USSR

GEL'FER, E. I., et al., Izvestiya VUZ--Radiofizika, Vol 14, No 8, 1971, pp 1208-1211

Formulas are developed for the logarithmic-normal intensity probability distribution for the effective radius of the beam cross section, and a curve comparing the experimental results with the formulas shows agreement between the two to be good. The authors are connected with the Gorkiy State University.

2/2

USSR

GEL'FER, E. I., KNYAZEVA, M. M., POSTNIKOVA, T. A., and
CHEREMUKHIN, A. M.

UDC 621.373.826:550.3

"Correlation of Laser Beam Focusing Intensity"

Translation: The spatial structure of the intensity in the focal
plane of a focused laser beam passing through a layer of turbulent
atmosphere is investigated. Two identical positive images of the
beam cross section are put in a two-dimensional optical correlo-
meter to permit obtaining the correlation function of the intensity
by using information regarding the intensity value over the whole
beam cross section. The correlation function was measured for five
different distances. The obtained radii of the correlation of in-
tensity in the focal plane are found, in their order of magnitude,
to be closer to the intensity correlation radius for an infinite
plane wave (about $\sqrt{\lambda h}$) than to the diffraction dimension $(\lambda/d)L$.
A. K.

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1/2   036
UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--INVESTIGATION OF INTENSITY OF A FOCUSED LASER BEAM PASSED THROUGH A
  TURBULENT ATMOSPHERE -U-
AUTHOR-(03)-GELFER, E.I., FILATOVA, E.I., CHEREMUKHIN, A.M.

COUNTRY OF INFO--USSR

SOURCE--RADIOFIZIKA, IZV. VUZ. VOL. 13, NO. 2, 1970, P. 271-274

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER BEAM, LASER THEORY

CONTROL MARKING--NO RESTRICTIONS .

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1979/1698   STEP NO--UR/0141/70/013/002/0217/0274

CIRC ACCESSION NO--AP0048016
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0048016   UNCLASSIFIED   PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSITY IN A FOCAL PLANE OF
THE FOCUSED LASER BEAM PASSED THROUGH A TURBULENT ATMOSPHERIC LAYER WAS
INVESTIGATED. THE AREAS OF INTENSITY OVERSHOOTS HAVE BEEN MEASURED AT
DIFFERENT LEVELS OF ITS RELATIVELY PERFECT DIFFRACTION MAXIMUM AND AT
DIFFERENT VALUES OF FLUCTUATIONS OF THE REFRACTIVE INDEX OF THE AIR.

UNCLASSIFIED

TITLE--STRUCTURE OF THE PARTICLES AND MORPHOLOGY OF MAGNESIUM HYDROXIDE CRYSTALLITES -U-

PROCESSING DATE--30OCT70

AUTHOR-(03)-CHEREMUKHIN, E.P., KARASIK, E.M., PRIYMA, T.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 533-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON MICROSCOPY, MAGNESIUM HYDROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1947

STEP NO--UR/0080/70/043/003/0533/0538

CIRC ACCESSION NO--AP0118909

UNCLASSIFIED

CIRC ACCESSION NO--AP0118909   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON MICROSCOPY WAS USED TO STUDY MG(OH) SUB2 PPTD. WITH LIME MILK FROM DIL. NATURAL SOLNS. MG(OH) SUB2 FORMS AGGREGATES WHICH CONSIST OF PRIMARY CRYSTALLITES. UNDER VARYING CONDITIONS OF MG(OH) SUB2 PREPN. AND AGING, PLATE SHAPED CRYSTALLITES OF IRREGULAR FORM WITH A MEAN DIAM. OF 600-900 ANGSTROM AND THICKNESS OF 80-100 ANGSTROM WERE FORMED. IN THIS CASE, MG(OH) SUB2 WAS POLYDISPERSE. MANY EXPTS. LED TO MG(OH) SUB2 CRYSTALLITES WHICH EXHIBITED AN ALTERED MORPHOLOGY REGULAR HEXAGONAL PRISMS. FACILITY: KRYM. FILIAL GOS. INST. PRIKL. KHIM., USSR.

UNCLASSIFIED

AA 0047091   UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/7b

241061 AERODYNAMIC CHARACTERISTICS OF A MODEL can
be determined in a wind tunnel when the
model (1) has holes (2) penetrating to its internal
cavity (3). Coloured water (5) under pressure (6)
is forced into the cavity (3) through the pipe (4).
30.10.67 as 1193436/40-23. G.A.CHEREMUKHIN et al.
(12.9.69.) Bul 13/1.4.69. Class 42k. Int.Cl.G 01m.

AUTHORS: Cheremukhin, G. A.; Pivkin, Ye. Ya.; Kuz'min, S. K.

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19790575

AA0047091

19790576

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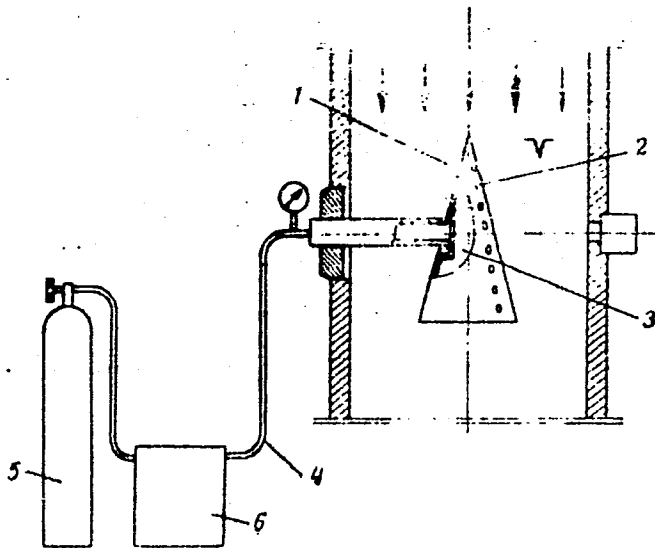
USSR

UDC 533.6.07

CHEREMUKHIN, G. A., PIVKIN, YE. YA., KUZ'MIN, S. K.

"Method of Determining Pressure on the Surface of a Model Studied in a Wind Tunnel"

USSR Author's Certificate No 243224, announced 30 October 1967, published 18 September 1969, Class 42k, 20, (G01M) (from RZh-Mekhanika, No 5, May 70, Abstract No 5B482P)

[No abstract]

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AA0044817

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243224 SURFACE PRESSURE ON AN AERODYNAMIC MODEL in
a wind tunnel is complicated to ascertain,
and the moderate accuracy obtained limits the
usefulness of various methods. The proposal
improves accuracy by providing data of higher
quality, and also reduces the cost of experiment.
The essence of the method is to fill the cavity
inside the model with for example, a (coloured)
liquid; on the application of some level of
internal pressure the liquid arrives through
seepage channels at the surface being studied. By
this means the pressure exerted over a surface can
be ascertained.
30.10.67 as 1193437/40-23.G.A.CHEREMUKHIN et al.
(18.9.69) Bul 16/5.5.69. Class 42k. Int.Cl.G 01m.

2 1

AUTHORS: Cheremukhin, G. A.; Pivkin, Ye. Ya.; Kuz'min, S. K.

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19771667

USSR

CHERENIN, V. P.

UDC 577.4

"Distribution of Warehouses With the Losses Taken Into Account"

Moscow, V sb. Issled. operatsiy (modeli, sistemy, resheniya) (Research on Operations (of Models, Systems, and Solutions)-- collection of works) No 1, USSR Academy of Sciences, Computer Center, 1970, pp 128-159 (from RZh--Matematika, No 7, 1972, Abstract No 7V503)

Translation: There are m possible points for placing warehouses. For each of the points A_i, $s(i)$ functions $g_{il}(X_i)$ are given, where $s(i)$ is the number of possible types of warehouse at point A_i, and X_i is the desired storage volume $(0 \leqslant X_i \leqslant a_{il}$ for a warehouse of type 1); $g_{il}(X_i) = g'_{il}(X_i) + g''_{il}(X_i) + g'''_{il}(X_i)$, where $g'_{il}(X_i) = cX_i$ is the cost of the product; $g''_{il}(X_i) = c_{il}TX_i$ is the cost of storing the product for the specified period T; $g'''_{il}(X_i) = D_{il}\mathrm{sign}(X_i) + d_{il} + c_{il}TX_i$ is the

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CHERENIN, V. P., Issled. operatsiy (modeli, sistemy, resheniya), No 1,
USSR Academy of Sciences, Computer Center, 1970, pp 128-159

cost of building the warehouse and its contents in the course of
the period T. The problem is to distribute the product over the
warehouses at minimum expense, with the quantity of the stored
product no less than some specified amount. After some trans-
formations and under some (not too burdensome) assumptions, the
problem reduces to determining the minimum of some function in a
finite set. To investigate this function, the symbol of the
generalized "convexity" proposed earlier by the author (RZh--
Matematika, 1965, Abstract No 2V410K) cannot be used. However,
this convexity can still be valid, with the author's method of
sequential computations used afterward. A numerical example is
given. Yu. Finkel'shteyn

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USSR

CHERENIN, V. P.

"Arrangement of Warehouses Considering Losses"

Translation: There are n possible points for placement of warehouses. For
each of the points A_i $s(i)$ functions $g_{i\ell}(X_i)$ are given where $s(i)$ is the num-
ber of possible types of warehouses at the point A_i and X_i is the desired vol-
ume of the storage ($0 \leq X_i \leq a_{i\ell}$ for a type ℓ warehouse); $g_{i1}(X_i) = g'_{i\ell}(X_i) +$
$+ g''_{i\ell}(X_i) + g'''_{i\ell}(X_i)$, where $g'_{i\ell}(X_i) = cX_i$ is the cost of the product; $g''_{i\ell}(X_i) =$
$= c_{i\ell}TX_i$ is the cost of storing the product for the given period T; $g'''_{i\ell}(X_i) =$
$= D_{i\ell}$ sign $(X_i) + d_{i\ell} + e_{i\ell}TX_i$ is the cost of building the warehouse and its
contents for the given period T. It is necessary to place the product in the

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USSR

CHEREHIN, V. P., Issled. operatsiv (modeli istemy, resheniya). Vvp. 1, Moscow, Computation Center of the USSR Academy of Sciences, 1970, pp 128-159

warehouses insuring minimum expenditures for storing it no less than in some given amount. After some transformations and making certain (not too restrictive) assumptions the problem reduces to determining the minimum of a function in a finite set. When investigating this function the attribute of generalized "convexity" proposed previously by the author (RZh-Matematika, 1965, 2V410K) cannot be used. However, this "convexity" can be well-founded after which the method of successive calculations of the author is used. A numerical example was investigated.

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USSR

UDC: 8.74

CHERENIN, V. P., GRYAZNOVA, T. P.

"A Collective Information-Diagnostic Program"

V sb. Issled. operatsiy (modeli, sistemy, resheniya), vyp. 1 (Operations Research [Models, Systems, Solutions], No 1), Moscow, Computing Center of the Academy of Sciences of the USSR, 1970, pp 113-127 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V678)

Translation: The authors analyze the failures of known methods of determining the probability $p(d_i/s_j)$ of a given illness d_i in the presence of a given set of symptoms $s_j = \{s_{j1}, s_{j2}, \ldots, s_{jk}\}$ used in automatic diagnosis of illnesses. A method is proposed for determining probabilities $p(d_i/s_j)$ by searching in a data file of histories of illnesses for all those histories which include the symptom set s_j in the request, and calculating the frequencies of individual illnesses for the selected histories. Each history of illness included in the data file is initially written in coded form on a special

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USSR

CHERENIN, V. P., GRYAZNOVA, T. P., Issled. operatsiy (modeli, sistemy, resheniya), vyp. 1, Moscow, Computing Center of the Academy of Sciences of the USSR, 1970, pp 113-127

blank. The ordinal four-place decimal number of the history of the illness is recorded in the first line. Thirteen octal values of the symptoms are recorded in each of the next seven lines. The two last digits of the octal numbers from the last line are set aside for the octal code number of the disease itself. The information concerning each request is recorded on three punchcards. All values of k symptoms of the symptom set s_j observed in the patient are recorded in the first seven lines of the first punchcard. Zeros are set down in place of the remaining -- undetermined -- symptoms. The next four lines are left empty. Scales for distinguishing the given values of symptoms from undetermined values are recorded in the first seven lines of the second punchcard. The first line of the third punchcard contains a four-digit decimal number for the request, and the last three lines contain octal six-digit values of permissible errors. A detailed flowchart is presented of a program for the "Ural-4"

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USSR

CHERENIN, V. P., GRYAZNOVA, T. P., Issled. operatsiy (modeli, sistemy, resheniya), vyp. 1, Moscow, Computing Center of the Academy of Sciences of the USSR, 1970, pp 113-127

computer. It is noted that the total number of different illnesses may reach 63; however, the given program (due to the limited memory of the "Ural-4" computer) is designed for work with only 15 illnesses, although provision is made for rapid conversion to 25 illnesses. The results of experimental calculations are discussed. Bibliography of ten titles.

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1/2   032   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--CHARACTERISTICS OF THE SCATTER OF MECHANICAL PROPERTY DATA FOR
   PLASTICS AT VARIOUS TEMPERATURES -U-
AUTHOR-(03)-FINOGENOV, G.N., PANSHIN, B.I., CHERENINA, M.K.

COUNTRY OF INFO--USSR

SOURCE--MEKH. POLIM. 1970, 6(1), 29-34

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PLASTIC MECHANICAL PROPERTY, TENSILE STRENGTH, IMPACT
   STRENGTH, GLASS CLOTH, POLYMETHYLMETHACRYLATE, LAMINATED STRUCTURE,
   THERMAL EFFECT, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1896   STEP NO--UR/0374/70/006/001/0029/0034

CIRC ACCESSION NO--AP0112876
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0112876
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SCATTER OF EXPTL. DETNS. OF
   TENSILE STRENGTH AT BREAK AND FLEXURAL AND IMPACT STRENGTH OF GLASS
   CLOTH LAMINATES AND POLY(ME METHACRYLATE) WAS ANALYZED STATISTICALLY.
   THE SCATTER INCREASES AS THE TESTING TEMP. IS DECREASED FROM 0DEGREES TO
   MINUS 100DEGREES AND IT REMAINS CONST. OR IS SLIGHTLY DECREASED IN THE
   RANGE FROM 0DEGREES TO PLUS 200DEGREES.

UNCLASSIFIED

UNCLASSIFIED

TITLE--STREAMS OF FAILURES OF TECHNICAL SYSTEMS WITH TAKING INTO ACCOUNT
PROPHYLAXIES -U-   PROCESSING DATE--20NOV70

AUTHOR-(02)-POPOV, P.I., CHERENKOV, A.P.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 6, PP 144-148

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT

TOPIC TAGS--PROPHYLAXIS, SYSTEM RELIABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1466   STEP NO--UR/0103/70/000/006/0144/0148

CIRC ACCESSION NO--AP0130400

UNCLASSIFIED

CIRC ACCESSION NO--AP0130400
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF PROPHYLAXIES
  CONDUCTED REGULARLY OR IN RANDOM CHOSEN TIME MOMENTS ON THE RELIABILITY
  OF THE FUNCTIONING OF TECHNICAL SYSTEMS IS CONSIDERED. THE RESULTS
  OBTAINED BY BE USED FOR THE ESTIMATION OF THE EFFICIENCY OF CONDUCTING
  PROPHYLAXIES.

UNCLASSIFIED

USSR

UDC 577.4

CHERENKOV, A. P.

"Finding the Maxmin for a Class of Functionals Characterizing the Resource Distribution"

V sb. Issled. operatsiy (modeli, sistemy, resheniya). Vyp. 1 (Operations Reseach (models, Systems, Solutions). Vyp. 1 — collection of works), Moscow, Computation Center of the USSR Academy of Sciences, 1970, pp 19-37 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V474)

No abstract

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USSR   UDC 518.9

CHERENKOV, A. P.

"Determination of the Minimax for One Class of Functionals Related to the Problem of Resource Distribution"

Kibernetiku -- na Zluzhbu Kommunizmu. T. 6 [Cybernetics in the Service of Communism, Vol 6 -- Collection of Works], Moscow, Energiya Press, 1971, pp 284-294, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V669 by I. Fokin).

Translation: Two sides select piecewise-continuous functions $x(s)$ and $y(s)$ $(s \in S)$ from sets $\mathfrak{x}$ and $\mathfrak{Y}$:

$$\mathfrak{x} = \left\{ x(s) \geqslant 0, \int_S x(s)\,ds = X \right\},$$

$$\mathfrak{Y} = \left\{ y(s) \geqslant 0, \int_S y(s)\,ds = Y \right\}.$$

Two classes $\mathfrak{G}$ and $\mathfrak{F}$ of functionals $G(y) = \int_S g(y, s)\,ds$ и $F(x, y) = \int_S f(x, y, s)\,ds$, are fixed, and the functions $g(y, s)$, $f(x, y, s)$ satisfy certain special conditions. Using a version of the Neuman-Pierson lemma, the author solves the the problem of finding max $G(y)$ then necessary conditions of optimality of the function $x(s)$ are concluded for the problem of determining min max $F(x, y)$,

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CHERENKOV, A. P., Kibernetiku -- na Zluzhbu Kommunizmu. T. 6, Moscow, Energiya Press, 1971, pp 284-294.

UDC 518.9

which constricts the set of functions at the extreme and either provides an optimal function or a single-parameter set of functions containing the optimal function. Explicit expressions are presented for these optimal functions and the values of min max $F(x, y)$ with various relationships of parameters. In this problem, functions $x(s)$ and $y(s)$ can be interpreted as the distribution density of resources of the opponents in a certain area S.

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USSR

UDC 518.9

CHERENKOV, A. P.

"Determination of the Minimax for One Class of Functions Related to the Problem of Resource Distribution"

Kibernetiku -- na Zluzhbu Kommunizmu. T. 6 [Cybernetics in the Service of Communism, Vol 6 -- Collection of Works], Moscow, Energiya Press, 1971, pp 295-303, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V667 by I. Fokin).

Translation: The problem of distribution of resources by two sides between n objects is studied. The first side attempts to minimize, the second -- to maximize the values of function $U(x, y)$, belonging to a fixed class of functions $\mathscr{B}$. For a special function $\bar{U}(x, y)$ of class $\mathscr{B}$, the problems of determining $\max\limits_{y \in Y} \bar{U}(x, y)$ and $\min\limits_{x \in X} \max\limits_{y \in Y} \bar{U}(x, y)$ are solved. The results produced are used for approximate solution of similar problems for arbitrary functions $U(x, y) \in \mathscr{B}$. Estimates are presented of the difference between the precise and approximate solutions in these problems. This problem is a discrete version of a problem studied earlier by the author (see abstract 10 V669).

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UDC 518.9

which constricts the set of functions at the extreme and either provides an
optimal function or a single-parameter set of functions containing the optimal
function. Explicit expressions are presented for these optimal functions and
the values of $\min \max F(x, y)$ with various relationships of parameters. In

this problem, functions $x(s)$ and $y(s)$ can be interpreted as the distribution
density of resources of the opponents in a certain area S.

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USSR

ADO, YU. M., BELOVINTSEV, K. A., BESSONOV, YE. G., and CHERENKOV, P. A.

"Colliding Electron-Positron Beams in a Synchrotron"

Abstract: The article generalizes the main results of research on a method for obtaining colliding electron-positron beams in a synchrotron. There is a detailed discussion of questions related to the effect of a time-varying, driving magnetic field and a low injection energy level on the main parameters of the particle storage process — radiation damping of oscillation amplitudes, beam lifetime, and storage rate. A description is given of the results of experiments for studying the particle storage process and obtaining colliding electron-positron beams on the FIAN /Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR/ 280-Mev synchrotron. There is also a description of work done in the USSR and abroad to use the counterbeam method for synchrotrons with an energy of ~ 1 Gev or more, including the Italian

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ADO, YU. M., et al., Fotomezonnyye i Fotoyadernyye Reaktsii i Metodika Issledovaniya na Sinkhrotrone. Trudy Ordena Lenina Fizicheskogo Instituta im. P. N. Lebedeva Akademii Nauk SSSR, Vol 54, 1971, pp 130-148

1.5-Gev Adone positron storage ring, the 6-Gev Cambridge electron synchrotron project in the United States, and the cascade storage system developed by staff members of the Photomeson Process Laboratory and Accelerator Laboratory of FIAN. The particle storage process is divided into two stages in the cascade system: 1) particle storage in a booster synchrotron, 2) transfer of electron and positron beams to the main synchrotron at intervals equal to the booster particle storage time. Another variant of the cascade system permits a significant increase in the electron beam conversion ratio through the use of high-energy electrons accelerated in the main synchrotron.

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USSR

MILOVANOV, V. P., POKROVSKIY, V. N., CHERENKOV, P. A., and YUTLANDOV, I. A.,
Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR

"Angular Dependence of Multicharged Particles Formed From Al^{27} Nuclei by
660-Mev Protons"

Abstract: The angular distributions of multicharged particles C^{11}, N^{13}, and F^{18}
formed by bombarding Al^{27} nuclei with 660-Mev nuclei were measured. The mea-
surements were conducted on the synchrocyclotron of the Nuclear Physics Labora-
tory of the Joint Institute of Nuclear Research. The fragment yield was mea-
sured at three angles relative to the direction of the proton beam. The target
was aluminum foil 0.27 and 2.43 mg/cm^2 in thickness. The thickness of the
first foil was considerably less than the mean free path of the fragments,
which is approximately 4 mg/cm^2, while the thickness of the second foil was in
order of magnitude equal to the mean free path of the fragments, so this target
could not be considered as thin. Results showed that the thin and thick targets
used gave practically the same angular distributions. The angular distributions

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of the multicharged particles decreased smoothly in absolute value with an in-
crease in the angle of observation. The average number of particles l formed
as the result of the reaction and the type of particles accompanying the escape
of a fragment is unknown. Curves are given showing the angular dependence
associated with the phase space for certain values of l. A tendency was ob-
served toward an increase in the average number of particles l with a decrease
in the mass of the fragment from 18 to 8 in the disintegration of Al^{27} nuclei
by 660-Mev protons. It turns out on the average that in the formation of one
of these multicharged particles in the final state there appears a total of
about 7 particles. This number of particles is approximately one third less
than the average number of particles formed in the disintegration of Ag and
Br nuclei by 660-Mev protons together with a fragment with $Z \geq 4$. The angu-
lar distributions of multicharged particles formed from Al^{27} nuclei by 660-
Mev protons is thus in good agreement with a dependence caused only by the
phase space. Further experiments plan to show to what extent the estimated
values of l correspond to the real values.

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TITLE--PHYSICAL PRINCIPLES OF THE DEVELOPMENT OF TRANSFORMER STEELS FOR
   HIGH FREQUENCY MACHINES -U-

AUTHOR-(03)-MIRONOV, L.V., POPOVA, V.P., CHERENKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 351-5

DATE PUBLISHED------70

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

TOPIC TAGS--TRANSFORMER STEEL, HIGH FREQUENCY, MAGNETIC PROPERTY, MAGNETIC
   HYSTERESIS, QUALITY CONTROL, PHYSICAL PROPERTY, STEEL TECHNOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0181   STEP NO--UR/0043/70/034/002/0351/0355

CIRC ACCESSION NO--AP0115885
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0115885   UNCLASSIFIED   PROCESSING DATE--09OCT70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE ENERGY LOSSES IN THE MAGNETIC
CORES OF HIGH FREQUENCY MACHINES ARE DETD. MOSTLY BY LOSSES OWING TO
EDDY CURRENTS AND NOT TO MAGNETIC HYSTERESIS. THE CURRENT PROCEDURES OF
QUALITY CONTROL INVOLVING TESTING THE PROPERTIES OF STEELS AT 400 HZ ARE
UNSATISFACTORY. THERE IS A LACK OF DATA WITH RESPECT TO MAGNETIC
PROPERTIES AT HIGH FREQUENCIES, THEIR RELATION TO COMPN., STRUCTURE, AND
TECHNOL. FACTORS OF THE MATERIAL.   ACTIONS THAT SHOULD BE TAKEN ARE
CONSIDERED, ESP. IN MODERNIZING THE STEEL PRODUCING TECHNOL., WIDENING
THE RANGE OF AVAILABLE STEEL GRADES AND SECTIONS, AND INTRODUCING NEW
GRADES STRICTLY FOR HIGH FREQUENCY APPLICATIONS.   FACILITY:
TSNIICHM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

CIRC ACCESSION NO--AP0115883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS CARRIED OUT ON THE
   DYNAMIC AND STATIC MAGNETIC CHARACTERISTICS OF STEEL GRADE E44 (0.2 MM
   THICK) WITH VARIOUS GRAIN SIZE. SPECIMENS OF 50 MM OUTSIDE DIAM. WERE
   ANNEALED IN A VACUUM FURNACE FOR 1,2, AND 4 HR AT 850DEGREES AND 1 AND 2
   HR AT 1250DEGREES. FOLLOWING THE DETN. OF STATIC AND DYNAMIC MAGNETIC
   CHARACTERISTICS, POLISHED SECTIONS WERE INSPECTED UNDER A MICROSCOPE.
   SPECIMENS ANNEALED AT 1250DEGREES HAD GRAIN SIZES 1.0-1.5 MM PRIME2
   WHILE THOSE ANNEALED AT 850DEGREES HAD A GRAIN SIZE OF 0.03 MM PRIME2.
   WITH INCREASING FREQUENCY OF MAGNETIZING CURRENT THE DIFFERENCE IN SP.
   CORE LOSSES BETWEEN SPECIMENS WITH LARGE AND FINE GRAINS INCREASED:
   E.G. AT 1000 HZ FINE GRAINED STEELS HAD LOSSES 5-8PERCENT LESS THAN
   THOSE OF COARSE GRAINED STEELS, WHILE AT 9000 HZ THIS DIFFERENCE
   INCREASED TO 25PERCENT.   THUS, STEEL INTENDED FOR USE AT 1000 HZ SHOULD
   BE SUBJECTED TO HIGH TEMP. ANNEALING TO INCREASE THE SIZE OF GRAINS.
   FOR EACH RANGE OF FREQUENCIES AN OPTIMUM STRUCTURE OF THE STEEL SHOULD
   BE SELECTED.   FACILITY: TSNIICHM IM. BARDINA, MOSCOW, USSR.

TITLE--EFFECT OF ANNEALING TEMPERATURE ON THE MAGNETIC PROPERTIES OF STEEL
   E44 IN A DYNAMIC MAGNETIZATION SYSTEM -U-

AUTHOR-(03)-MIRONOV, L.V., POPOVA, V.P., CHERENKOV, V.I.

COUNTRY OF INFO--USSR

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MAGNETIC PROPERTY, TRANSFORMER STEEL, SILICON STEEL, ANNEALING
   TEMPERATURE, GRAIN SIZE, ALLOY DESIGNATION/(U)E44 SILICON STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0179   STEP NO--UR/0048/70/034/002/0336/0338

CIRC ACCESSION NO--AP0115883
                           UNCLASSIFIED

USSR

CHERNIKOVA, L. P.

"Construction of the Switching Line for an Isochronous Family of Joined Solutions"

Abstract: In earlier articles written by I. I. Pleshkan and Z. M. Kochetkova (in Avtoref. kand. diss. Kishinev, 1969, and in Uch. zap. Kazanskovo gos. ped. in-ta, No. 85, 1970, pp 75-81, respectively) the sufficient conditions were obtained for isochronicity of systems of the form

$$\frac{dr}{dt} = \sum_{i=2}^{\infty} P_i^{(i)}(\varphi) r^{\underline{i}}, \quad \frac{d\varphi}{dt} = \lambda_i + \sum_{i=1}^{\infty} Q_1^{(i)}(\varphi) r^{\underline{i}} \quad (i = 1,2),$$

when the X-axis is considered to be the switching line. The author of the present paper, a brief communication, solves the problem of determining the switching line $\theta = \theta(r_0)$, $\rho = \rho(r_0)$ from

1/2

USSR

MURINA, T. A., CHERENKOVA, L. V., and CHIVELEVA, I. M., Ukhtomskiy Institute
of Physiology and Leningrad University

"Relationship Between the Time of Visual Discrimination in Cats and the
Signal-Noise Ratio"

Abstract: Cats were trained to discriminate between a star and a circle
flashed on a screen against a background of noise in the form of various
geometric figures. At a signal noise ratio of 6.5 the cats could not
discriminate between the images when they were exposed for 250 msec.
However, further lowering of the noise level to a signal-noise ratio of
13 did not reduce the critical time. The curve plotted from the experimental
data proved to be exponential. Analysis of the curve reveals that a healthy
cat requires at least 300 msec to discriminate between practically noise-free
images, or about the same amount of time required by man.

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1/2   019   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--COMPARATIVE CHARACTERISTICS OF DIFCO TRYPSIN AND CHIMOPSIN IN
   STUDIES WITH TISSUE CULTURES -U-
AUTHOR-(03)-TEREKHINA, N.K., LYABINA, L.M., CHERENKOVSKAYA, I.A.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR11, PP 120-123

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TISSUE CULTURE, TRYPSIN, DRUG TESTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0066   STEP NO--UR/0402/70/000/001/0120/0123

CIRC ACCESSION NO--AP0103746
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103746
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. RESULTS OF PARALLEL STUDY OF THE
EFFECT OF TRYPSIN OF DIFCO COMPANY AND OF NATIONAL DRUG CHIMOPSIN
DEMONSTRATED THE CELLS OBTAINED BY TREATMENT WITH CHIMOPSIN TO BE OF THE
SAME QUALITY AND CHARACTERISTICS AS THOSE OBTAINED BY TREATMENT WITH
DIFCO TRYPSIN. EXPERIMENTS WERE CARRIED OUT WITH PRIMARILY TRYPSINIZED
CHICK EMBRYO FIBROBLASTS, HUMAN EMBRYO SKIN MUSCLE TISSUE, HUMAN EMBRYO
KIDNEY CELLS AND WITH CONTINUOUS LINES OF AO, GPK, BHK. THUS, THE
NATIONAL PREPARATION OF CHIMOPSIN MAY BE INTRODUCED INTO PRACTICE FOR
PREPARATION OF PRIMARY AND CONTINUOUS CELL LINES.

UNCLASSIFIED

TITLE--COLLISIONS OF EXCITED THALLIUM ATOMS IN THE 6 PRIME2 D SUBTHREE
   HALVES STATE WITH NITROGEN AND HYDROGEN -U-

AUTHOR-(03)-RITINS, E., CHAYKA, M.P., CHERENKOVSKIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(4), 636-40

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--COLLISION CROSS SECTION, EXCITED STATE, THALLIUM, ATOM,
   NITROGEN, HYDROGEN, MOLECULE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1034   STEP NO--UR/0051/70/028/004/0636/0640

CIRC ACCESSION NO--AP0124693
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0124693

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COLLISION CROSS SECTIONS WERE
DETD. FOR TL IN THE EXCITED T PRIME2 D SUBTHREE HALVES STATE WITH N AND
H MOLS. BY OBSERVING THE QUENCHING OF THE LUMINESCENCE AND ITS
POLARIZATION FOR THE 351.9 AND 352.9-NM LINES AND BY DETG. THE RELATIVE
INTENSITY OF THE LINES.   THE APP. DESCRIBED EARLIER WAS USED (S.
TEPLOVA, ET AL., 1968).   THE VALUES OF THE EFFECTIVE COLLISION CROSS
SECTIONS ARE TABULATED.

UNCLASSIFIED

USSR   UDC 621.317.7.087.92-932

DIDENKO, K. I., LASKAVYY, V. N., LYSYY, L. T., CHEREPAKHA, A. K.

"Convertor of Frequency Signal to Amplitude Signal"

USSR Author's Certificate No 290440, Filed 7/08/69, Published 12/04/71,
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychis-
litel'naya Tekhnika, No 11, 1971, Abstract No 11 A185 P from the Resume).

Translation: A device which converts a frequency signal to an ac amplitude
signal is suggested, containing a condensor frequency convertor. In order
to increase the accuracy and simplify the device, it contains an additional
transformer, the primary winding of which is connected to an ac voltage
supply of constant frequency, while the secondary winding is connected in
series with the power supply of the convertor. 1 Figure.

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- 31 -

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USSR   UDC 612.766.1-06;613.24

KAKURIN, L. I., PURAKHIN, YU. N., GEORGYEVSKIY, V. S., KATKOVSKIY, B. S.,
VYSOTSKIY, V. G., CHEREPAKHIN, M. A., USHAKOV, A. S., LARICHEVA, K. A.,
PETUKHOV, B. N., IVANOV, P. P., MACHINSKIY, G. V., MIKHAYLOV, V. M., POMETOV,
YU. D., and SMIRNOVA, G. I.

"Locomotor Activity of Man Kept on a Reduced Food Ration"

Abstract: The combination of drastic limitation in locomotor activity with
reduction to a low-caloric diet (down to basal metabolism) was studied in six
healthy men 24-35 years of age who were confined to bed for a number of days
under conditions of hypokinesia. Pronounced changes were observed in the func-
tions of the cardiovascular, respiratory, nervous, and muscular systems of the
body. Tabular data were collected on physiological tremor of closed yes,
maximum physical work fitness, muscle tone dynamics, and the cardiovascular
system in the orthostatic position. Asthenia of the nervous system and a
slowing down of the biopotentials in the cerebral cortex were observed. Like-
wise, it was noted that hypokinesia caused disturbances in body coordination
and statics. The pulse rate increased and the arterial pulse pressure was
1/2

USSR

KAKURIN, L. I., Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

reduced in persons subjected to the orthostatic test. Three persons reached
a state of near collapse. These changes were attributed to a significant
reduction in the compensating actions of the blood circulation. It was found
that after about 10 days, the observed changes gradually decreased in the test
subjects. This regression was largely of a functional character and was linked
to the "detraining" of the various systems of the body. The authors believe
that the severity of the changes in the body functions is directly proportional
to the degree of hyperkinesia to which the tested persons were subjected. It
is proposed that maintenance of homeostasis requires a certain level of motor
activity even with a low-calorie ration.

2/2

USSR

UDC: 620.191.33

KHALMANOV, Kh., CHEREPANOV, G. P., Moscow

"Concerning Growth of Fatigue Cracks With a Low Stress Level"

Abstract: Recent experiments have shown that in high-strength nickel steels the growth of fatigue cracks in the low-stress region differs considerably from that predicted by theory. In this connection it has been suggested that atmospheric moisture might influence the growth of fatigue cracks in these materials. In this paper the moisture effect is taken into account within the framework of the old theory giving a completely satisfactory explanation and description of experimental data.

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USSR

AVERSHIN, S. G., Academician Kirghiz Academy of Sciences; Mosinets, V. N.;
and Cherepanov, G. P.

"The Nature of Mountain Shock in Mining"

Abstract: Mountain shock is defined as the explosion-like sudden destruction
of rock in the neighborhood of mines which occurs without the release of gas.
This paper discusses the mechanism through which mountain shock is manifested,
the dynamics of the phenomenon, its advance warning, and the use of shock
energy for controlling it. The theory of mountain shock is developed on the
basis of the assumption that the massif is uniform and isotropic and that the
mine shaft is rectangular and in the zone of mountain pressure. A description
of the dynamics of the destruction is given within the framework of the
general theory of spontaneous destruction. The authors are associated with
the Moscow Mining Institute.

1/1

USSR

UDC 539.4:539.56+620.172.24

CHEREPAHOV, G. P., KAPLUN, A. B., KARASEV, L. P. (Moscow, Scientific Research
Institute of Motor-Vehicle, Tractor, and Agricultural Machinery-Manufacturing
Technology)

"Evaluation of the Influence of Residual Stresses on the Brittle Strength of
Welded Bodies With Surface Defects"

Abstract: On the basis of the methods of linear mechanics of failure, equa-
tions have been obtained which permit evaluation of the brittle strength of
a cylindrical shell with account taken of the value of the failure viscosity
K_{Ic} of the most vulnerable zone of the shell material, the dimension of the
most vulnerable crack-like defect, the values and distributions of the
residual stresses (for example, welding stresses), and the geometrical dimen-
sions of the shell. The equations referred to are presented for the case of
an axial and an annular position of the defect.
    The procedure for experimental determination of the failure viscosity
K_{Ic} for various zones of a welded joint is briefly presented. The procedure
provides for the testing of samples with an already obtained fatigue crack,
and for bending through an angle. The load at which the sample fails is
1/2

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USSR

CHEREPAHOV, G. P., et al., Problemy Prochnosti, No 12, December 1971, pp 30-35

recorded. Examples are produced for determining the limit value of the internal pressure for welded cylindrical shells made of high-strength steel 43Kh2S1VFMA and the titanium alloy VT14. These calculations make it possible to assess the degree of influence of residual stresses upon the carrying capacity of the shell. 5 tables. 3 figures. 6 references.

2/2

TITLE--SELF SIMILAR PROBLEM IN THE DYNAMIC THEORY OF ELASTICITY FOR A SLOT
   CONTAINING A POINT SOURCE -U-

AUTHOR-(02)-AFANASYEV, YE.E., CHEREPANOV, G.P.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 190, FEB. 21, 1970, P.
   1296-1299
DATE PUBLISHED-------70

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

TOPIC TAGS--ELASTICITY THEORY, BIBLIOGRAPHY, DYNAMIC SYSTEM, BOUNDARY
   VALUE PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1116   STEP NO--UR/0020/70/190/000/1296/1299

CIRC ACCESSION NO--AT0116582
                    UNCLASSIFIED

CIRC ACCESSION NO--AT0116582

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF A CLASS OF SELF
    SIMILAR DYNAMIC PROBLEMS IN TWO DIMENSIONAL ELASTICITY THEORY FOR A
    BOUNDLESS BODY CONTAINING A DIVERGENT RECTILINEAR CUT WHICH IS FREE OF
    LOADING AT ANY TIME. IT IS SHOWN THAT ONLY THREE SOLUTIONS ARE
    PHYSICALLY ACCEPTABLE: (1) A SOLUTION WITH A CONSTANT FINITE MOMENTUM
    (THE DISPLACEMENT POTENTIALS ARE HOMOGENEOUS FUNCTIONS OF THE
    COORDINATES AND ZERO TIME), (2) SOLUTION WITH CONSTANT ENERGY (THE
    DISPLACEMENTS ARE HOMOGENEOUS FUNCTIONS OF THE COORDINATES AND ZERO
    TIME), AND (3) A SOLUTION IN WHICH THE STRESSES ARE HOMOGENEOUS
    FUNCTIONS OF THE COORDINATES AND ZERO TIME. CLOSED FORM SOLUTIONS FOR
    THE FIRST TWO CASES ARE OBTAINED. IT IS SHOWN THAT WITH THE AID OF THE
    SMIRNOV-SOBOLEV (1931) METHOD, THE SOLUTIONS OBTAINED CAN BE REDUCED TO
    KELDYSH AND SEDOV'S BOUNDARY VALUE PROBLEM.   FACILITY:
    MOSKOVSKII INSTITUT NEFTEKHIMICHESKOI I GAZOVOI PROMYSHLENNOSTI, MOSCOW,
    USSR.

UNCLASSIFIED

TITLE--WORKING METHOD OF DETERMINING THE ENERGY OF RUPTURE OF A METAL -U-

AUTHOR-(04)-CHEREPANOV, G.P., KAPLUN, A.B., KARASEV, L.P., KUTEPOVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 64-68

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BEND TEST, STRESS CONCENTRATION, RUPTURE STRENGTH,
   THERMODYNAMIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1828   STEP NO--UR/0369/70/006/001/0064/0068

CIRC ACCESSION NO--AP0129196
                         UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0129196   PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SIMPLE AND EFFICIENT METHOD OF DETERMINING THE RUPTURE ENERGY OF A METAL FROM THE RESULTS OF BENDING EXPERIMENTS CARRIED OUT ON CRACKED SAMPLES IS PROPOSED AND ITS THEORETICAL PRINCIPLES ARE EXPLAINED. THIS METHOD ENABLES SMALL SAMPLES CONTG. RELATIVELY LONG CRACKS TO BE TESTED; IT CONSTITUTES A SIMPLIFICATION OF EXISTING TEST PROCEDURES AND GIVES THE RUPTURE ENERGY DIRECTLY WITHOUT ANY COMPLICATED ANALYSIS OF THE EXPERIMENTAL RESULTS.

UNCLASSIFIED

Analysis and Testing

USSR

KHALMANOV, KH., and CHEREPANOV, G. P., Moscow

"Analysis of Experimental Data on Fatigue Crack Propagation"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, Sep-Oct 70, pp 129-132

Abstract: Fracture toughness controls the size of the defect which leads to failure under a given stress and is thus an important characteristic of a material. Under alternating loads, however, fatigue crack propagation rate rather than fracture toughness may become the limiting factor in strength calculations. This paper correlates the theory of fatigue crack propagation behavior (advanced by D. R. Donaldson and W. E. Anderson) with available experimental data. It offers a phenomenological description of the process of fatigue crack propagation as well as a relationship for this propagation rate where β and K_c are constants

$$\frac{dl}{dn} = -\beta \left(\frac{N_{max}^2 - N_{min}^2}{K_c^2} + \ln \frac{K_c^2 - N_{max}^2}{K_c^2 - N_{min}^2} \right)$$

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USSR

KHALMANOV, KH., and CHEREPANOV, G. P., Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, Sep-Oct 70, pp 129-132

of the material, n is the number of loading cycles, l is the parameter of crack length, and N_{max} and N_{min} are the maximum and minimum magnitudes for the stress intensity factors within a cycle during instant n. Multi-cycle and low-cycle fatigue cracks are discussed and relationships for various crack propagation rates and stress intensity factors are reviewed. Analysis of experimental data on fatigue crack propagation confirms within experimental error the proposed theoretical relationship for a wide range of cycle numbers before failure.

2/2

- 4 -

1/2   040   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--COMBUSTION IN NARROW CAVITIES -U-

AUTHOR--CHEREPANOV, G.P.

COUNTRY OF INFO--USSR

SOURCE--PMTF ZHURNAL PRIKLADNOI MEKHANIKI I TEKHNICHESKOI FIZIKI,
MAR.-APR. 1970, P. 90-95
DATE PUBLISHED-------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--SOLID PROPELLANT R AND D, COMBUSTION R AND D, COMBUSTION
STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1965   STEP NO--UR/0207/70/000/000/0090/0095

CIRC ACCESSION NO--AP0133809
                             UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0133809
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL DESCRIPTION OF
UNSTABLE COMBUSTION PHENOMENA OCCURRING IN SOLID FUEL MOTORS DUE TO THE
PRESENCE OF NARROW CAVITIES IN THE POWDER. THE PROBLEM UNDER
INVESTIGATION IS FORMULATED, AND A LOCAL CRITERION OF INSTABILITY IS
OBTAINED. SOLUTIONS OF PLANE UNSTEADY PROBLEMS ARE THEN CONSIDERED, AND
A SUFFICIENT CONDITION OF STABILITY OF THE SYSTEM IS OBTAINED IN
ANALYTICAL FORM FOR A VERY SIMPLE CASE.

UNCLASSIFIED

AT9049266

INTERNAT. AEROSPACE ABST.
11-69

4R0020

A69-41123 #
CONDITIONS IN A CRACK TIP (OB USLOVII V KONTSE TRESHCHINY).
L. A. Galin, Ia. B. Fridman, G. P. Cherepanov, E. M. Morozov, and V. Z. Parton.
Akademiia Nauk SSSR, Doklady, vol. 187, Aug. 1, 1969, p. 754-757. 18 refs. In Russian.

Discussion of a certain additional condition defining the development of a crack in a solid body, which is set at the crack tip and does not derive from the equations of motion and the strain equation of the body. The condition is formulated on the basis of general considerations which make it possible to identify its form for any continuous medium model. The formulation obtained resembles somewhat Sedov's (1962) rheological laws. This phenomenologically treated condition can be obtained by direct experimental methods.

V.P.

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INTERNAT. AEROSPACE ABST.   UR 0 2 33

/2-69

A69-43709 #

EFFECT OF STIFFENING RIBS ON THE DEVELOPMENT OF A
CRACK (O VOZDEISTVII REBER ZHESTKOSTI NA RAZVITIE
TRESHCHINY).
G. P. Cherepanov and V. M. Mirsalimov.
*Akademiia Nauk Azerbaidzhanskoi SSR, Izvestiia, Seriia Fiziko-
Tekhnicheskikh i Matematicheskikh Nauk*, no. 1, 1969, p. 7-11. 8
refs. In Russian.

    Discussion of the plane elastic problem of the crack propagation
in a plate with riveted stringers under the action of concentrated
loads applied at the rivet points and a tensile load applied at infinity.
The Muskhelishvili method (1966) and a superimposition procedure
are applied to determine the displacement of the positions of the
rivet points with respect to each other in such a plate. The
stress-strain state and the areas of steady and unsteady crack
propagation are also determined in an elastic plate strengthened by
riveted stringers.   V.Z.

Im

19522029

USSR   UDC 532.596+551.46.06.8

KHEYSIN, D. YE., CHEREPANOV, N. V.

"Variation of the Ice Structure in the Zone of Impact of a Solid Body Against the Ice Cover Surface"

V sb. Probl. Arktiki i Antarktiki. Vyp. 34 (Problems of the Arctic and Antarctic. Vyp. 34 — Collection of Works), Leningrad, Gidrometoizdat Press, 1970, pp 79-84 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B484)

Translation: This article contains the results of an experimental study of the structure of ice before and after a solid body in the form of a spherical steel casting weighing 300 kg dropped from different altitudes by means of a portable drop hammer strikes against it. The experiments were performed both at low temperatures (-20, -30°) and at high temperatures (+2, +5°). As a result, it was discovered that before impact it is possible to isolate three characteristic layers with respect to the thickness of the ice depending on the shape and magnitude of the ice bubbles and the air bubbles. After impact three layers are also distinguished. The upper layer is characterized by solid crushing and melting

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. USSR

KHEYSIN, D. YE., et al., Probl. Arktiki i Antarktiki. Vyp. 34, Leningrad, Gidrometoizdat Press, 1970, pp 79-84

of the ice, the middle layer is characterized by a large number of cracks having different directions, and the lower layer, by the presence of cracks only in the radial direction. In the opinion of the authors, the most significant change in structure of the ice on impact is the formation of a zone of finely dispersed ice separated from the basic mass by a clearly expressed rupture surface.

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--GROUP THEORETICAL METHOD FOR DETERMINING PERMITTED TERMS OF THE ELECTRONIC STATES OF POLYATOMIC MOLECULES TAKING ACCOUNT OF SPIN ORBIT

AUTHOR-(05)-MEN, A.N., CHEREPANOV, V.I., FARBEROV, D.S., MITROFANOV, V.YA., CHUFAROV, G.I.

COUNTRY OF INFO--USSR

SOURCE--INT. J. QUANTUM CHEM. 1970, 4(1), 109-19

DATE PUBLISHED------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, SPIN ORBIT COUPLING, EXCITED ELECTRON STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0649

STEP NO--US/0000/70/004/001/0109/0119

CIRC ACCESSION NO--AP0055352

UNCLASSIFIED

CIRC ACCESSICN NO--AP0055352   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GROUP THEORETICAL METHOD FOR
DETG. THE PERMITTED STATES OF POLYAT. MOLS., PROCEEDING FROM GIVEN AT.
STATES IN WHICH THE SPIN ORBIT INTERACTION HAS BEEN TAKEN INTO ACCOUNT,
IS PROPOSED.

UNCLASSIFIED

USSR   UDC 615.919:591.145.2.615.918:58.615.9:576.8.097.29

CHEREPNOV, V. L., ORLOV, B. N., and PISHCHIK, A. M.

"Effect of Cobra Venom on the Structure of Frog Nerves"

Uch. zap. Gor'kov. un-t. Ser. biol. (Educational Proceedings of the Gor'kov University, Biological Series), Vyp 40, 1972, pp 52-55 (from Referativnyy Zhurnal -- Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 1, 1973, Abstract No 1.54.779 by V. K.)

Translation: When the sciatic nerve of a frog was placed in a 10% solution of venom (I) from the Asiatic cobra for 30 minutes, a swelling of the epinerve and a thickening of the myelin sheath were observed. The destruction of the Shvannovsky cells and collagen fibers was also noted. In a 0.2% solution the epinerve ruptured but the nerve fibers did not change.

1/1

THE TEMPERATURE DEPENDENCE OF THE SUBLATTICE MAGNETIZATION OF LITHIUM FERRITE-CHROMITES

V. I. Nikolayev, F. I. Popov, V. M. Cherepanov

The Mossbauer effect for Fe^{57} nuclei in the ferrite $Li_{0.5}Fe_{1.1}Cr_{1.4}O_4$ is investigated in the temperature interval between 77 and 500° K. The purpose of the present work was to elucidate the character of the correlation between the temperature dependences of the effective magnetic field acting on the atomic nucleus and of the «own» sublattice magnetization. Within the accuracy of the experiments the effective magnetic fields for both ferrite sublattices were proportional to the sublattice magnetization. For the experiments a ferrite with a compensation point was specially chosen. Magnetizations of the ferrite sublattices are derived from data on measurements of the effective field and magnetization of the sample. It is shown that the temperature dependence of the

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AP0043661

sample magnetization can be described by the Neel model. For both types of sublattices the temperature dependence of the magnetic moment is of the Weiss shape; this indicates strong AB-interaction. Despite the presence of a magnetic compensation point in ferrite, a «weaker» of the two sublattices can be separated only with strong reservations (it turns out to be an octohedral sublattice).

2/2   19770065   DI

USSR   UDC: 681.121.872

GOLDAYEV, I. P., PERSHIN, A. P., CHEREPANOV, V. P.

"On the Problem of Using Nonstandard Venturi Tubes to Measure Minute Rates
of Flow of Gaseous Substances"

Translation: Measurement of minute rates of flow of gaseous substances pre-
cludes the use of standard Venturi tubes since the large diameter of the con-
striction in these tubes prevents measurement of the pressure drop with suf-
ficient precision. A method is outlined for experimentally determining the
flow rate coefficient of Venturi tubes with a constriction diameter of con-
siderably less than 50 mm. A diagram is given of an installation which per-
mits highly precise determination of the flow rate coefficient of small Ven-
turi tubes. Data are given from an experimental study of a slow-flow tube
designed at the Khar'kov Aviation Institute. Five illustrations, bibliog-
raphy of one title.

1/1

USSR   UDC 621.43.011:533+621.5:533

ZAGREBEL'NAYA, L. I., CHEREPANOV, V. P., and YAL'NITSKIY, L. F.

"Theoretical Study of Gas Parameters in Air-Jet Burners Using Air Preheating"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Aircraft Construction and the Technical Air Fleet, Republic Interdepartmental Scientific-Technical Collection), Vypusk (Issue), 18, 1970, pp 12-19 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B448, Authors' Abstract)

Translation: Results of thermodynamic calculations of the temperature of gas in a combustion chamber T_K as affecting the temperature of gas on leaving the jet nozzle T_a and the gas exhaust velocity W_a are presented for the cases when the pressures in the combustion chamber P_K = 5-25 abs atm, the air excess factor α_{Γ} = 0.7-1.2, and the degree of preheating ΔT_{B03A} = 500, 1000, and 2000°. A comparative evaluation is made of the parameters of the burners, using air and oxygen as the oxidant, and also of the air-jet burners using different fuels (gasoline, natural gas, compressed gas, and coking gas). It is concluded that it is possible to use the parameters of the gas in gasoline-air burners with air preheating to characterize air-jet burners using natural, compressed, and coking gases (in the latter case, given several assumptions).

1/1

1/2   013   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--AUTOMATIC STRAIGHTENING AND CUTTING MACHINE --U-

AUTHOR-(05)-BLINOV, V.P., YASINSKIY, YU.G., POLYARIN, YU.N., CHEREPANOV,
   YU.B., NAZAROV, V.A.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 238517
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 10
DATE PUBLISHED--31JUL70

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

TOPIC TAGS--PATENT, AUTOMATIC CONTROL SYSTEM, CUTTING TOOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0836   STEP NO--UR/0482/69/000/000/0000/0000

CIRC ACCESSION NO--AA0114932
                     UNCLASSIFIED

CIRC ACCESSION NO--AA0114932
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AUTOMATIC STRAIGHTENING AND
  CUTTING MACHINE CONTAINS CUTTING MACHANISMS 1 AND 2 WITH MOBILE BLADES,
  MECHANISMS FOR STRAIGHTENING, ROD DELIVERY AND REMOVAL OF CUT OFF
  DETAILS. IN ORDER TO INCREASE EFFICIENCY WHEN FIXING IT AFTER THE PRESS
  WHICH PERFORMS SIMULTANEOUS PRESSING OF A ROW OF PARALLEL RODS, THE
  MACHINE HAS SEVERAL MECHANISMS FOR STRAIGHTENING, DELIVERY, CUTTING AND
  REMOVAL OF CUT OFF DETAILS, SITUATED IN PARALLEL. THE MECHANISMS ENABLE
  THE MOVEMENT OF THE DETAILS TO A VIBROPLATFORM (16) WHICH IS SITUATED
  UNDER THE MECHANISMS. THE VIBRO PLATFORM HAS A DEBALANCING DRIVE (18)
  AND HAS TWO PAIRS OF INCLINED GUIDES WHICH ARE SITUATED ONE ABOVE THE
  OTHER. IN THE CLEARANCE BETWEEN THE UPPER GUIDES WHICH FORM A HOPPER,
  A TURNING SLIDE IS FIXED. THE SLIDE HAS TWO FIXED POSITIONS AND DIVIDES
  THE DETAILS INTO TWO STREAMS WITH THE HELP OF THE LOWER GUIDES. THE
  MOBILE BLADE (7) OF THE CUTTING MECHANISM (1) IS FIXED ON A COUPLING ROD
  (11) WHICH PERFORMS REVERSE FORWARD MOTION AND IS AFFECTED BY A SPRING
  (12). THE SPRING CREATES ADDITIONAL EFFORT DURING CUTTING AND PROVIDES
  A REDUCTION IN INERTIAL FORCES DURING THE REVERSE STROKE.
FACILITY: TSENTRAL'NYY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT TARY I
UPAKOVKI.

USSR

UDC 621.357:621.79.027

CHEREPANOV, YU. P., MITYASHKIN, D. Z.

"Study of the Effect of the Process Parameters on the Precision of the Electrochemical Method of Machining Holes"

V sb. Novoye v elektrofiz. i elektrokhim.obrabotke materialov (What's New in Electrophysical and Electrochemical Treatment of Materials -- collection of works), Leningrad, Mashinostroyeniye Press, 1972, pp 38-43 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L305)

Translation: In order to determine the possibility of electrochemical machining of deep holes with precision classes 2-3 in the materials Br. KhO, 8, 1Kh18N9T, SN2A, and 38KhNYuA in the self-regulation mode, the effect of a number of parameters on the hole-making precision was defined. These parameters included the height of the operating bead of the cathode tool, the uniformity of the cathode feed, the variation in voltage at the electrode, the variation in the electrolyte temperature, the nature of the flow of the electrolyte in the operating zone, the pressure and the flow velocity of the electrolyte in the cathode spacing, the variations in chemical composition of the machined material and the electrolyte used. It is demonstrated that the basic effect on the precision of making holes by the electrochemical method comes from nonuniformity of the chemical composition of the machined material, variations in voltage on the electrode and the electrolyte temperature.

1/1

USSR

UDC 615.31:547.333.47.012.1

TORF, S. F., and CHEREPANOVA, Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Synthesis of Quaternary Ammonium Compounds Containing a Nitrodiaminopropane Link"

Abstract: Description of the synthesis and curariform action of quaternary ammonium salts of 2-methyl-2-nitro-N,N'-bis-(p-dialkylaminophenyl)-1,3-diaminopropane and tris-(p-dialkylaminophenylaminomethyl)-nitromethane. A table summariezes the results of pharmacologic trails of the compounds compared with d-tubocurarine. R = $\overset{+}{N}(CH_3)_3 I^-$ was found to be less potent than d-tubocurarine but also considerably less toxic. It produced a significant therapeutic effect and the authors recommend its use when a muscle relaxant of the pachycurare type is indicated.

1/1

CORRELATION BETWEEN THE CONTENT OF POLYCYCLIC CARCINOGENS IN ANIMAL FOOD PRODUCTS AND IN FODDER FOR FARM ANIMALS

N. D. Gorelova, P. P. Dikun, A. P. Dmitrochenko, N. D. Krasnitskaya,
A. I. Cherepanova, I. A. Shendrikova (Leningrad)

Summary

Rabbits, pigs, cows, chicken and ducks received during different periods of time (up to one year) fodder containing 3,4-benzpyrene. Animals and poultry were sacrificed 24 hours on termination of the experiment and their tissues and organs analyzed for the benzpyrene content. Meat and separatly fat, and in some instances also liver, blood, etc were, as a rule, taken for analysis. Milk of experimental cows was used for feedings calves, whose meat, liver and blood were then also subjected to examination. Investigations also covered milk of experimental cows and chicken eggs. Control assays were a common practice as well. Meat and other objects under examination either contained no 3,4-benzpyrene at all, or demonstrated merely its traces. Hence, the presence in fodder of relatively large amounts of benzpyrene does not cause this carcinogen to appear in animal food products. Studies were also made as to the amount of intact benzpyrene passed from the organism of rabbits, cows, calves and chicken.

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REEL/FRAME
19770633

2

Acc. Nr. AP0047647 — Abstracting Service: Ref. Code:
CHEMICAL ABST.5/70   UR 0080

104437a **Hydrolysis of potassium metaphosphate.** Vol'f-kovich, S. I.; Cherepanova, A. S.; Grishina, L. A. (USSR). Zh. Prikl. Khim. (Leningrad) 1970, 43(1), 3-9.(Russ). The acid hydrolysis of the polymeric $(KPO_3)_n$ was a 1st order reaction and proceeded from the end of the chain. The primary intermediates were orthophosphate and trimetaphosphate. The rate of hydrolysis increased with increasing temp. and decreasing pH; at pH = 2.75, the rate consts. were: $K_{50}° = 0.82 \times 10^{-3}$ min^{-1}, $K_{65}° = 0.25 \times 10^{-2}$ min^{-1}, and $K_{75}° = 0.59 \times 10^{-2}$ min^{-1}. The half life of $(KPO_3)_n$ in acidic media at 50, 65, and 75° was 14.1, 4.6, and 1.9 hr, resp. and the activation energy for the acid hydrolysis was 18,000 cal. The results of this investigation could be correlated to the agrochem. data for the rate of conversion of K metaphosphate into orthophosphate on various soils.

G. Melamed

1/1

REEL/FRAME
19791221

18 rk

USSR   UDC 615.919:591.145.2.615.918:58.615.9:576.8.097.29

SOLODYKHO, I. G., and CHEREPNOVA, N. A.

"The Specific Reaction to Bee Venom"

Uch. zap. Gor'kov. un-t. Ser. biol. (Educational Proceedings of the Gor'kov
University, Biological Series), Vyp 40, 1972, pp 61-64 (from Referativnyy
Zhurnal -- Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya,
No 1, 1973, Abstract No 1.54.788 by V. K.)

Translation: Rabbits were immunized with bee venom (BV; 0.3 - 0.35 mg/kg by
intramuscular injection 4 times on 4 days with 3 day intervals between injec-
tions). The diluted serum from the immunized rabbits by the 10th - 11th day
formed a precipitate band when treated with BV in dilutions of 1:5000 to
1:20,000. For dilutions of 1:250 to 1:1000 BV formed a precipitate band with
nonimmunized serums, distinguishing the BV from snake venoms.

1/1

USSR

UDC 621.762:669.018.24
(088.8)

ANTSIFEROV, V. N., CHEREPANOVA, T. G.

"Cermets Antifriction Alloy"

USSR Author's Certificate No 272563, Filed 24 Dec 68, Published 31 Aug 70,
(from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G461P)

Translation: A cermets antifriction alloy based on Fe containing carbon, Cr,
Mo,and Si is introduced. In order to improve the mechanical properties, the
components are in the following ratios (in %):   C 0.8-0.9, Cr 4-5, Mo 2-5,
Si 0.25-2.5, and the rest Fe.

1/1

USSR   UDC: 621.762

ANTSIFEROV, V. N., and CHEREPANOVA, T. G., Perm' Polytechnic Institute

"Iron-Base Alloyed Composite Compacts with Higher Antifriction and Mechanical
Properties"

Abstract: The mechanical, antifriction, and corrosive properties of carbonyl
iron-base powder metal compacts alloyed with carbon, chromium, molybdenum, and
silicon were studied. It was shown that the addition of alloying elements (up to
an optimum value) raises the strength properties of powder metal alloys. The high-
est tensile strength $(60-87 \text{ kg/mm}^2)$ was found in alloys with a maximum total of
alloying elements of 7--10%. Further increase in alloying elements decreased the
strength properties due to the formation of a more heterogeneous structure and an
increased amount of carbides and intermetallides. Alloying elements affect the
plastic properties in a similar fashion. The experiment involved additional sin-
tering and annealing as well as impregnating with Br-10 bronze alloys to increase
the impact strength. The friction counterparts were made from Khl2M steel with a
surface finish of class 11. Spindle oil and TS-1 aviation fuel were the lubricants.
The experimental results suggest that composite sintered powder metal alloys with

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USSR

improved antifriction properties, impregnated with Br-10 alloy, may be used as antifriction materials for parts intended for work in friction under impact loads in oil and TS-1 aviation fuel in pairs with steels possessing high hardness and wear resistance.

2/2

TITLE--COMPLEX ALLOYED SINTERED METAL IRON BASE ALLOYS WITH HIGH ANTI
   FRICTION AND MECHANICAL PROPERTIES -U-

AUTHOR-(02)-ANTSIFEROV, V.N., CHEREPANOVA, T.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 54-59

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PROPULSION AND FUELS

TOPIC TAGS--MECHANICAL PROPERTY, IRON ALLOY, LUBRICATING OIL, BRONZE,
   DUCTILITY, AVIATION GASOLINE, JET FUEL, ANTIFRICTION MATERIAL, SINTERED
   METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0157   STEP NO--UR/0369/70/006/001/0054/0059

CIRC ACCESSION NO--AP0129413
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0129413
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANTI FRICTION AND MECHANICAL
  PROPERTIES OF COMPLEX ALLOY SINTERED METAL FE BASE ALLOYS INITIALLY
  DERIVED FROM PURE FE OF THE CARBONYL TYPE WERE STUDIED. THE ALLOYS IN
  QUESTION EXHIBITED PARTICULARLY HIGH STRENGTH AND DUCTILITY AND
  EXCELLENT ANTI FRICTION CHARACTERISTICS WHEN WORKING IN CONTACT WITH OIL
  AND AVIATION FUEL. THE ANTIFRICTION AND ANTI CORROSION PROPERTIES OF
  THESE ALLOYS WERE FURTHER IMPROVED BY IMPREGNATING THEM WITH A SPECIAL
  TYPE OF BRONZE.

UNCLASSIFIED

1/2   030   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--SINTERED METAL ANTIFRICTION MATERIAL -U-

AUTHOR-(03)-ANTSIFEROV, V.N., CHEREPANOVA, T.G., KHUDENKIKH, N.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,161
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METALLURGIC PATENT, ANTIFRICTION ALLOY, SINTERED METAL, METAL
   POWDER, CHROMIUM, CARBON, COPPER, IRON, MOLYBDENUM COMPOUND, SULFIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1055   STEP NO--UR/0432/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130090
                         UNCLASSIFIED

2/2   030   UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0130090
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HIGH STRENGTH POWDER
  METALLURGICALLY PREPD. ANTIFRICTION MATERIAL CONSISTED OF CR 2-4, C 2-4,
  CU 1.5-2.5, MOS SUB2 4.6 WT. PERCENT, AND THE REST FE.   FACILITY:
  PERM POLYTECHNIC INSTITUTE.

USSR   UDC 532.528;532.529.5/.6

SUKHOMLINOV, YU. A., CHEREPANTSEV, S. F.

"Device for Simulating the Cavitation Effect"

Tr. Taganrog. radiotekhn. in-ta (Works of Taganrog Radioengineering Institute),
1973, vyp. 34, pp 50-56 (from RZh--Mekhanika, No 6, Jun 73, Abstract No 6B476)

Translation: The difficulties of an experimental study of cavitation consist
in the small scale of the effect complicating the analysis of the final stage
of the collapse of bubbles. An experimental device is proposed which permits
an increase in the scale of the cavitation process and insures the possibility
of studying the dynamics of the growth and collapse of bubbles. The maximum
critical dimensions of the cavitation bubble for this device are ~ 10 mm. The
device is a rectangular bath made of organic glass 220 × 200 × 860 mm. The bath
is partially filled with water. Air is pumped from the upper part of the bath
by a prevacuum pump. In the lower part of the bath there is a shock wave
emitter which is a mechanical breaker which excites oscillations of a duralumin
diaphragm acoustically decoupled from the housing. The dimensions of the
cavitation bubbles formed in the water are determined by the amplitude of the
shock wave and the degree of rarefaction in the bath filled with air. The
relations are presented for the bubble dimensions as functions of time at dif-
ferent depth , the noise spectrum of the shock wave and the noise during
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USSR

SUKHOMLINOV, YU. A., et al,,Tr. Taganrog. radiotekhn. in-ta, 1973, vyp. 34, pp 50-56

cavitation and also the results of movie films of the cavitation process. It is noted that the investigated device not only permits an increase in the scale of the process but also the duration of a single cavitation act. The bibliography has 8 entries.

2/2

USSR

UDC 621.371.332.3:551.463.7:538.3

AFANAS'YEV, K.L., BOL'SHAKOV, E.V., GARNAKER'YAN, A.A., LEPANDIN, L.F., LOBACH,
V.T., TIKHONOV, V.V., CHEREPANTSEV, S.F.

"To The Problem Of Measuring The Height Of Sea Waves By The Radar Method From
Aircraft"

Translation: The theoretical bases are stated of the radar method of measuring
the height of waves. It is shown that in order to increase the precision of
measurement it is necessary to have a tunable transmitter or some fixed radiat-
ion frequencies (3 are sufficient). A measuring unit is described, constructed
on the basis of a pulse radar station of the meter range; technical data are
presented. An analysis of the results obtained during flight tests shows that
the discrepancy between these results and the data obtained with the aid of a
wave graph does not exceed 10--12 percent. The defect of the method is the
impossibility of determining the character of the waves and the length of a wave.
1 ill. 2 tab. 4 ref. N.S.

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USSR   UDC 632.95

VLADIMIRTSEV, I. F., KARABANOV, Yu. V., KHRIPKO, S. S., RYBCHENKO, L. I.,
CHEREPENKO, G. I.

"Biological Activity of Substituted α'-nitrostilbenes"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Sub-
stances. Republic Interdepartmental Collection), 1972, No 4, pp 139-142
(from RZH-Khimiya, No 2 (II), Feb 73, Abstract No 2N507)

Translation: In order to obtain plant growth regulators and fungicides, a
number of derivatives of styrene and stilbene were synthesized; $PhCH=CH_2$
suppresses the growth of oat roots in a concentration of 0.01% by 56%, and
in a concentration of 0.001%, by 60%, and it suppresses the leaf growth by
45 and 21% respectively. The $PhCH=C(NO_2)Ph$ (I) has a significant inhibiting
effect. In a 0.01% concentration it suppresses the growth of oats and
lettuce by 79%. The $PhCH=CHNO_2$ not only suppresses growth but causes the
plants to die. The fungicidal activity of I approaches that of figon;
π-Br- and π-Cl-I are of practical interest as root and stalk growth stimu-
lators.

1/1

USSR

UDC 632.95

PRIKAZCHIKOVA, L. P., RYBCHENKO, L. I., KURILENKO, K. K., CHERKASOV, V. M., CHEREPENKO, T. I.

"Insecticidal and Fungicidal Activity of Certain Derivatives of Pyrimidine-Carboxylic Acids, Methyl and Styryl Pyrimidines"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, No 4, pp 89-91 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N473)

Translation: Results are presented from tests under laboratory conditions of derivatives of pyrimidine carboxylic acids, methyl and styryl pyrimidines. The majority of the tested compounds are weak insectofungicides. The 2,6-dichloro-4-methylpyrimidine 100% suppresses Alternari radicina, Aspergillus niger, Fusarium oxysporium, Venturia inaequalis and Helminthosporium. On replacement of the Cl atoms by OH, the fungicidal activity drops signifi-cantly; 2-styrylpyrimidine inhibits the growth of fungus mycelium in a concentration of 0.1 and 0.05% by 100%; 4-methyluranyl in a concentration of 1% causes 67% death of houseflies, and 5-bromo-2-methylprimidine, 100%.

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USSR

UDC 632.95

KURILENKO, L. K., CHERKASOV, V. M., PRIKAZCHIKOVA, L. P., RYBCHENKO, L. I., CHEREPENKO, T. I.

"Insecticidal and Fungicidal Activity of 4-N-substituted 5-nitro-6-aminopyrimidine and 6,8,9-substituted Adenine"

Translation: The test results indicate that the derivatives of purine (I) and pyrimidine (II) exhibit significant insecticidal activity; $4\text{-}NH_2\text{-}5\text{-}NO_2\text{-}6\text{-}PhNH\text{-}II$ and 8-cyclohexyl-substituted and 8-chlorophenyl-substituted I, and the 8-methylkinetine isomer cause a 90-100% death rate of houseflies.

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USSR

UDC 632.95

SVINSHCHUK, A. A., VYSOTSKIY, N. N., and CHEREPENKO, T. I.

"Synthesis and Physiological Properties of Derivatives of Trimethylhydroquinone Phosphoric Acid"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiological Effects of Compounds, Republic Interscience Symposium), Vyp 4, 1972, pp 31-33 (from Referativnyy Zhurnal -- Khimiya, No 4(II), 1973, Abstract No 4N647 by T. A. Belyayeva)

Translation: The compounds, $2,3,5-Me_3-1-OR-4-R'OC_6H_5$ (compound I, where R = H, PhCo, Me, and P-containing groups; and R' = H or P-containing groups) were synthesized and a study was made of their physiological activity by a method of retarding the growth of fungus in a solid medium. To 5 g of compound Ia (I where R=R'=H) was added 100 ml of water, 10 g of Na_2CO_3, and 4.6 g of PhCOCl, the latter dropwise. This precipitated compound Ib (I where R=COPh and R' = H) with a melting point 146-148" (ethanol as solvent) and a yield of 62%. To a chilled solution of 4.6 g of Ia in 100 ml of ethyl ether was added 5 g of $Cl_2P(O)NCO$, stirred for 3 hours. Petroleum ether was added, the solution was allowed to stand for about 16 hours, then 9.5 g of compound. Ic (I where R = $CONHPOCl_2$ and R' = H) which had a melting

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USSR

SVINSHCHUK, A. A., et al., Fiziol. aktivn. veshchestva. Resp. Mezhved. sb. Vyp 4, 1972, pp 31-33

point of 160-161°C was obtained by filtering. From Ic was obtained a compound (I where R = CONHPO(OPr)$_2$ and R' = H) which had a melting point of 156-158°. To a chilled solution of 7 g of Ib in 100 ml of pyridine were added 4.2 g of POCl$_3$. The solution was filtered, concentrated, 100 ml of 1N H$_2$SO$_4$ were added. The solution was allowed to stand for about 16 hours and 5.2 g of a compound (I where R = COPh and R' = PO(OH$_2$)) which decomposed at 262-264° were obtained. The reaction of Ib with Cl$_2$P(O)NCO resulted in the formation of compound Id (I where R = COPh and R' = CONHPOCl$_2$) have a melting point of 108-110°C. Another compound (I where R=Me and R' = CONHPOCl$_2$) having a metling point of 128-130°C was also obtained. For the fungicide activity, a 0.1 and 0.5% solution of Id did not match the standard compound, figon, in regards to Alternaria radicina, Aspergillus niger, Fusarium oxysporum, and Helmintho-sporum sativum.

2/2

USSR

CHEREPENKO, T. I., LOBODA, L. S., SHOKOL, V. A.

"Search for Effective Compounds to Control the Powdery Mildews"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Materials. Republic Interdepartmental Collection), 1972, No 4, pp 17-19 (from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N617)

Translation: When testing 18 different compounds on the conidia Erysiphe cichoracearum it was established that the fungicidal activity of $PhCh_2OOC-(CH_2)_4COOH$ and $n-MeC_6H_4$ with $SO_2N = CClSCl$ in 0.1% concentration exceeds the activity of the karatan standard.

1/1

TITLE--FLUX FOR WELD DEPOSITING HARD ALLOYS WITH HIGH FREQUENCY CURRENTS
-U-

AUTHOR-(05)-LIPTUGA, I.V., ALAKSEYEV, I.L., CHEREPNEV, D.A., DRIVYKH,
N.A., TYUTYUNZHI, A.S.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,690

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

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

TOPIC TAGS--WELDING FLUX, WELDING TECHNOLOGY, HARD ALLOY, METAL DEPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1066   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130101

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130101

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A FLUX WITH A LOWER M.P. THAT
    IMPROVES THE QUALITY OF THE BEADED METAL HAS THE FOLLOWING COMPN.:   NA
    SILICATE 18022, H SUB3 BO SUB3 58-67, SILICOCALCIUM 15-20PERCENT.
    FACILITY: OKTYABR'SKAYA REVOLYUTSIYA, PLANT OF AGRICULTURAL EQUIPMENT
    CONSTRUCTION, ODESSA.

UNCLASSIFIED

Instrumentation and Equipment

USSR

UDC 621.384.8

VASIL'YEV, M. A., ZHUK, O. V., IVASHCHENKO, YU. N., and CHEREPIN, V. T., Institute of Metal Physics, Academy of Sciences Ukr SSR

"High-Speed Automatic Switching of Potentiometer Bands"

Kiev, Metallofizika, No 39, 1972, pp 118-122

Abstract: A small-scale electronic device has been developed making it possible to fully automate the switching of bands on self-recording potentiometers according to a previously given program. The use of contact-free elements provides a fast switching rate which is determined by the type of output commutating element. 4 figures, 1 table, 3 bibliographic references.

1/1

USSR

UDC 537.534.8

MAYFET, YU. P., and CHEREPIN, V. T., Institute of Metal Physics, Academy of
Sciences Ukr SSR

"An Ion Mass-Spectrum Microscope"

Abstract: An ion mass-spectrum microscope for chemical and isotope analysis
of solids is described which uses the phenomenon of ion-ion emission. The
possibilities of using the microscope for solving a number of physical
metallurgy problems are indicated. 6 figures, 12 bibliographic references.

1/1

Optical

USSR

UDC: 537.533.3

CHEREPIN, V. T., MAYFET, Yu. P., Institute of Physics of Metals, Academy
of Sciences of the UkrSSR, Kiev

"An Ion-Electron Image Converter"

Abstract: The article describes an ion-electron image converter for ionic
mass-spectral microscopes. The converter is a two-electrode magnetoelec-
trostatic immersion lens with separate accelerating and focusing functions.
The working principle of the system is as follows. The ion beam which
carries the image is projected on the cathode of image converter 1 (see
figure) after leaving the mass analyzer. This induces emission of elec-
trons which are accelerated in the field of the lens between cathode 1 and
anode 3, which is formed by the pole piece of a magnetic lens which focuses
the electron beam on fluorescent screen 4. Computational and experimental
data are given on image reduction.

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USSR

CHEREPIN, V. T., MAYFET, Yu. P., Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 5, May 72, pp 969-971
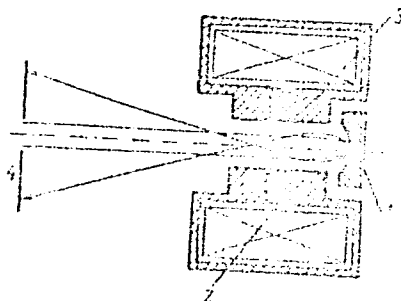
1--cathode; 2--nonmagnetic insert; 3--anode-polepiece; 4--screen

2/2

USSR   UDC 546.3.004.5.001.2

LARIKOV, L. N., CHEREPIN, V. T., GUREVICH, M. Ye.

"Automation of Testing and Investigation of Metals"

Avtomatizatsiya Kontrolya i Issledovaniya Metallov [English Version Above], Tekhnika Press, Kiev, 1971, 198 pages.

Translation of Annotation: The basic principles and methods of automatic study and testing of the properties of metals and alloys using electronic equipment are presented, modern precision devices are described, and problems of the prospective development of devices, measuring complexes, and systems used in order to automate scientific experimentation in the area of study of the properties of metals and alloys are analyzed. The book is designed for scientific and engineering workers involved with problems of testing and study of the properties of metals in the metallurgical, machine building, instrument building and other branches of industry, and also may be useful for teachers and students in the corresponding specialties in technical universities.   5 Tables; 92 Figures; 231 Biblio. Refs.

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USSR

UDC 546.3.004.5.001.2

LARIKOV, L. N., CHEREPIN, V. T., GUREVICH, M. Ye., Avtomatizatsiya Kontrolya
i Issledovaniya Metallov, Tekhnika Press, Kiev, 1971, 198 pages.

USSR   UDC 546.3.004.5.001.2

LARIKOV, L. N., CHEREPIN, V. T., GUREVICH, M. Ye., Avtomatizatsiya Kontrolya i Issledovaniya Metallov, Tekhnika Press, Kiev, 1971, 198 pages.

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USSR

UDC 669.715:669.046.54/55

YAKOVLEV, V. I., BALAKHONTSEV, G. A., BONDAREV, B. I., SHVETSOV, I. V., and CHEREPOK, G. V.

"Effect of the Refining and Casting Technology on the Quality of Ingots and Semifinished Goods"

Msocw, Tsvetnyye Metally, No 1, Jan 74, pp 64-67

Abstract: A comparative study of the properties of metals produced by different refining methods was carried out by processing statistical data on the results of the macrocontrol of ingot templets. It is shown that traditional refining methods provides nearly the same purity level in H content and other inclusions. The contradiction of this finding with the results of other researchers is explained. The effect of the casting technology on the purity of the metal was investigated on ingots of D1 alloy, 540 mm in diam. The results show a linear dependence of porosity on the H content. The volume of porosity in the ingots determines their disposition to stratification under deformation. To retain the fine-crystalline structure of the ingot and to eliminate stratification in stamping, the use of evacuation in the mixer has to match the modification of the melt. Five figures, one table, five bibliographic references.
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- 4 -

Graphite

USSR

UDC 666.764.4:669.716:621.74

KARKLIT, A. K., SOKOLOV, A. N., LEBEDEVA, M. F., ZEGZHDA, V. P., Deceased, All-Union Institute of Refractories, SIMONOV, V. N., Leningrad Plant for Processing of Nonferrous Metals, ANDREYEV, V. F., PARTIN, I. A., CHEREPOK, G. V., Kuybyshev Metallurgical Plant imeni V. I. Lenin

"Graphite-Containing Products for Casting of Aluminum Alloys"

Abstract: A composition and method of manufacture of graphite-containing refractory products of low heat conductivity for casting of aluminum and aluminum-based alloys have been developed. The reduction in heat conductivity is achieved by introducing asbestos to the mass and using low-temperature (700°C) roasting. The products have shown satisfactory strength in service.

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USSR   UDC 577.4

CHEREPOV, O. F.

"Method of Discovering Adjacent Rows of a Partially Defined Transition Table"

Metod vyyavleniya sovmestimykh strok chastichno opredelennoy tablitsy perekhodov
(Method of Discovering Adjacent Rows of a Partially Defined Transition Table),
Board of Editors of the Journal Avtomatika i vychisl. tekhn., Latvian SSR
Academy of Sciences, Riga, 1972, 10 pp, 3-entry bibliography, No 4179-72 Dep
(from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V409DEP)

No abstract

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