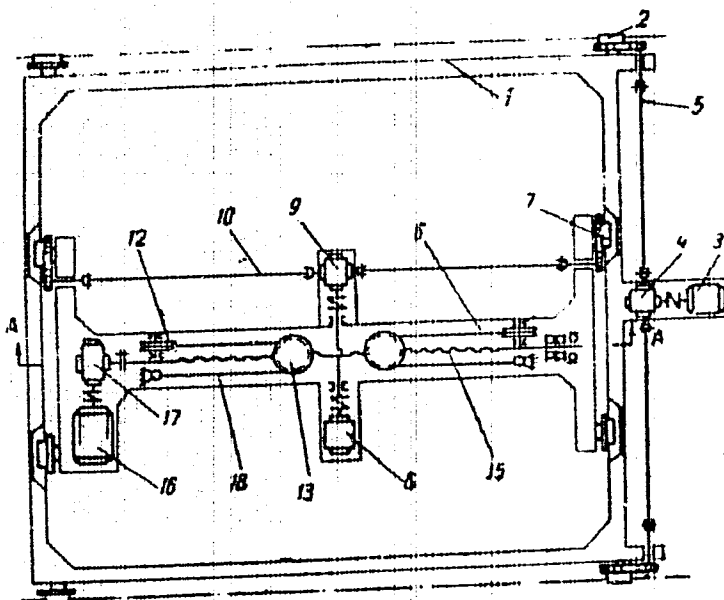suspensions on pulleys 12.
29.12.64. as 936420/27-11, GUBIN, I.P. et al.
Eastern Mining Res. Inst. (8.10.69) Bul.
18/28.5.69. Class 35b, Int. Cl. B 66c.

Gubin, I.P.; Sed'ko, A.P.; Bukhtin, V.S.; Lyubkin, A.P.;
Goncharova, M.A.;   Vostochnyy Nauchno-Issledovatel'skiy
Gornorudnyy Institut

19821470

AA0052688

19821471

USSR

UDC   621.317.761

SHMIDT, V. B., LYUBKO, S. F., and VALITOV, R. A.

"Heterodyne Frequency Meter of Submillimeter Band Radio-Waves"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radio-Engineering, Republic Interagency Thematic Scientific-Technical Collection of Articles), 1972, vyp.21, pp 177-180 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A267)

Translation: The authors describe the circuit and principle of operation of a heterodyne frequency meter of submillimeter band radio-waves. The meter is designed for the direct measurement of frequency in the 240-1000 Gcps range. The basic operation of the unit involves the interpolation principle of metering the frequency of the measured signal at a scanning frequency of an oscillograph indicator. The interpolator is built on the basis of a Fabry-Perot interferometer with spherical mirrors. Original article: two illustrations and three bibliographic entries. Resume.

1/1

Welding

USSR

KOSOY, L. F., SHALIMOV, A. G., LYUBKOVSKIY, V. M., KUSHNIRENKO, B. N., and
GANELIN, D. N.

"Surface Phenomena and Their Role in Welding High-Strength Steel of Increased
Purity"

Abstract: The proposal that the surface tension of a metal has a significant
effect on the depth of fusion during welding was stated earlier. The method of
maximum gas pressure in a bubble was used to measure the surface tension of VP-25
steel in various steel-making procedures. VP-25 steel refined by synthetic slag
at 1600°C has a surface tension 100-160 ergs/cm² higher than the same steel from
an ordinary melt. This increased surface tension is connected with a reduction
in the content of surface-active elements -- sulfur and oxygen -- as a result of
refinement of the steel by synthetic slag. An especially sharp drop in the sur-
face tension of this steel was observed with an increase in the sulfur content to
0.030%. Small additions of sulfur noticeably increased the depth of fusion of VP-
25 steel. The nature of the relations obtained confirms the stated proposition
for argon-arc welding. The mechanism of the effect of the purity of the metal
with respect to the indicated admixtures is obviously the only one, and it does
1/2

USSR

KOSOY, L. F., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1970, pp 18-21

not depend on the refining procedure. In order to increase the depth of fusion of the metal, special activating fluxes were proposed. Application of these fluxes during argon-arc welding of high-strength steels of increased purity resulted in a good-quality welded joint without increasing the welding current. The results of measuring the surface tension of VP-25 steel made by the two procedures are tabulated in the article, and graphs are presented showing the effect of sulfur on surface tension and on depth of fusion of VP-25 steel.

2/2

USSR   UDC 661.183.123.2

LYUBLINER, I. P., YERMOLENKO, I. N., KOFMAN, A. YE., and DIN', K. K.,
Institute of General and Inorganic Chemistry, Academy of Sciences BSSR

"Investigation of the Phosphorylation Process of Carbon Fibers"

Minsk, Vesti Akademii Navuk BSSR, Seriya Khimicheskikh Navuk, No 3, 1973,
pp 80-85

Abstract: The phosphorylation process of carbon fiber materials obtained by
pyrolysis of oxidized cellulose with PCl_3 vapors has been investigated by
means of physico-chemical methods. It has been shown that the amount of
chemically bound phosphorus increases with increasing temperature of phos-
phorylation up to the maximum of 10 weight-%. At the same time it depends
on the pyrolysis temperature of the carbon fiber used in phosphorylation. By
means of chemical analyses and potentiometric titration it has been established
that the phosphorylated fibers obtained are monobasic ion exchange resins
with exchange capacity of up to 3 mg-eq/g. The IR spectra and chemical
studies showed that along with the phosphorylation process there occurs
an addition of chlorine to the carbon fiber. The roentgenograms show that
during the phosphorylation process no structural changes in the fibers take
1/2

USSR

LYUBLINER, I. P., et al., Vestsi Akademii Navuk BSSR, Seriya Khimicheskikh
Navuk, No 3, 1973, pp 80-85

place, except for some degree of disorganization. The thermal stability of
phosphorylated carbon fibers is higher by about 100^b than that of the starting
carbon. The phosphorylated ion exchange resins are stable in strongly
acetic media during repeated sorption-desorption cycles.

- END -

2/2

CSO: 1841-W

Acc. Nr: AP0043940   /   ReF. Code: UR 0016

FILTERS MADE OF CELLULOSE DERIVATIVES FOR STERILIZATION OF AIR AND FLUIDS

Yermolenko, I. N.; Lyubliner, I. P.; Stakovskiy, Ye. V.

Antimicrobial fibrous materials on the basis of cellulose were obtained by introduction of ionic groups into the composition of a polymere by esterification with phosphoric acid in the presence of urea and subsequent sorption of the preparations-aseptics (methylene blue, trypaflavine and silver) from water solutions. Antimicrobial activity of these materials was determined by passing the air through a layer of the filter into a fluid nutrient medium, with subsequent transfer to spolid media.

It was shown that when methylene blue and trypaflavine content was over 0.25% and silver — over 0.62 of the weight of the filter, the latter proved to sterilize the air well. Treatment of these materials in noniogenic washing agents was not accompanied by reduction of antimicrobial activity.

6 DI

1/1

REEL/FRAME
19770366

Public Health, Hygiene and Sanitation

USSR   UDC: 614.48:615.478.74

YERMOLENKO, I.N., LYUBLINER, I.P., and STAKHOVSKIY, YE.V., Institute of
General and Inorganic Chemistry, Academy of Sciences, Belorussian SSR, and
Belorussian Scientific Research Institute of Hematology and Blood Transfusion

"Filters Made of Cellulose Derivatives for Sterilizing Air and Liquids"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, 1970, pp
107-111

Abstract: Filters made of cellulose phosphate and impregnated with the anti-
septics methylene blue, trypaflavine, and silver exhibited marked antimicrobial
activity. Air became sterile when passed through filters containing more than
0.25% methylene blue or 0.25% trypaflavine, and more than 0.62% silver.
Filters containing more than 0.62% silver sterilized liquids, while those with
0.5% methylene blue or 0.5% trypaflavine had only a bacteriostatic effect.
The materials tested were resistant to laundering, highly air, permeable and
capable of sterilizing a large volume of air without regeneration. These
features, plus their biological compatibility and inexpensiveness, recommend
them as filters and for use in manufacturing protective clothing, masks, etc.

1/1

LYUBLINSKIY, I.A.

neurology

USSR   UDC: 8.74

LYUBLINSKIY, R. N., MALYSHENKO, A. M.

"Methods of Prediction in Automated Production Management Systems"

V sb. Vopr. programmir. i avtomatiz. proyektir. (Problems of Design Pro-
gramming and Automation--collection of works), Tomsk, Tomsk University,
1971, pp 162-181 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1061)

Translation: A classification tree is presented for methods of prediction
in automated production management systems for solution of the following
groups of problems: 1) prediction in technological problems of automated
systems of production management; 2) prediction in problems of operational
control; 3) prediction in problems of the control of an effect, process,
etc. Prediction is understood to mean scientifically valid prognosis of
the future, fixing an event unobserved at the present instant and con-
taining an indication of the spatial or temporal interval within which
the event will occur, this interval being closed and finite. V. Mikheyev.

1/1

- 53 -

USSR   UDC 620.197.5:669.717

LYUBLINSKIY, YE. YA. and BIBIKOV, N. N., Central Scientific Research
Institute of Shipbuilding Technology

"Cathodic Processes and Parameters of Protection of Aluminum and Its Alloys
in Sea Water"

Moscow, Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 36-39

Abstract: Use was made of the analysis of potentiokinetic curves to explain
the mechanism of cathodic processes and determine the minimum required and
maximum permissible parameters of electrochemical protection of aluminum
and its alloys in sea water of different salinities. The experimental
materials were A99 and AMg-61 alloys. The potentiokinetic curves were
plotted of the specimens in sea water ranging in salinity from 0.3 to 35% at
18-20°C. The experimental results show that aluminum and its alloys need
no cathodic protection at salinities up to 3%. At salinities ranging from
3 to 35% corrosion is inhibited at potentials from -0.57 to -0.78 v.
"Overprotection" sets in at potentials of -1.07 to -0.96 v. The minimal
protection shifts of the potential from its stationary value with a change
in salinity from 0.3 to 35% increases from 20 to 150 mv. It should be borne

1/2

USSR

LYUBLINSKIY, YE. YA., et al, Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 36-39

in mind that with prolonged cathodic polarization the overprotection phenomenon may set in at a more positive potential (by about 50 mv) due to an increase in the pH of the layer near the electrode with time. (3 illustr., 7 bibliographic references)

2/2

USSR   UDC: 620.197.5

LYUBLINSKIY, YE. YA., BIBIKOV, N. N., TAYTS, A. Yu., and SUBBOTINA, M. S.,
Central Scientific-Research Institute of Shipbuilding Technology

"Selection of Cast Magnesium Protector Alloys"

Moscow, Zashchita Metallov, "Nauka", Vol 7, No 3, 1971, pp 322-326

Abstract: The authors determine the optimal composition of a magnesium pro-
tector alloy. The tests were conducted in calm, artificial sea water of
average ocean composition at 18-20 degrees. A table is given which shows that
commercially pure alloys have similar electrochemical characteristics. Of the
high-purity alloys, the Ml4vch alloy appears to be the qualitatively test
protector material. The following are its composition and electrochemical
characteristics obtained at a current density of 5 a/m^2 and a test duration of
480 hr: alloying elements by percent, 5.9 Al, 2.4 Zn, 0.40 Mn, and 0.0 Ce;
impurities by percent, 0.0035 Fe, 0.0005 Cu, and 0.0002 Ni; potential during
polarization in mv, -1205; and current efficiency by percent, 60.0. The
studies show Ml4vch to be the best protector material if it does not contain
more than 0.001 Ni, 0.0045 Fe, and 0.005 Cu. It dissolves within the 3-10 a/m^2
current density interval with a current efficiency of 57.5-62.0% at a potential
of -1225-1205 mv. Original article: one table, two formulas, one figure, and
seven bibliographic entries.
1/1

-- 24 --

Corrosion

USSR   UDC 620.197.5:629.123

BIBIKOV, N. N., LYUBLINSKIY, YE. YA., and PCVAROVA, L. V.

"Electrochemical Protection of Ships From Corrosion"

Electrokhimicheskaya Zashchita Morskikh Sudov ot Korrozli, "Sudostroyeniye"
Publishing House, Leningrad, 1971, 261 pp

Translation of Authors' Foreward: Corrosion protection of the underwater
structures of ships is an important consideration in shipbuilding. The pro-
blem has grown more urgent in recent years because of the use of alloy
steels and aluminum alloys in hulls, the employment of structures made of
different kinds of metals and alloys, the increased speed of ships, and wider
sailing ranges, including voyages to tropical and northern latitudes. The
increased demands for the protection of ships against corrosion have led to
the development and application of new and more effective paints and varnishes.
However, in most cases the use of paints and varnishes alone cannot solve all
the problems connected with protecting ships against corrosion that arise
in shipbuilding. The combination of paints and varnishes with electrochemical
protection is the most promising method of controlling corrosion.

     The technical and economic benefits from electrochemical protection
are not limited to the elimination of corrosion and the reduction of ship
1/6

USSR

BIBIKOV, N. N., et al., Elektrokhimicheskaya Zashchita Morskikh Sudov ot
Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

repair costs. Electrochemical protection combined with the use of paints and
varnishes opens up the possibility of increasing the profitability of ships.
It increases freight transport volume by reducing the number and duration of
dry-dockings. It reduces the thickness of the hull planking. Electrochemical
protection simplifies the schedules for painting the underwater part of the
hull by reducing the number of layers of anticorrosion coatings and, in some
types of ships, by making it unnecessary to paint the underwater part of the
hull. Electrochemical protection makes it possible to retain the rated speed
of ships throughout the period between dockings while lowering fuel costs by
making the underwater part of the hull smoother.

      Electrochemical protection of ships is being used more and more. This
has made it necessary to sum up the results of research on the subject and
the experience gained in the design, installation, and operation of systems
of electrochemical protection on naval vessesl.

      The book discusses the problems involved in electrochemical protection
of ships. It examines the underlying theory and deals with the physicochemical

2/6

USSR

BIBIKOV, N. N., et al., Eleltrokhimicheskaya Zashchita Morskikh Sudov ot
Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

properties of sea and river water, the physicochemical and mechanical properties
of protective anodic, and other materials for components of the protection
system and substantiates their choice. The book describes the electrochemical
protection systems now in use and considers a number of matters that must be
kept in mind if there is to be efficient development and improvement of pro-
tection systems.

       This book is the product of long-term research by the authors carried
out jointly with L. I. Stoklitskiy, M. I. Dzyubenko, Ya. A. Tsenter, A. Yu.
Tayts, F. N. Ginsburg, V. K. Fedorov, A. N. Antonov, Yu. L. Kuz'min, N. D.
Sashchenko, T. M. Karatayeva, N. Z. Proskuryakova, M. F. Subbotina, D. A.
Moritsyna, L. I. Katkov, R. S. Pomiranskiy, K. M. Sazonova, V. A. Nabokova,
V. M. Pender, L. I. Ivanova, and others.

       The authors thank A. L. Rotinyan, M. A. Dasoyan, and Yu. Ye. Zobachev
for valuable advice.

       Please send comments and suggestions to: Leningrad, D-65, 8 Gogol'
Street, "Sudostroyeniye" Publishing House.
3/6

USSR

BIBIKOV, N. N., et al., Elektrokhimicheskaya Zashchita Morskikh Sudov ot Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

Translation of Table of Contents:

4/6

- 20 -

USSR

BIBIKOV, N. N., et al., Elektrokhimicheskaya Zashchita Morskikh Sudov ot
Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

5/6

USSR

BIBIKOV, N. N., et al., Elektrokhimicheskaya Zashchita Morskikh Sudov ot
Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

6/6

- 21 -

UDC 669.715.620.193.27.669.1

USSR

LYUBLINSKIY, Ye. Ya., TSENTER, Ya. A.

"Establishment of Optimal Content of Iron in Aluminum Protector Alloys"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magne-sium and Electrode Industry], 1970, No. 71, pp. 135-140. (Translated from Refer-ativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I700 by the authors).

Translation: Results are presented from studies of the electrochemical properties of protector aluminum alloys of various purities. Comparison of technical and economic indicators forms the basis for recommendations of optimal Fe contents in the alloys. The parameters of protector alloys with broad polarization modes are established. 3 figs.

1/1

UDC: 620.197.5

USSR

LYUBLINSKIY, Ye. Ya., Central Scientific Research Institute of Shipbuilding Technology

"Phase Composition and Anodic Behavior of Protective Zinc Alloys in Sea Water"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 436-439

Abstract: The principal alloying element in protective zinc alloys is aluminum. Its optimum content in binary, ternary, and multi-component alloys as well as the effect of other additions are still to be determined. The electrochemical study made use of calm synthetic sea water of average oceanic composition. The chemical composition of the ternary zinc alloys molten in a graphite crucible in an induction furnace is cited in a table. The alloy base was ChVCh-grade zinc. Zinc-base alloys of the Zn-Al system may be single-phase (α -solid solution) or comprise two phases: α and β . Metallographic studies indicate that Zn-Al alloys containing up to 0.6% aluminum are single-phase and are α -solid solutions. Alloys with 1-3% Al are two-phase. The amount of the β -phase increases with the aluminum

1/2

USSR

LYUBLINSKIY, Ye. Ya., Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 436-439

content. Comparison of electrochemical properties and the microstructure of the alloys shows that the anodic activity increases with the Al content in the α-solid solution. The appearance and increase in the amount of the β-phase content reduces the current efficiency and yield but raises the polarizability of alloys. A study of the microstructure of ternary alloys shows that the better electrochemical characteristics of the ZN-Al-Mn system are explained by the fact that Mn additions raise Al solubility in the α-solid solution. Calcium and magnesium increase the β-phase content in the alloy and thus reduce both the current efficiency and electronegative potential; they augment the tendency of the alloys to passivation on anodic polarization. Both Ca and Mg are not advisable for addition. It is suggested that protective alloys of the Zn-Al and Zn-Al-Mn systems must be produced under conditions precluding the formation of the β-phase.

2/2

USSR

GREBENYUK, V. D., LYUBMAN, N. Ya., GNUSIN, N. P., Institute Physical and Chemical
Bases of Processing Raw Materials, Novosibirsk, Siberian Department, Academy of
Sciences USSR
"Investigation of Electrical Conductivity in Connection with Heterogeneity of Ion-
Exchange Materials"

Abstract: In spite of the importance of homogeneity in ionites, there are no
simple, rapid methods for determining homogeneity. This work is a direct ex-
perimental test of an earlier statement that with decreased concentration of
a dilute equilibrium solution, heterogeneity of ionite material should lead
to a sharp drop in electrical conductivity. Ionites with various degrees of
homogeneity, created either in synthesis or by subsequent treatment, were
used in the work. An increase of heterogeneity of ionites in the area of
dilute equilibrium solutions leads to an increase in the slope of the curve
of electrical conductivity of the ionite as a function of concentration of
the equilibrium solution. This effect can be used for comparative evaluation
of the degree of heterogeneity of the ionites.

1/1

UNCLASSIFIED   PROCESSING DATE--18SEP70

1/2   015

TITLE--THERMODYNAMICS OF OUTER SPHERE COMPLEXES. III. EFFECT OF SOLUTION IONIC STRENGTH ON THE STABILITY OF HEXAAMMINE COBALT(III) MONOHALIDES

AUTHOR-(03)-MIRONOV, V.YE., LYUBOMIROVA, K.N., RAGULIN, G.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 416-419

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMICS, COBALT COMPLEX, IONIC BONDING, STABILITY CONSTANT, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0328   STEP NO--UR/0076/70/044/002/0416/0419

CIRC ACCESSION NO--AP0103983
                          UNCLASSIFIED

2/2   015
CIRC ACCESSION NO--AP0103983
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF (CO(NH SUB3) SUB6)
(CLO SUB4) SUB3 IN 0.2M SOLNS. OF LI(CLO SUB4, X), WHERE X IS CL, BR,
AND I AT 15 TO 45DEGREES IS STUDIED. THE STABILITY CONSTS. OF THE OUTER
SPHERE COMPLEXES ((CO(NH SUB3) SUB6)X) PRIME2 PLUS ARE CALCD. THE
NECESSITY FOR CALCG. THE STABILITY CONSTS. OF THE OUTER SPHERE COMPLEXES
IN SOLNS. WITH ZERO IONIC STRENGTH IS SHOWN.

USSR

LYUBOMUDROV, V. Ye., Professor, Donetsk, (Reviewer)

Khronicheskoye Vozdeystviye Rtuti na Organizm (Chronic Effect of Mercury on the Organism), by I. M. Trakhtenberg, Kiev, "Zdorov'ya", 1969, 392 pp

Kiev, Vrachebnoye Delo, No 1, Jan 71, pp 155-156

Abstract: In this monograph problems associated with mercury poisoning and its pathogenesis and clinical manifestations are discussed. An attempt is also made to elucidate some symptom complexes of the body's reactions to mercury. The importance of mercury to the national economy, its physical and chemical properties, its biological effects on the organism, and methods for diagnosis of mercury intoxication are described. The everincreasing use of mercury in industrial processes and operations, the consequent increase in contact of workers with the metal, and the necessity of measures for reducing the danger of development of mercury intoxication are noted. The clinical manifestations of light mercury intoxication are described in detail, with emphasis on the fact that the light form differs from typical forms of chronic mercury intoxication not only in the intensity of manifestation of its symptoms, but also in the definite difference

1/2

USSR

LYUBOMUDROV, V. Ye., Vrachebnoye Delo, No 1, Jan 71, pp 155-156

in the organic changes taking place in the organism. Characteristic symptoms include asthenia, some loss of memory, somnolence during the day and insomnia at night, emotional instability with rapid mood changes, irritability, apathy, hematologic shifts, and shifts in the immunobiological reactivity of the organism, particularly increased sensitivity to influenza virus. Early symptoms of slight mercury intoxication are a decline in the activity of some of the enzyme systems, a decrease in the content of sulfhydryl groups in the blood, and a disturbed balance of a number of trace elements in the organism. Numerous studies which have been conducted make it possible to discover some rational means for the prophylaxis of mercury intoxication at industrial enterprises. The monograph is timely, answers a number of questions connected with problems of labor hygiene and occupational pathology, and is an important contribution to the literature on mild mercury intoxication in industry.

2/2

- 70 -

TITLE--VARIANTS OF VIBRATION DISEASE IN DRIFTERS OF THE DONBASS COAL MINES
-U-

AUTHOR-(05)-BASAMYGINA, L.YA., BONDARENKO, G.A., ZHILKO, S.M.,
LYUBOMUDROV, V.YE., SUKHARSKAYA, L.M.

COUNTRY OF INFO--USSR

SCURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 137-140

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOLOGIC VIBRATION EFFECT, NERVOUS SYSTEM DISEASE, INDUSTRIAL
HYGIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1747   STEP NO--UR/0475/70/000/005/0137/0140

CIRC ACCESSION NO--AP0129115
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70

CIRC ACCESSICN NU--AP0129115
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYSIS OF VIBRATION DISEASE
   IN DRIFTERS OF COAL MINES INDICATES THAT THE CLINICAL PICTURE OF THE
   DISEASE IN DRIFTERS OF HORIZONTAL SHAFTES IS DOMINATED BY PHENOMENA OF
   VEGETATIVE POLYNEURITIS, MAINLY IN THE UPPER EXTREMITIES; IN COAL MINE
   BUILDING WORKERS VEGETATIVE POLYNEURITIS IS MARKED BOTH IN THE UPPER AND
   LOWER EXTREMITIES AND IS DETECTED AT THE BACKGROUND OF DISORDERS OF THE
   NERVOUS ACTIVITY AND ORGANIC LESIONS OF THE NERVOUS SYSTEM.
   FACILITY: DONETSKIY MEDITSINSKIY INSTITUT.

UNCLASSIFIED

ON THE THERAPEUTIC EFFICIENCY OF ELEUTHEROCOCCUS

Lyubomudrov, V.Ye.; Basamygina, L.Ya.; Bikezina, V.G.;
Mukhina, M.S.; Mikhaylova, T.I.; Osadchuk, V.S.;   (Donetsk)
Shidlovskiy, Ye.F.; Bondarenko, G.A.; Demkovich, O.A.

Eleutherococcus improves abnormal pulmonary ventilation, favours normalization of the arterial pressure, positively influences cardiac rhythm and His bundle conduction. It proved rather efficient in the treatment of patients with initial stages of vibration disease. It is promising in the treatment of chronic lead intoxication. The preparation favours more rapid acclimatization of pneumoconiosis involved miners.

It is concluded that eleutherococcus may be recommended for the complex treatment of patients with some professional diseases and more rapid acclimatization of patients to sanatorium conditions.

mK

2

REEL/FRAME

19681507

TITLE--RADIOLOGICAL CHARACTERISTICS AND THE COURSE OF EARLY STAGES OF
   ANTHRACOSIS -U-

AUTHOR-(05)-LYUBOPUDROV, V.YE., ZHILKO, S.M., KIRYUKHINA, N.V., SIROTA,
   G.M., SKUCHELYAS, A.R.

COUNTRY OF INFO--USSR

SOURCE--FRUNZE, SOVETSKOYE ZDRAVOOKHRANENIYE KIRGIZII, NO 1, 1970, PP
   42-44

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, X RAY APPLICATION, INDUSTRIAL
   HYGIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1212   STEP NO--UR/9093/70/000/001/0042/0044

CIRC ACCESSION NO--AP0123176
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0123176
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHARACTERISTICS OF THE INITIAL
STAGES OF ANTHRACOSIS, AS DETERMINED BY X RAY, WERE STUDIED, AND THE
COURSE OF THE DISEASE WAS TRACED. COAL MINERS WERE STUDIED ON THE BASIS
OF X RAYS REPEATED EVERY TWO TO THREE YEARS. IT WAS ESTABLISHED THAT
LINEAR AND NODULAR LOCAL FIBROSES ARE THE INITIAL STAGES OF ANTHRACOSIS.
SCLEROTIC FIBROSIS WAS FREQUENTLY COMBINED WITH BRONCHITIS OR
EMPHYSEMA, WHICH SEVERLY COMPLICATE THE COURSE OF THE DISEASE.
FACILITY: MEDICAL INSTITUTE IMENI A. M. GOR'KIY.   FACILITY:
OBLAST CLINICAL HOSPITAL OF OCCUPATIONAL DISEASES, DONETSK.

UNCLASSIFIED

USSR

UDC: 616.24-003.656.6

LYUBOMUDROV, V. Ye., ZHILKO, S. M., KIRYUKHINA, N. V., SIROTA, G. M., SKOCHELYAS, A. R., TAUSHAN, M. T., and YARTSEVA, P. A., Medical Institute imeni A. M. Gor'kiy, and Oblast Clinical Hospital of Occupational Diseases, Donetsk

"Radiological Characteristics and the Course of Early Stages of Anthracosis"

Abstract: Characteristics of the initial stages of anthracosis, as determined by x-ray, were studied, and the course of the disease was traced. Coal miners were studied on the basis of x-rays repeated every two to three years. It was established that linear and nodular local fibroses are the initial stages of anthracosis. Sclerotic fibrosis was frequently combined with bronchitis or emphysema, which severely complicate the course of the disease.

1/1

UNCLASSIFIED   PROCESSING DATE--20NOV70

1/2   024
TITLE--INCIDENCE, PECULIARITIES OF THE CLINICAL PICTURE AND COURSE OF
    VARIOUS FORMS OF ANTRACOSIS -U-
AUTHOR-(04)-LYUBCHUDROV, V.YE., KIRYUKHINA, N.V., SIROTA, G.M.,
    GURKOVSKAYA, S.M.
CCUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 71-74

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, RADIOGRAPHY, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1911   STEP NO--UR/0504/70/042/006/0071/0074

CIRC ACCESSION NO--AP0120260
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129260
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A COMPARATIVE STUDY WAS MADE OF
   PECULIARITIES OF DEVELOPMENT, INCIDENCE, CLINICAL PICTURE AND COURSE OF
   NODULAR AND DIFFUSE SCLEROTIC FORM OF ANTHRACOSIS. IT WAS ESTABLISHED
   THAT DIFFUSE SCLEROTIC FORM RAN A MORE SEVERE COURSE THAN NODULAR ONE,
   PROGRESSED MORE RAPIDLY ACCORDING TO THE DATA OF CLINICAL AND
   ROENTGENOLOGICAL STUDY. RECOMMENDATIONS ARE GIVEN CONCERNING THERAPY,
   EVALUATION OF CAPACITY FOR WORK AND PLACEMENT OF PATIENTS.
FACILITY: KAFEDRA PROFPATOLOGII DONETSKOGO MEDITSINSKOGO INSTITUTA I
   OBLASTNAYA KLINICHESKAYA BOL'NITSA PROFESSIONAL'NYKH ZABOLEVANIY,
   DONETSK.

                              UNCLASSIFIED

USSR

UDC 576.8.095:622.323

COL'DENBERG, A. M., KVASNYKOV, YE. I., BOYKO, H. M., LYUDVICHENKO, O. H., PAVLENKO, M. I., PYSARCHUK, YE. M., and KHYZHNYAK, O. O., Ivano-Frankovsk, Central Scientific Research Laboratory, and Institute of Microbiology and Virology, Academy of Sciences UkrSSR

"Biochemical Processes During Oil Displacement Under the Influence of Bacteria in Model Experiments"

Abstract: Introduction of selected cultures of gas-forming bacteria from the genus Clostridium together with a molasses medium into an artificial model of an oil-bearing bed (sand saturated with oil) results in higher displacement of oil as compared to the control (without addition of bacteria). Most crucial changes in the medium enriched with bacteria occur in 5-7 days at an optimum temperature of 30°C, that is during the period of most intensive changes in the nutrient medium and maximum gas production. At that time the surface tension at the interphase culture medium-air is lowered, the amount of organic acids and ethanol is increased and the pH of the medium is lowered. The specific gravity of the oil exposed to bacteria is lowered by 0.0018-0.0096 g/cm³, and its viscosity is lowered by 0.51-3.02 cst, without any changes in its fractional composition.

1/1

LYUBOSHITS, I.L.

UR 0482

AA0051877

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent,

237319   ROTATING REGENERATIVE HEAT-EXCHANGER, comprising body with base and cap, counterflow inlets and outlets for heat-exchange media and rotor with gasproof radial ribs, differing in having alternating baffles on the cap and base. This intensifies the heat exchange. The heat exchanger consists of fixed cylindrical body 1 with cap 2 and base 3 having inlets and outlets 4 and 5 for heat-exchange media in counter-flow, and rotor 6 with gasproof ribs 8 on vertical shaft 7, forming sections 9 for the heat-exchange scale dispersal. The cap and base have alternating gas-proof baffles 10, which with ribs 8 form channels 11 to provide multiple motion of each heat-conductor via sections 9 with alternating upward and

19820333

A0051877

downward flow, providing pseudo-lique-faction of
the scale layer in the channels with upward flow.
To prevent cross-flow between the hot and cold
zones, sliding-type sealing device 12 is used.
22.7.66 as 1091558/24-6 LIUBOSHITS I.L. & PIKUS I.F.
et al. Institute of Thermal and Mass Exchange of the
Belorussian Academy of Science (16.6.69) Bul. 8/
12.2.69. Class 24c, Int. Cl. F 23f.

AUTHORS: Lyuboshits, I. L.; Pikus, I. F.

Institut Teplo - i Massoobmena AN Belorusskcy SSR.

19820334

/3

AA0051877

19820335

3/3
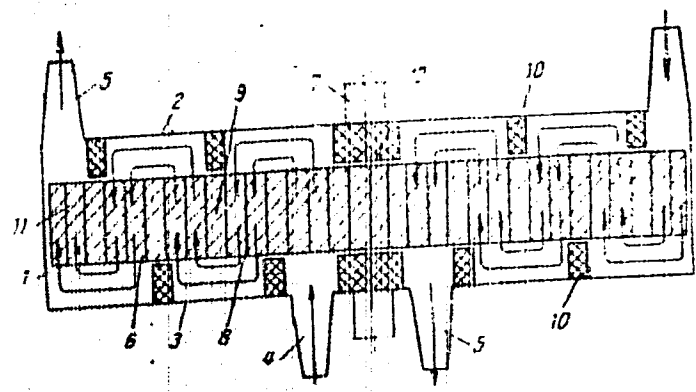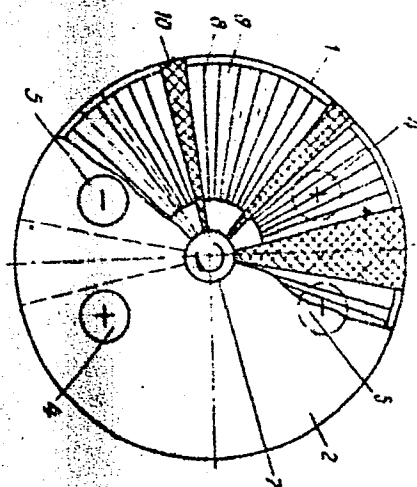
UDC: 51

USSR

LYUBOTA, V. N.

"On the Problem of Solving Linear Network Problems Encountered in Production and Economics"

V sb. Vopr. povysh. effektivn. proiz-va na prom. predpriyatiyakh USSR (Problems of Increasing Production Efficiency in Industrial Enterprises of the UkrSSR--collection of works), L'vov, 1971, pp 182-184 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V926)

[No abstract]

Molecular Physics

USSR

LYUBOV', REBANE, SAARI, P. and AVARMAA, R.

"Oscillatory Relaxation and Radiationless Transitions in Certain Molecular Lumi-
nescence Centers"

Tallin, Izvestiya Akademii Nauk Estonskoy SSR, Fizika, Matematika, No. 1,
1970, pp 44-56

Abstract: The authors' work on oscillatory relaxation and radiationless transi-
tion processes in molecular luminescence centers of O_2^-, S_2^-, and NO_2^- in alkali-
halide crystal matrices is reviewed. Emphasis is given to finding the parameters
of radiationless transitions and the oscillator relaxation times; i.e., the time
for decay of local (intramolecular) oscillations into phonons of crystal oscil-
lations. The studies showed that radiationless transitions in impurity centers
formed by O_2^-, S_2^-, and NO_2^- molecules are similar to tunnel transitions but that
the processes do not conform to the classical Franck-Condon principle. In the
case of NO_2^- centers, for example, it was shown that competition between radia-
tionless transitions and transitions accompanied by oscillatory relaxation leads
to a drop in the luminescence output as the frequency of the exciting light in-
creases. So-called optical quenching was also observed in NO_2^- centers. Several
quantities and relationships describing the oscillatory relaxation process at an
NO_2^- center in a KCl crystal lattice were determined experimentally at the local
oscillation stage.

Card 1/1

UDC 548.52

USSR

LYUBOV, B. YA., and PLAKHOTNIK, V. T., Moscow Institute of Electronic Engineer-
ing

"Impurity Distribution in an Epitaxial Film Calculated as a Function of the
Law of Variation of Its Thickness With Time"

Abstract: A method for solving the diffusion equation for a region whose
boundaries vary in a given manner with time is used by the authors to calcu-
late the concentration profiles of an impurity coming into a film from the
substrate. The growth rate variable for the film thickness is represented by
a second-degree polynomial. It is shown that by varying the law for the film
thickness growth rate as a function of the growth time, it is possible to
obtain practically homogeneous distributions of impurities diffusing into the
film from the substrate.

1/1

UDC 53:51

USSR

KARTASHOV, E. M. and LYUBOV, B. Ya., Moscow State University imeni V. I. Lenin

"Method for Solving Boundary Value Problems of Heat Conductivity for a Region With a Boundary That Moves According to a Parabolic Law"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No. 1, Jan 71, pp 3-16

Abstract: A general method is given for solving heat problems for a region that moves according to a parabolic law. This method involves as particular cases previously known results by Grinberg, Redozubov, Antimirov, and Geller. It is noted that the study of heat conductivity (or diffusion) in a region with a moving boundary is of considerable interest in the kinetic theory of crystal growth and the physics of the strength of solids. If the law for the motion of the boundary is arbitrary, the analytical study of heat transfer becomes difficult due to the necessity of solving Volterra integral equations of the second kind. Serious technical difficulties arise in their solution due to the complexity of the kernels of the equations. With uniform motion of the boundary it is possible to give an analytical solution of the problem for a general form of the boundary conditions.

1/2

USSR

KARTASHOV, E. M. and LYUBOV, B. Ya., Zhurnal tekhnicheskoy fiziki, No. 1,
Jan 71, pp 3-16

If the boundary moves according to a parabolic law, one can obtain solutions of
heat problems by various methods for boundary conditions that are constant, given
in the form of polynomials or represented in Maclaurin series. Solutions in terms
of infinite series are obtained for the heat conductivity equation in the region
$0 < x < \gamma\sqrt{2at}$ for boundary conditions of the first kind, in the region $x > \gamma\sqrt{2at}$
for boundary conditions of the first and second kind, and also for boundary condi-
tions of the fourth kind. It is noted that in each of the expansions in the infi-
nite series, one can express the functions of the parabolic cylinder in terms of
degenerate hypergeometric functions, which have been widely tabulated and fairly
well studied.

2/2

USSR

LYUBOV, B. Ya.; KARTASHOV, E. N. (Moscow State Pedagogical Institute im. V. I. Lenina)

"Method of Solving Boundary Value Problems of Diffusion for a Region with a Boundary Moving According to an Arbitrary Law"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy: Fizika; December, 1970; pp 97-101

ABSTRACT: A general method for solving the boundary value problem of diffusion in a bounded region with the boundary moving according to an arbitrary law is presented. The solution of the first linear diffusion problem is found by this method. Other boundary value problems can be solved in a similar manner.

The article includes 23 equations and one figure. There are 26 references.

1/1

1/2   034   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--EFFECT OF DRIFT ON THE DIFFUSION GROWTH OF THE CENTER OF A NEW
PHASE IN THE FIELD OF ELASTIC STRAIN OF AN EDGE DISLOCATION -U-
AUTHOR-(02)-LYUBOV, B.YA., SHMAKOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 123-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DRIFT MOBILITY, ELASTIC STRESS, PHASE TRANSITION, IRON ALLOY,
CARBON, CRYSTAL DISLOCATION, METAL DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/2004   STEP NO--UR/0370/70/000/001/0123/0128

CIRC ACCESSION NO--AP0105078
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0105078

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENCE OF THE TITLE DRIFT CAUSES ASYMMETRY OF FORM. HOWEVER, THE DETG. PROCESS DURING HIGH TEMP. PHASE TRANSFORMATIONS IN THE FE-C REMAINS NORMAL DIFFUSION AS CONSIDERED PREVIOUSLY, WHILE THE EFFECT OF DRIFT IS NEGLIGIBLE. A CRIT. FACTOR HERE IS THE CONSIDERATION OF THE MUTUAL ACTION OF DISLOCATIONS WITH CENTERS GROWING ON THEM AND THE PINNING OF THE DISLOCATIONS BY THESE CENTERS.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70

—1/2   UC8
TITLE--USE OF ION EXCHANGE RESINS IN CATALYSIS. PRODUCTS OF THE ALKYLATION
    OF PHENOL BY INDENE AND AN INDENE CONTAINING FRACTION IN THE PRESENCE OF
AUTHOR-(02)-LYUBOVA, T.A., ISAGULYANTS, V.I.

CCUNTRY OF INFO--USSR

SCURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 1189-91

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, ALKYLPHENOL, POLYNUCLEAR HYDROCARBON,
    CATALYST ACTIVITY/(U)KU2 ION EXCHANGE RESIN

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1952   STEP NO--UR/0080/70/043/005/1189/1191

CIRC ACCESSICN NO--AP0132213
                         UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2   OC8
CIRC ACCESSICN NC--AP0132213
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION GAVE A 1:2.2
MIXT. CF I, M. 72DEGREES, AND II, M. 94DEGREES.

UNCLASSIFIED

111128d Alkylation of phenol by indene in the presence of KU-2 cation exchanger. Isagulyants, V. I.; Lyubova, T. A. (USSR). Zh. Prikl. Khim. (Leningrad) 1970, 43(1), 192-4 (Russ). The alkylation of PhOH (I) by indene (II) and by an indene-rich fraction of heavy C_4H_4 (sic) from coking of coal (the fraction contained 72.5% II) was investigated in the presence of the cation exchanger KU-2 (III). I (0.32 mole) and 0.15 mole of II or II-rich fraction at 60-140° in the presence of 5-30% wt. III gave 50-80% of a mixt. (IV) of o- and p-(1-indanyl)phenol, b. 198-200°, m. 93-4°; benzoate, m. 109°. In the presence of 5% III and at the temp. 120-40°, the yield of IV after 4 hr was 70-85%. An increase of the I-II ratio increased the yield of IV by 7-10% whereas an increase of the amt. of III did not. No diindanylphenols were formed.   C. Parkanyi

REEL/FRAME
19830806

116119m   Temperature-independent paramagnetism in nickelocene.   Zvarykina, A. V.; Karimov, Yu. S.; Leonova, E. V.; Lyubovskii, R. B. (Inst. Khim. Fiz., Moscow, USSR)   Fiz. Tverd. Tela 1970, 12(2), 499–502 (Russ).   The magnetic susceptibilities of nickelocene and 2 of its derivs. are independent of temp. at 0.1–10°K and at higher temps. obeys the Curie law. At low temps., anisotropy of susceptibility was obsd.   Magnetic properties of nickelocene are explained by intramol. interaction of 2 unpaired electrons, the spin Hamiltonian of which is $DS_z^2 + g\beta(H_xS_x + H_yS_y + H_zS_z)$.   The effective spin, $S = 1$ and $D/k = 43°K$.   A. Libackyj

C. K.

TITLE--MAGNETIC PROPERTIES OF COMPLEXES OF COPPER(I) WITH SCHIFF BASES
DERIVATIVES OF IMINOXYL RADICALS -U-

AUTHOR-(04)-MEDZHIDOV, A.A., MAMEDOVA, YU.G., LYUBOVSKIY, R.B.,
KURICHENKO, L.N.

COUNTRY OF INFO--USSR

SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 133-7 (RUSS)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MAGNETIC PROPERTY, COPPER COMPLEX, SCHIFF BASE, IMINE, EPR
SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1169   STEP NO--UR/0379/70/006/001/0133/0137

CIRC ACCESSION NO--AP0128591
                    UNCLASSIFIED

2/2   012
CIRC ACCESSION NO--AP0128591

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE DPR SPECTRA AND THE MAGNETIC
SUSCEPTIBILITY WERE DETD. FOR COMPLEXES OF CU WITH PARAMAGNETIC AND
DIAMAGNETIC SCHIFF BASES. THE RESULTS ARE TABULATED.   THE DATA FOR THE
COMPLEXES WITH THE PARAMAGNETIC SCHIFF BASES SHOW THAT THE LARGER THAN
N,O GROUP OF THE PARAMAGNETIC LIGAND CAN PARTICIPATE IN THE FORMATION OF
THE COORDINATION BOND WITH THE CENTRAL METAL ION. IN THIS CASE,
DIAMAGNETIC AS WELL AS PARAMAGNETIC COMPLEXES ARE FORMED. APPARENTLY,
THE BOND WITH THE RADICAL GROUP IS FORMED THROUGH THE O ATOM.
FACILITY: INST. KHIM. FIZ., CHERNOGOLOVKA, USSR.

Radiation Chemistry

USSR

UDC 541.49:546.791.6

NIKOL'SKIY, B. P., KRYLOV, L. I., ZAKHVATAYEV, B. B., and LYUBTSEV, R. I.

"Study of the Complex Formation of Actinoids and Lantanoids With o-Phthalic, 3-Nitrophthalic, and 4-Nitrophthalic Acids. 1. Complex Formation of Uranium"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 804-809

Abstract: The complex formation of uranium (IV) with o-phthalic (I), 3-nitrophthalic (II), and 4-nitrophthalic (III) acids was investigated by the ion exchange method. It was shown that in weak acidic solutions (pH 3.2-3.6) complexes are formed only with the anions of the second degree of dissociation of organic acids. The stability constants of uranyl complexes with (I), (II), and (III) at the ionic strength of I, 0(NaNO$_3$) are respectively $1.3 \cdot 10^4$, $4 \cdot 10^3$ and $4 \cdot 10^3$. It has been shown that introduction of a nitrogroup into position 3 or 4 of the phthalic acid has practically no effect on the stability of uranyl complexes in aqueous solutions.

1/1

UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--USE OF DIALYSIS TO STUDY COMPLEXING. V. USE OF DIALYSIS TO STUDY
    THE HYDROLYSIS OF RUTHENIUM NITROSYLNITRATE -U-
AUTHOR-(03)-NIKOLSKIY, B.P., ANDREYEV, V.I., LYUBTSEV, R.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 173-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIALYSIS, HYDROLYSIS, RUTHENIUM COMPOUND, NITROSO COMPOUND,
    NITRATE, IONIC BONDING, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1505   STEP NO--UR/0186/70/012/001/0173/0175

CIRC ACCESSION NO--AP0135166
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0135166
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HYDROLYSIS OF NITROSYL
  COMPLEXES OF RU IN AQ. NANO SUB3 SOLNS. (WITH CONST. IONIC STRENGTH OF
  0.6) WAS STUDIED AT ROOM TEMP. BY A DIALYSIS METHOD (NIKOL'SKII, ET AL.,
  1965); 3 DIFFERENT RU COMPLEXES EXIST IN THE PH RANGE 1-9.5: A COMPLEX
  WITH A DIALYSIS CONST. LAMBDA EQUALS 0.146 AT PH LESS THAN 3.5, A
  COMPLEX WITH LAMBDA EQUALS 0.114 AT PH 3.5-7, AND A COMPLEX WITH LAMBDA
  EQUALS 0.095 AT PH GREATER THAN 7. THE TRANSITION FROM THE 1ST TO THE
  2ND COMPLEX WAS ASSOCD. WITH THE ADDN. OF 1.5 PLUS OR MINUS 0.5 HYDROXYL
  GROUPS, WHILE THE TRANSITION FROM THE 2ND TO THE 3RD COMPLEX WAS ASSOCD.
  WITH THE ADDN. OF 1 HYDROXYL GROUP; LOG K (WHERE K IS THE EQUIL. CONST.
  OF THE REACTION) FOR THE TRANSITION FROM THE 2ND TO THE 3RD COMPLEX WAS
  7 PLUS OR MINUS 1, WHILE LOG K FOR THE TRANSITION FROM THE 1ST TO THE
  2ND COMPLEX COULD HAVE VALUES OF 10 OR 20, DEPENDING ON THE NO. (1 OR 2)
  OF HYDROXYL GROUPS ADDED TO THE COMPLEX.

TITLE--A CASE OF PECULIAR RADIATION AFFECTION OF THE LUNGS -U-

AUTHOR--LYUBUSHIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--ARKH PATOL 32(3): 67-70.

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, PHYSICS

TOPIC TAGS--X RADIATION, RADIATION INJURY, LUNG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605015/805 STEP NO--UR/9056/70/032/003/0067/0070

CIRC ACCESSION NO--AP0140548
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0140548
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CASE OF RADIATION AFFECTION OF
  THE LUNG OCCURRED IN A 64 YR OLD PATIENT WHO WAS X IRRADIATED FOR
  THERAPEUTIC PURPOSE. BESIDES MARKED MORPHOLOGICAL CHANGES
  CHARACTERISTIC OF RADIATION INJURY OF THE LUNGS (RADIATION PULMONITIS)
  ERYTHROPHAGY, WAS NOTED IN INJURED CELLS OF THE ALVEOLAR EPITHELIUM.

UNCLASSIFIED

USSR   UDC: 616.24-001.29

LYUBUSHIN, A.A., Department of Pathological Anatomy, Central Clinical
Roentgenology Radiology Hospital, Ministry of Railroads USSR

"An Unusual Case of Radiation Lesions of the Lungs"

Abstract: The case history of a 64-year-old male with lung cancer who died
of pneumonia two months after a well-tolerated course of X-ray therapy (total
dose 7,000 r) is reported. Histological examination of the lungs revealed
the changes characteristic of both the early (radiation pulmonitis) and the
sclerotic periods of radiation lesions. An unusual finding was signs of
erythrocytophagy in injured alveolar cells. Some of these cells contained
more than a dozen phagocytized erythrocytes.

1/2   025   UNCLASSIFIED   /   PROCESSING DATE--11SEP70
TITLE--MAGNETIC AND ELECTRIC HYPERFINE INTERACTIONS OF FE PRIME57 NUCLEI
   IN VANADIUM AND SILICON GARNETS -U-
AUTHOR--LYUBUTIN, I.S., BELYAYEV, L.M., VISHNYAKOV, YU.S., DMITRIYEVA,
   T.V., DODOKIN, A.P.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZAKI, 1970, VOL 58,
   NR 4, PP 1204-1210
DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--VANADIUM, SILICON, GARNET, MOSSBAUER EFFECT, IRON COMPOUND,
   ELECTRIC FIELD, MAGNETIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0989   STEP NO--UR/0056/70/058/004/1204/1210

CIRC ACCESSION NO--AP0105853
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0105853

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NOSSBOUER EFFECTS FOR FE PRIME
57 NUCLEI IN THE SUBSTITUTED GARNET SYSTEMS Y SUB3 MINUS X CA SUBX FE
SUB5 MINUS X SI SUBX O SUB12 WITH 0 LESS THAN OR EQUAL TO X LESS THAN OR
EQUAL TO 3.0 AND Y SUB3 MINUS 2X CA SUB2X FE SUB5 MINUS X V SUBX O SUB12
WITH 0 LESS THAN OR EQUAL TO X LESS THAN OR EQUAL TO 1.5 IS INVESTIGATED
AT TEMPERATURES BETWEEN 78 AND 600DEGREESK. IT IS FOUND THAT THE
EFFECTIVE MAGNETIC FIELDS H SUBEFF IN THE ALPHA-SUBLATTICE OF THE
VANADIUM GARNETS IS LOWER THAN THE CORRESPONDING FIELDS IN SILICON
GARNETS FOR EQUAL REDUCED TEMPERATURES T-THETA. SUBSTITUTION LEADS TO A
STRONG GROWTH OF THE ELECTRIC FIELD GRADIENT IN THE ALPHA-SUBLATTICES OF
VANADIUM AS WELL AS SILICON GARNETS, THE GROWTH BEING MORE PRONOUNCED IN
THE VANADIUM GARNETS. IT IS ALSO FOUND THAT WITH GROWTH OF X THE
MAGNITUDE OF THE ISOMER SHIFT IN THE ALPHA-SUBLATTICE DECREASES. THE
EFFECTS CAN BE EXPLAINED BY A COVALENCE ADMIXTURE TO THE IONIC CHEMICAL
BOND BETWEEN IRON AND OXYGEN IN THE ALPHA-SITES OF THE VANADIUM GARNETS.

UNCLASSIFIED

105253z **Magnetic properties of rare-earth stannates,** $R_2Sn_2O_7$. Midina, L. P.; Belyaev, L. M.; Demyanets, L. N.; Dmitrieva, T. V.; Lyubutin, I. S. (Inst. Kristallogr., Moscow, U.S.S.R.). *Kristallografiya* 1970, 15(1), 253-4 (Russ.). The temp. dependence of the magnetic susceptibility (χ) was measured for compds. of the $R_2Sn_2O_7$ type, where R = La, Pr, Nd, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Y in magnetic fields of 7 and 10 kOe at 100 — 600°K by means of a balance with electromagnetic compensation. Curves are shown. The values of molar susceptibility at 293°K, Curie const., paramagnetic Curie temp., and effective magnetic moment calcd. from the values measured are tabulated. The deviations from linearity of the $1/\chi(T)$ dependence were discussed. The effect of cryst. fields is mentioned as a possible cause of the deviation from the Curie law at lower temps.   V. Burjan .

REEL/FRAME
19800188

1/2   919   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--TEMPERATURE DEPENDENCE OF THE MOESSBAUER EFFECT FOR OCTAHEDRAL IRON
   ATOMS IN GARNETS -U-
AUTHOR-(03)-LYUBUTIN, I.S., DODOKIN, A.P., BELYAYEV, L.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1399-401

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS, MATERIALS

TOPIC TAGS--MOSSBAUER EFFECT, IRON, GARNET, DEBYE TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0957   STEP NO--UR/0181/70/012/005/1399/1401

CIRC ACCESSION NO--AP0133043
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0133043
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT 77-800DEGREESK, THE MOESSBAUER
  EFFECT WAS INVESTIGATED FOR OCTAHEDRAL FE ATOMS IN THE GARNETS CA SUB3
  FE SUB2 SI SUB3 O SUB12 AND CA SUB3 FE SUB2 GE SUB3 O SUB12. THE TEMP.
  DEPENDENCE OF THE ISOMER SHIFT IS RELATED MAINLY TO THE TEMP. DEPENDENCE
  OF THE RELATIVISTIC SHIFT. FROM MEASUREMENTS OF THE PROBABILITY OF THE
  RESONANCE ABSORPTION, THE "MOESSBAUER" DEBYE TEMP. WAS EVALUATED, WHICH
  IS LOWER THAN THE CALORIMETRIC DEBYE TEMP.   FACILITY: INST.
  KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

1/2   012   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--CATIONIC DISTRIBUTION IN A SYSTEM OF CA SUB3 IN SUB2 SN SUBX
  NEGATIVE GE SUB3 NEGATIVE X O SUB12 GARNETS BASED ON GAMMA RESONANCE
AUTHOR-(03)-BELYAYEV, L.M., LYUBUTIN, I.S., MILL, B.V.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 174-174

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--MOSSBAUER SPECTRUM, GARNET, GERMANIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0906   STEP NO--UR/0070/70/015/001/0174/0175

CIRC ACCESSION NO--AP0116416
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0116416
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMATION OF GARNETS IN THE
    SYSTEMS CA SUB3 ZR SUB2 GE SUB1 NEGATIVE X SN SUBX GA SUB2 O SUB12, X
    EQUALS 0.5, 1.0; SR SUB3 YB SUB2 GE SUB3 NEGATIVE X SN SUBX O SUB12, CA
    SUB3 YB SUB2 GE SUB3 NEGATIVE X SN SUBX O SUB12, SR SUB3 IN SUB2 GE SUB3
    NEGATIVE XNEGATIVE SN SUBX O SUB12, X EQUALS 0.5; AND CA SUB3 IN SUB2 GE
    SUB3 NEGATIVE X SN SUBX O SUB12, X EQUALS 0.0, 0.25, 0.5, 0.75 WAS
    STUDIED IN ORDER TO OBTAIN GARNETS CONTG. SN PRIME4POSITIVE IN D
    POSITIONS (TETRAHEDRAL) EXCLUSIVELY. SINGLE.PHASE SAMPLES WERE OBSD. IN
    THE LAST CASE ONLY FOR X SUBMAX IS APPROXIMATELY EQUAL TO 0.6. THE
    IMPOSSIBILITY OF ONLY IN PRIME3POSITIVE IONS OCCUPYING THE A POSITIONS
    (OCTAHEDRAL) WAS CONCLUDED FROM THE MOESSBAUER SPECTRA. THE RELATION OF
    SN PRIME4POSITIVE (D)-SN PRIME4POSITIVE (A) IS SIMILAR TO OF EQUAL TO
    0.25 FOR X EQUALS 0.25, AND 0.42 FOR X EQUALS 0.5. IN PRIME3POSITIVE
    IONS OCCUPY A MAX. OF 15PERCENT OF THE D POSITIONS IN THE GARNET
    STRUCTURE AND THIS FACT ALSO DETS. X SUBMAX FOR THE SYSTEMS.
    FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

1/2   032   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--SYNCHRODYNE PHASE METHOD FOR MEASURING RELAXATION TIMES OF PHOTO
   AND ELECTROLUMINESCENCE IN SEMICONDUCTORS -U-
AUTHOR-(03)-SUSHKOV, V.P., NEVSKIY, M.V., LYUBYANITSKAYA, YE.B.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, (2), 234-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SEMICONDUCTOR CRYSTAL, SEMICONDUCTOR MATERIAL, TIME
   MEASUREMENT, RELAXATION PROCESS, PHOTOLUMINESCENCE, ELECTROLUMINESCENCE,
   PN JUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1800   STEP NO--UR/0120/70/000/002/0234/0235

CIRC ACCESSION NO--AP0135365
                           UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70

2/2   032
CIRC ACCESSION NO--AP0135365
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE METHOD (D. S. TUCKER AND
    R. A. SEYMOUR, 1950) HAS BEEN MODIFIED FOR MEASURING THE RECOMBINATION
    TIMES IN SINGLE CRYSTALS AND P-N JUNCTIONS OF SEMICONDUCTORS DOWN TO 3
    TIMES 10 NEGATIVE PRIME10 SEC. THE INTENSITY OF THE PHOTO OR
    ELECTROLUMINESCENCE CAN BE AS LOW AS 10 NEGATIVE PRIME12 W.

UNCLASSIFIED

USSR   UDC: [621.392:538.4]:652.215.2(088.8)

PAVLOVSKIY, A. I., LYUDAYEV, R. Z., YURYZHEV, A. S., BOYKO, B. A., SEREGIN, A. S.

"A Magnetoexplosive Generator"

Translation: This Author's Certificate introduces a magnetoexplosive gene-
rator for converting the energy of an explosive material to electromagnetic
energy. The device contains a tube filled with an explosive material and a
coaxially arranged helix. The tube and helix are connected at one end to a
heat source, and at the other to a toroidal inductive cavity. To increase
the coefficient of energy conversion, the generator tube is made in the form
of a truncated cone with the wider base toward the inductive cavity. The
diameter of the wide base, the diameter of the narrow base, and the height of
the cone are in the ratio of 2:1:4. One illustration.

1/1

UDC 616.12-089.168-06:616.831-085.816

USSR

LYUDE, M. N., and KUVAYEVA, L. A., Institute of Cardiovascular Surgery imeni A. N. Bakulev, Academy of Medical Sciences USSR, Moscow

"Prolonged Artificial Respiration as Part of the Therapy of Patients With Cerebral Complications Following Cardiac Surgery"

Moscow, Grudnaya Khirurgiya, No 3, 1971, pp 33-36

Abstract: Twenty-three patients received prolonged artificial respiration (from 2 hours to 6 days) for various neurologic complications following surgery for tetralogy of Fallot, atrioventricular septal and other congential heart defects along with dehydration therapy, vasodilatators, hormones, agents to reduce vascular permeability, vitamins, and so forth. The comprehensive therapy was effective in those suffering from first- and second-degree cerebral hypoxia, less so in those suffering from third-degree hypoxia (coma) or convulsions. The indications for the use of artificial respiration and the technique for doing so are discussed in some detail.

1/1

USSR   UDC 518 : 517.948

LYUDKEVICH, I. V., Docent, GORDIYCHUK, V. I., Student, ROMANIV, L. YE.,
Postgraduate Student, L'vov University; SITNIKOVA, T. G., Engineer, L'vov
Kinescope Plant

"Numerical Method for Computer-Aided Calculation of Electrostatic Field and
Electron Trajectories of Focusing Electron-Optical Systems"

Abstract: The article gives algorithms and describes a method for determin-
ing the electrostatic field and electron trajectories for electron-optical
systems of complex configuration by the nonlinear parameter method. The
Dirichlet problem in an axisymmetric space with slits is reduced by means of
the potential of a simple layer to a Fredholm integral equation of the first
kind, which is solved by the collocation method. The density is sought in the
form of the sum of rational functions with nonlinear parameters. General
routines for a Minsk-22 computer are compiled according to the algorithms,
and their block diagrams are shown. An example is given of calculating the
density, potential, and trajectories of a parallel and a conical beam of elec-
trons.

1/1

- 39 -

USSR   UDC 518 : 517.948

LYUDKEVICH, I. V., Docent, GORDIYCHUK, V. I., Student, ROMANIV, L. YE.,
Postgraduate Student, L'vov University; SITNIKOVA, T. G., Engineer, L'vov
Kinescope Plant

"Numerical Method for Computer-Aided Calculation of Electrostatic Field and
Electron Trajectories of Focusing Electron-Optical Systems"

Abstract: The article gives algorithms and describes a method for determin-
ing the electrostatic field and electron trajectories for electron-optical
systems of complex configuration by the nonlinear parameter method. The
Dirichlet problem in an axisymmetric space with slits is reduced by means of
the potential of a simple layer to a Fredholm integral equation of the first
kind, which is solved by the collocation method. The density is sought in the
form of the sum of rational functions with nonlinear parameters. General
routines for a Minsk-22 computer are compiled according to the algorithms,
and their block diagrams are shown. An example is given of calculating the
density, potential, and trajectories of a parallel and a conical beam of elec-
trons.

1/1

The authors studied 16 patients with acute disseminated encephalomyelitis. In these cases there was a combination of an affection of the optical nerves and the spinal cord. The report contains a detailed case history with histological data of the CNS where the duration of the process was 2.5 years. The authors come to the conclusion that opticomyelitis in these cases is a syndrome of disseminated encephalomyelitis,

REEL/FRAME

196'71925

Ref. Code: UR 0246

Acc. Nr.:
AP0028457

THE CLINICAL PICTURE AND MORPHOLOGY OF THE OPTICOMYELITIS SYNDROME IN ACUTE DISSEMINATED ENCEPHALOMYELITIS

Lyudkovskaya, I. G., Musatova, I. V.

The authors studied 16 patients with acute dessiminated encephalomyelitis, where in 5 ca-
.... and the spinal cord. The re·

LYUDKOVSKIY, V. M., VOINOV, S. G., KOSOY, L. F., ZOTEYEV, V. S., and POTAPOVA, V. P.

"Quality of High-Strength Structural Steel Refined in the Ladle With Liquid Synthetic Slag"

Translation: Melting of high-strength steel with treatment by synthetic slag allowed the content of sulfur in the metal to be decreased by almost 2 times: from 0.0057 to 0.0034%.

The contamination of the metal by nonmetallic inclusions was decreased, both when estimated by the method of electrolytic separation (from 0.0079 to 0.0062%) and by the method of counting contaminated fields of vision (from 6.8 to 4.2%). The decrease in contamination of the metal with inclusions evaluated as line oxides and brittle silicates, was particularly noticeable.

The results of tensile testing of smooth specimens and specimens with sharp notches indicated that the steel refined with synthetic slag has greater ductility and structural strength. 1 figure; 4 tables; 4 biblio. refs.

1/1

- 25 -

USSR

UDC 621.791.052:620.17:539.214:
669.14.018.295

LUK'YANOV, V. F., Candidate of Technical Sciences, LYUDMIRSKIY, Yu. G.,
Engineer (Rostov Institute for Agricultural Machinery) and DZHULAY, L. L.,
Engineer (Kursk Polytechnic Institute)

"Strength and Ductility of Welded Joints in High-Strength Steel"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 72, pp 33-35.

Abstract: This work presents a study of the influence of carbon in medium-
alloy, high-strength steel on the strength and ductility of welded joints
and develops methods for improving these characteristics. Studies were
performed using experimental melts of type KVK steel, differing primarily
in carbon content. The welding mode was: current 40-46 a, voltage 7.5-8 v,
argon flow rate 6-7 1/min, welding speed 9 m/hr. After welding, the speci-
mens were high tempered at 650°C for 1 hour, then hardened at 940°C, 30 min-
utes cooled in air and low tempered at 220°C, 2 hours. The optimal carbon
content in the steel studied for welding of pressure vessels was found to
be 0.39-0.42%, since further increases in carbon content caused a reduction
in the structural strength of the welded joint. With carbon contents of
0.39-0.42%, homogenization of metals in slabs before rolling allows signifi-

1/2

USSR

UDC 621.791.052:620.17:539.214:
669.14.018.295

LUK'YANOV, V. F., LYUDMIRSKIY, Yu. G., DZHULAY, L. L., Moscow, Svarochnoye Proizvodstvo, No 4, Apr 72, pp 33-35.

cant increases in joint ductility, which may equal that of the base metal, without significantly changing strength. The use of isothermal annealing after welding for structures of steel containing 0.4-0.43% carbon helps to increase their strength by more than 10-15%, ductility by more than 50%.

2/2

UDC 621.791.052:621.787:620.169.1:
669.295:620.178.311.868

USSR

LUK'YANOV, V. F., OLIFER, V. V., LYUDMIRSKIY, Yu. G., KHESIN, Yu. D.,
BODUNOVA, M. B., Rostov-na-Donu Institute of Agricultural Machine Building

"Influence of Surface Hardening on Low-Cycle Durability of Type B120VCA
Titanium Alloy in a Corrosive Medium"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 72, pp 26-27.

Abstract: A method of testing welded joints in biaxial bending is developed,
allowing the influence of a corrosive medium on low-cycle fatigue of joints
to be determined. Tests are performed in a 3% solution of NaCl under load-
ing conditions characteristic for sheet structures. In the test installa-
tion developed, the specimen is suspended over a cavity and deformed by the
pressure of air pumped into the sealed cavity, with the top of the specimen
covered by the salt solution. The tests indicate that plastic deformation
of a welded joint by rolling of the joint between narrow rolls can signi-
ficantly increase durability under these conditions.

1/1

UDC 51:155:001.57:518.9

USSR

KUZ'MIN, I. V., LYUDVICHEK, K. Y.

"Criteria for Professional Selection of Automatic Control System Operators"

Tekhn. Kibernetika, Vyp. 8, [Engineering Cybernetics, No 8.-Collection of Works], Kiev, 1970, pp 15-20, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V687 by V. Mikheyev).

Translation: A criterion for professional selection of operators is suggested, expressed by the following inequality:

$$P_{\text{H}} \leqslant P_{\text{K}}$$

where P_K is the minimum value of operator reliability allowing an operator to operate successfully in a given automatic control system; P_H is the experimental value of reliability of operators.

Experimental production of the characteristics of reliability of operators in an emergency, stressed situation is described. Value P_K is determined by the expression:

$$P_K = \frac{P_{\text{acy}}}{P_T},$$

where P_{acy} is the reliability of the automatic control system; P_T is the reliability of the equipment in the system. For ACS, the control process of which

1/2

USSR
KUZ'MIN, I. V., LYUDVICHEK, K. V., Tekhn. Kibernetika, Vyp. 8, Kiev, 1970,
pp 15-20.

is performed by pressing buttons in response to swithcing of transparent lighted
display patterns on or off, the following criterion for professional selection
is suggested:

$$P_i = \prod_{i=1}^{m} P_{\phi i} \prod_{j=1}^{n} P_{yi},$$

where $P_{\phi i}$ is the reliability of fixation of the ith pattern; P_{yi} is the relia-
bility of the jth control action.

2/2

UNCLASSIFIED   PROCESSING DATE--30OCT70

1/2   018
TITLE--MOLECULAR WEIGHT AND MOLECULAR DIMENSIONS OF POLYDIOXOLANE -U-

AUTHOR-(04)-BERMAN, YE.L., PRAVIKOVA, N.A., LYUDVIG, YE.B., DAVTYAN, A.G.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 580-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC POLYMERIZATION, ORGANIC OXYGEN COMPOUND, MOLECULAR
WEIGHT, INTRINSIC VISCOSITY, CYCLIC GROUP, ORGANOANTIMONY COMPOUND,
HETEROCYCLIC OXYGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED   STEP NO--UR/0459/70/012/003/0580/0584
PROXY REEL/FRAME--1995/1205

CIRC ACCESSION NO--AP0116670
                        UNCLASSIFIED

PROCESSING DATE--30OCT70

UNCLASSIFIED

2/2   018
CIRC ACCESSION NO--AP0116670
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOL. WT. (M SUBW),
POLYDISPERSITY, AND MOL. DIMENSIONS OF POLYDIOXOLANE (I) (PREPD. BY
POLYMN. OF 1,3,DIOXOLANE IN ETCL IN THE PRESENCE OF ET SUBB OSBCL SUB6)
WERE STUDIED IN PHCL. THE INTRINSIC VISCOSITY (ETA) (DL.-G, PHCL,
25DEGREESC) EQUALS 2.0 TIMES 10 PRIME NEGATIVE3 M SUBW PRIME0.5, WITHIN
THE RANGE OF 0.6 IS SMALLER THAN (ETA) IS SMALLER THAN 1.6. THE
POLYDISPERSITY AND THE QUADRATIC RADII OF INERTIA (R SUBZ PRIME2)
PRIME0.5 WERE CALCD. I HAVING (ETA) SMALLER THAN 0.6 EXHIBITED HIGH
POLYDISPERSITY.   CYCLIC MOLS. WERE SOMETIMES FORMED IN I HAVING (ETA)
SMALLER THAN 0.6.   FACILITY: FIZ. KHIM. INST. IM. KARPOVA,
MOSCOW, USSR.

UNCLASSIFIED

XVI-10. EPITAXY OF Ge ON (100) SURFACES OF NaCl, CaF₂ and BaF₂ CRYSTALS

[Article by L. Zh. K. Lyudvik, V. G. Lyt'ko, V. M. Lurye, A. A. Lyudvik; Novosibirsk, III Symposium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 229]

The characteristic features of germanium epitaxy are compared for vacuum condensation of Ge on (100) NaCl, CaF₂ and BaF₂ surfaces. The CaF₂ and BaF₂ substrates in the form of monocrystalline layers with (100) surfaces were grown epitaxially on NaCl crystals manufactured by three procedures: the NaCl substrates were manufactured by three procedures; the cleavage of the NaCl crystal in the air; cleavage in a vacuum during the deposition of the Ge crystal in the air, cleavage. The NaCl atomically clean surface of the NaCl atomically clean layer was used.

In spite of the almost complete coincidence of the lattice periods of Ge and NaCl, an oriented germanium film cannot be uniquely obtained on the (100) surface of NaCl crystal.

Perfect monocrystalline germanium films with orientation parallel to the (001) surfaces of CaF₂ and BaF₂ surfaces.

An effort is made to explain the results obtained on the basis of the concepts of the atomic structure of a real crystal surface.

- 235 -

USSR

LYUDVINSKAYA, T. A., SINEL'NIKOVA, V. S., KOSOLAPOVA, T. YA., and SERGEYEV, V. P.

"Investigation of a Method of Obtaining Niobium Carbide Powder and Coatings From the Vapor-Gas Phase"

V sb. Tugoplavk. karbidy (The Refractory Carbides -- collection of works), Kiev, "Nauk. Dumka," 1970, pp 28-32 (from RZh-Metallurglya, No 3, Mar 71, Abstract No 3G338 by authors)

Translation: An investigation is made of the possibility of obtaining niobium carbide by the method of precipitation from a vapor-gas mixture in the 1500-1900° range in the form of powder and coatings. The precipitation rate is studied as a function of reagent concentration, substrate temperature, and H_2 feed rate. The maximum rate of niobium carbide precipitation was observed at the optimum 10:1 ratio of H_2 to the sum of chlorides. The authors investigate the possibility of applying the coatings to graphite, tungsten, molybdenum, and niobium. Three illustrations. Two tables. Bibliography with eight titles.

1/1

- 20 -

PROCESSING DATE--04DEC70

UNCLASSIFIED

1/2   023

TITLE--EFFECT OF SUPERHEATING ON THE STRUCTURE AND PHASE COMPOSITION OF ALUMINIUM-TUNGSTEN ALLOYS -U-

AUTHOR-(02)-VARICH, N.I., LYUKEVICH, R.B.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, METALLY, MAR.-APR. 1970, (2), 216-219

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALLOY PHASE COMPOSITION, ALUMINUM ALLOY, TUNGSTEN ALLOY, METAL QUENCHING, SOLID SOLUTION, INTERMETALLIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1247   STEP NO--UR/0370/70/000/002/0216/0219

2/2   023
CIRC ACCESSION NO--AP0136658
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF SUPERHEATING AND
QUENCHING FROM THE MOLTEN STATE ON THE STRUCTURE AND PHASE COMPOSITION
OF AL-W ALLOYS WAS STUDIED. ON QUENCHING FROM THE MELT THERE WAS A
CONSIDERABLE INCREASE IN THE SUPERSATURATION OF THE SOLID SOLUTION,
DEPENDING ON THE DEGREE OF SUPERHEATING.   ON QUENCHING ALLOYS CONTG. W
3-5 WT. PERCENT FROM TEMP. CLOSE TO THE LIQUIDUS, A LARGE NUMBER OF WELL
DISPERSED AL SUB4 W PARTICLES WERE OBSERVED; IN ORDINARY SOLIDIFICATION
THESE NEVER OCCURRED. UNDER SLIGHTLY DIFFERENT CIRCUMSTANCES AN AL SUB5
W PHASE WAS FORMED.

UNCLASSIFIED

USSR   UDC 621.793

YAGUBETS, A. N., TIMOFEYEVA, N. I., BUNTUSHKIN, V. P., IZUKHVICH, V. I.,
BOBANOVA, ZH. I., and BUZINOVA, V. P., Moscow, Kishinev

"Obtaining Electrochemical Composite Materials Based on Nickel with Disperse
Metal Oxide Particles"

Kishinev, Elektronnaya obrabotka materialov, No 1 (43), pp 62-67

Abstract: A study was made of methods of obtaining composite   materials based
on nickel with disperse inclusions of refractory oxides -- lanthanum chromite,
praseodymium zirconate, and hafnium dioxide. The technological process for
obtaining combined coatings comprises three steps: electrolytic deposition of
plates, assembly of the plates into packets with subsequent diffusion welding
(rolling), and degassing annealing. The effect of the electrodeposition con-
ditions on the composition of the materials was investigated. The pH of the
electrolyte and position of the cathode relative to the direction of the force
of gravity have the most significant effect on the disperse particle contents.
The uniformity of distribution of the particles in the coating depends on
uniformity of the hydraulic field of the electrolytic cell. The deformations
of the matrix in the hot and cold states improve the structure and distribution
of the particles in the composition, and high-temperature annealing causes con-
solidation of the oxide particles of certain metals. Possible causes of a
1/2

USSR

A. N., et al., Elektronnaya obrabotka materialov, No 1 (43), pp 62-67

in strength of the precipitation-hardened composite   materials with
a metal matrix obtained by the electrochemical procedure are discussed. The
mechanism of coprecipitation   of disperse inclusions with metal is discussed.
The microstructure of electrolytically deposited nickel with 1.5 percent haf-
nium dioxide and lanthanum chromite is illustrated before and after heat treat-
ment.

2/2