UDC 621.382.002

USSR

KHANSEN, E.A., PUUSEPP, M.E., SAAR, B.YA.

"Some Problems Of A Decrease Of Heat In The Production Of Semiconductor Products"

Tr. Tallin. politekhn. in-ta (Works Of The Tallin Polytechnical Institute), 1970, A, No 291, pp 89-94 (from RZh--Elektronika i yeye primeneniya, No 12, December 1970, Abstract No 12B339)

Translation: The papers considers one of the components of the microclimate of a premise -- heat -- and the increase of its influence in the production of semi- conductors with the use of planar technology. Based on an analysis of a number of experiments, several hypothesis are advanced with respect to a definition of heat sources, and an optimum arrangement is worked out for the technological processes at assembly sections. 5 ill. 6 ref. Summary.

1/1

USSR                                        UDC 535.215.1

KHANSEVAROV, R. Yu.

"Effect of $\gamma$ Irradiation on Quenching of Photoconductivity in Germanium"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics of Nonmetallic
Crystals--Collection of Works), Vol 3, Part 1, Kiev, "Nauk. dumka," 1971,
pp 177-180 (from RZh--Elektronika i veye primeneniye, No 10, October 1971,
Abstract No 10B237)

Translation:  The spectral distribution is studied of the quenching of photo-
conductivity in nonirradiated germanium and the change of this characteristic
with irradiation by $\gamma$-radiated $Co^{60}$ at room temperature.  N-type germanium
with an antimony concentration of $2 \cdot 10^{13}$ -- $2 \cdot 10^{14}$ $cm^{-3}$ and undoped germanium
of high purity with a concentration of majority carriers of $(2.5) \cdot 10^{12}$ $cm^{-3}$
was studied.  It is discovered that irradiation leads to an abrupt intensi-
fication of the quenching of the photocurrent in pure germanium and in
germanium with an antimony impurity.  3 ill. 2 ref.  I. V.

1/1

+ /

USSR                                                UDC 537.311.33:546.682'86

VITOVSKIY, N.A., VIKHLIY, G.A., GALAVANOV, V.V., MASHOVETS, T.V.,
KHANSEVAROV, R.YU.

"Radiation Defects In Indium Antimonide"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal
Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 124-130 (from
RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B41)

Translation:  It is shown that defects originating in InSb during irradiation
of it by electrons and $\gamma$ rays are also formed in p-type InSb and under the
effect of soft radiation -- x-rays with maximum energies to 55 kev and visible
light. It is obvious that the process of formation of these defects is connected
with the effect of some nonimpact mechanism of radiation defect formation. 6 ill.
12 ref. Summary.

1/1

1/2    037              UNCLASSIFIED          PROCESSING DATE--23OCT70
TITLE--UNSTABLE SOLUTION TO THE DIFFERENTIAL EQUATIONS OF A WIND FLOW -U-

AUTHOR--KHANTADZE, A.G.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK GRUZINSKOI SSR, SOOBSHCHENIIA, VOL. 57, FEB. 1970,
P. 325-327
DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, ATMOSPHERIC SCIENCES

TOPIC TAGS--DIFFERENTIAL EQUATION, UNSTEADY FLOW, WIND, UPPER ATMOSPHERE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1497        STEP NO--UR/0251/70/057/000/0325/0327

CIRC ACCESSION NO--AP0125125
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0125125

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF AN UNSTEADY
SOLUTION TO THE DIFFERENTIAL EQUATIONS DESCRIBING THE UNSTEADY FLOW OF A
HORIZONTAL WIND IN THE UPPER ATMOSPHERE. THE PROPERTIES OF THE
EXPRESSIONS DERIVED IN THE PROCESS ARE DISCUSSED. THE SOLUTION OBTAINED
IS APPLICABLE WHEN THE PRESSURE GRADIENT IS AN ARBITRARY FUNCTION OF THE
ALTITUDE AND TIME.           FACILITY:  AKADEMII NAUK GRUZINSKOI SSR,
INSTITUT GEOFIZIKI, TIFLIS, GEORGIAN SSR.

UNCLASSIFIED

USSR

UDC: 621.317.681.325.07(088.8)

KOLTIK, Ye. D., KOROVKIN, Ye. I., PIASTRO, V. P., KHANTEL', A. D.

"A Device for Measuring Correlation Functions of Random Processes"

USSR Author's Certificate No 266378, filed 23 Apr 68, published 22 Jul 70 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A317 P)

Translation: The authors note the comparatively low accuracy of conventional devices of the multiplication type which contain analog-digital converters, multipliers, an integrator and a registration unit. In order to improve accuracy, a device is proposed which is distinguished by the fact that decoders are connected at the output of each analog-digital converter, and a sampling module is connected between the outputs of both decoders and the input of the switching circuit. E. L.

1/1

USSR                                              UDC:  629.78.017.2

KHANTSEVEROV, F. R., DOLGIKH, N. A.

"Methods of Optimizing a Program for Controlling the Angular Position of a Space Vehicle"

Translation:  A telescope for an astronavigational and astro-orientation system is installed on board an artificial earth satellite.  In order to establish the reference coordinate system, periodic alignment of the astro-module with a luminary (star) is necessary with rotation of the unit during flight of the satellite.  Priority features and a catalog of luminaries are given.  There are also limiting conditions on the number of rotations, the turning velocity, and the angle of inclination of the astromodule.  An optimum program must be found for sampling the reference net of luminaries within the permissible expenditures of the energy resources of the satellite.

1/2

USSR

KHANTSEVEROV, F. R., DOLGIKH, N. A., Upr. dvizhushchimisya ob"yektami. Tr.
IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik, 1972, pp 147-160

Different methods are considered for solving this multiple-extremum problem.
The problem is formalized as applied to the general case and to special
cases.  A comparative quantitative evaluation is made of the effectiveness
and accuracy of solution of the given problem by different methods.  One
illustration, two tables, bibliography of four titles.  Résumé.

2/2

- 47 -

1/2    020                    UNCLASSIFIED              PROCESSING DATE--23OCT70
TITLE--TEMPERATURE AND AMOUNT OF HEAT NECESSARY FOR IMPARTING THE DESIRED
   FLUIDITY OF AMMONIUM NITRATE EXPLOSIVES -U-
AUTHOR-(04)-KHANUKAYEV, A.N., DOLGOV, K.A., EIST, YU.A., MIRNYY, V.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., GORN. ZH. 1970, 13(2), 64-9

DATE PUBLISHED-------70


SUBJECT AREAS--ORDNANCE

TOPIC TAGS--AMMONIUM NITRATE, EXPLOSIVE LOADING, TRINITROTOLYENE, WATER,
   CELLULOSE, LIQUID EXPLOSIVE/(U)CM CELLULOSE


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/2095          STEP NO--UR/0150/70/013/002/0064/0069

CIRC ACCESSION NO--AP0127468
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0127468
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   EXPERIENCE OBTAINED WITH WATER
  FILLED EXPLOSIVES ("AQUATOLS") SHOWS THAT WATER DOES NOT PRODUCE AT ROOM
  TEMP. THE REQUIRED FLUIDITY OF EXPLOSIVES DUE TO HEAT ABSORPTION BY
  DISSOLVING NH SUB4 NO SUB3.   USE OF HOT WATER FOR SATN. OF DRY "AQUATOL"
  MIXTS. AND A HOT FLUID EXPLOSIVE CONTG. 65PERCENT OF A 90PERCENT AQ.
  SOLN. OF NH SUB4 NO SUB3, 32PERCENT GRANULATED TNT, AND 3PERCENT NA CM
  CELLULOSE, GIVES AT 70-90DEGREES A CONSISTENCY THAT MAKES IT POSSIBLE TO
  EASILY INJECT THE EXPLOSIVES INTO THE PIPES AND HOSES FOR SUBSEQUENT
  FILLING OF THE BOREHOLES.   EQUATIONS ARE GIVEN FOR CALCN. OF THE TEMP.
  OF THE RESULTING AQ. NH SUB4 NO SUB3 SOLNS. AND THE TEMP. OF THE
  RESULTING "AQUATOL" MIXT.   EXAMPLES OF CALCNS. ARE PRESENTED AND THE
  THEORETICAL VALUES ARE COMPARED WITH EXPTL. RESULTS.           FACILITY:
  LENINGRAD. GORN. INST. IM. PLEKHANOVA, LENINGRAD, USSR.

UNCLASSIFIED

UDC 591.18.591.51

USSR

GASANOV, G. G., and KHANUKAYEV, E. M.

"Characteristics of Motivational-Emotional Behavior, EEG and Consumption of Water by Rabbits on Conditions of Water Deprivation"

Baku, Izvestiya Akademiya Nauk Azerbaydzhanskoy SSR, Seriya Biologicheskikh Nauk, Vol 3, 1973, pp 91-96

Abstract:  This study presents the results of experiments describing the changes in electrical activity of the brain of rabbits under conditions of water deprivation.  The experiments were conducted on rabbits of 2.8 - 3 kilograms in weight under conditions of free behavior fed on dry rations.  The amount of water drunk by the rabbits was measured.  The study considered the reaction to searching for water, singleness of purpose in approaching the drinking bowl, and the quality of the emotional composition of the animal in overcoming the obstacles.  The experiments were conducted under conditions of free access to water and food, in periods of water deprivation; and under conditions of saturation after water deprivation.
    Behavior associated with searching for and drinking water is noted after 4 hours of water deprivation.  Under artificially created obstacles to attain water, the rabbits did not show signs of "anxiety."  However,

1/2

USSR

GASANOV, G. G., and KHANUKAYEV, E. M., Izvestiya Akademiya Nauk Azerbaydz-
hanskoy SSR, Seriya Biologicheskikh Nauk, Vol 3, 1973, pp 91-96

after deprivation of water for 24 hours, the anxiety is sharply increased.
After deprivation, the frequency and amount of water consumed is increased.
     In conditions of water deprivation there are three types of changes
in the electrical activity of the brain:  neocortical in the sensory motor
cortex, hippocampal in the hippocampus and amygdaloidal in the amygdala,
and in the anterior hypothalamus. These changes disappear after water
deprivation.

USSR

UDC 591.185.3.633.88

KARAYEV, A. I., KHANUKAYEV, E. M., and AKHMEDOVA, E. R., Institute of Physiology, Academy of Sciences, Azerbaydzhan SSR

"The Effect of Essential Oils From Oleander Flowers on the Electrical Activity of Some Structures in the Rabbit Brain"

Abstract: Five alert rabbits with implanted brain electrodes were exposed to the aroma from oleander flowers, which is known to have a rather stupefying effect when inhaled for some time. Analysis of the EEG revealed desynchronization in the sensorimotor cortex, an ordered theta rhythm in the reticular formation and limbic cortex, and bursts of electrical activity (40 oscillations per sec with a periodicity of 4 to 5 sec) in the olfactory bulb. This reaction continued briefly even after the cessation of stimulation, after which electrical activity gradually returned to normal. It is pointed out that emotional stress in the rabbit triggers the same cortical reaction.

1/1

USSR

UDC:  539.3

KHANUKAYEV, R. S.

"Bending of a Curvilinear Tube of Noncircular Profile With Regard to End Fastenings"

Translation: The author considers bending of a curved thin-walled tube of elliptical cross section under the effect of bending moments applied to the end faces. It is assumed that absolutely rigid diaphragms are placed on the end faces of the tube which prevent deformations of the end cross sections in the bending process. The condition of smallness of the initial curvature of the tube $r\,r_m \approx 1$ is assumed ($r$ is the radius of curvature of any fiber of the middle surface, $r_m$ is the radius of curvature of the axis of the tube). The solution is found by using general equations of thin elastic shells simplified by applying hypotheses of semi-momentless theory. One integrodifferential equation in partial derivatives with variable coefficients relative to the change in curvature $\kappa_0$ is found and solved in

1/2

USSR

KHANUKAYEV, R. S., <u>Sb. nauch. tr. Krasnoyarsk. politekhn. in-t</u>, 1971, No 10, pp 126-135

trigonometric series.  Matrix algebra is used for the solution.  As a result, the problem is reduced to solution of an infinite system of non-homogeneous linear differential equations relative to the coefficients of the expansion.  Bibliography of 6 titles.  V. I. Baulin.

2/2

- 121 -

USSR

UDC: 621.313.522:538.4

BONDARCHUK, A. P., GARBUZOV, V. N., ZASLAVSKIY, B. I., OSEREDIKO, Yu. S., KHANZHINA, Ye. I., YANTOVSKIY, Ye. I.

"An Open-Cycle MHD Electric Power Plant Based on Natural Gas With Chemical Regeneration of Exhaust-Gas Heat"

Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii /Heat Engineering Problem of the Direct Conversion of Energy -- Collection of Works/, No 4, Kiev, Nauk. Dumka Press, 1973, pp 10-19 (Translated from Referativnyy Zhurnal Turbostroyen-iye, No 11, 1973, Abstract No 11.49.153)

Translation: Results are presented from analysis of various factors: magnetic induction B, quantity of additive, and effects and air heating temperature on the thermodynanic effectiveness $\eta_{st}$ of an MHD electric power plant (MHDEPP) with a frame channel of the MHD generator and a steam turbine and thermochemical processing of the fuel (water conversion) using natural gas as the fuel. Calculations of the MHD power plant are presented for a consumption of combustion products of 2000 kg/sec using two types of magnetic system (MS): nonsuperconducting and superconducting. For the nonsuperconducting MS, $\eta_{st}$ of the MHDEPP changes within limits of 50-49% and 51-52% as B is changed from 5 to

1/2

USSR

BONDARCHUK, A. P., et al., Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii, No 4, 1973, pp 10-19

6.5 T at air temperatures of 1100 and $1500^\circ K$ respectively. For a superconducting MS with B=6 T with a power plant capacity of 2500 Mw, $\eta_{st}$ increases by 3.5-6.5% as air temperature is increased from 1100 to $1500^\circ K$. It is established that the presence of end sectors causes an increase in total length of the MHD generator and an increase in losses to cooling, reducing $\eta_{st}$. Injection of $K_2CO_3$ with 1 wt. % K decreases $\eta_{st}$ by 1.5%. Problems of water conversion of methane are studied. It is concluded that the MHD power plant discussed is quite promising. 5 Figures; 13 Biblio. Refs.   M. I. Osipov

2/2

USSR

GARBUZOV, V.N., KHANZHINA, YE.I.

UDC [621.362:538.4]017.001.24

"On The Effect Of Regeneration In The Vapor Part Of The Cycle And Some Losses In Efficiency Of An Open-Cycle Magnetohydrodynamic Electric Power Plant"

V sb. Teplotekhn. probl.pryamogo preobrazov.energii (Heat-Engineering Problems Of Direct Energy Conversion--Collection Of Works), Issue 2, Kiev, "Nauk.dumka," 1971, pp 11-22 (from RZh--Elektrotekhnika i energetika, No 12, Dec 1971, Abstract No 12A174)

Translation: The paper considers the effect of regeneration in the vapor part of the cycle, with the presence of low-potential losses of heat in various elements of a magnetohydrodynamic electric power plant (e.g., magnet, channel), on the efficiency of the electric power plant. Computations are presented on the efficiency of an open-cycle magnetohydrodynamic electric power plant with various losses of the pressure in the heat exchange apparatus located behind the diffuser. 5 ill. 4 ref. [Power·Engineering Institute im. G.M.Krzhizhanovskiy, Moscow]

1/1

USSR

NESTERENKO, T. M., KHAPALYUK, A. P.

"Concerning the Spectral Width of Laser Modes"

Abstract: Expressions describing generation of a spatially bounded beam with finite spectral width are derived on the basis of exact solutions of Maxwell's equations in the form of Fourier integrals and conditions of steady-state emission of a Fabry-Perot cavity. In the case of finite dimensions of the active medium, these expressions are suitable for describing a beam from the instant that steady-state emission conditions begin to be satisfied until the instant that the field in the expansion process fills the entire volume of the cavity. Emission is treated as a collection of a large number of time-limited and space-limited pulses whose length depends on the initial radius of the beam and the transverse dimensions of the active medium. The pulse duration determines the spectral width of the mode, and its dimensions determine the divergence of the beam. The results are applied to the case of a beam with Gaussian distribution of intensity in the cross section.

1/1

- 57 -

USSR                                                    UDC 621.372.413

RUDNITSKIY, A.S., KHAPALYUK, A.P.

"Natural Types Of Oscillations In The Form Of Superposition Of Uniform Plane Waves
Of A Two-Dimensional Dielectric Resonator With Fresnel Reflection"

Translation:  Natural types of oscillations are considered in the form of the sum
of uniform plane waves of a two-dimensional resonator with Fresnel reflection.
Characteristic systems of equations are obtained and investigated, as well as the
conditions for the existence of such modes with various values of the optical den-
sity of the medium of the resonator. Expressions are presented for the characteris-
tics of the oscillations. 1 ill. 9 ref. Summary.

1/1

UNCLASSIFIED            PROCESSING DATE---20NOV70

1/2    019
TITLE--SINGULAR OPTICAL AXES IN CRYSTALS OF AN ORTHORHOMBIC SYSTEM -U-

AUTHOR--KHAPALYUK, A.P.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(2), 317-22

DATE PUBLISHED------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAXWELL EQUATION, OPTIC PROPERTY, TENSOR, TENSOR ANALYSIS, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1783        STEP NO--UR/0051/70/028/002/0317/0322

CIRC ACCESSION NO--AP0112769
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0112769
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT. ON THE SUPPOSITION THAT THE TENOSR
OF PERMITTIVITY WAS GIVEN, THE DIRECTIONS OF OPTICAL AXES IN THE
ABSORBING CRYSTALS WERE DETD. AND A COMPLETE SOLN. OF MAXWELL EQUATIONS
IN THE FORM OF UNIFORM PLANE WAVES FOR THESE DIRECTIONS WAS GIVEN.

UNCLASSIFIED

USSR                                              UDC:  517.9+521.13

KHAPAYEV, M. M.

"Stability in the Three Body Problem"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 2, 1970, pp 300-302

Abstract:  Stability is studied in the three body problem using a general-
ization of the second method of Lyapunov.

1/1

USSR

KHAPAYEVA, A. K.

"Hydraulic Jump on Smooth and Rough Bottom as Wall Jet"

Izv. VNII gidrotekhn. (News of All-Union Scientific Research Institute of
Hydraulic Engineering), 1970, 92, pp 234-245 (English summary) (from
RZh-Mekhanika, No 1, Jan 71, Abstract No 1B663, summary)

Translation: This is an experimental investigation of the undrowned hy-
draulic jump on a smooth or rought bottom. The author studied the velocity
distribution in the wall boundary layer and in the thickness of the flow,
variation in the dimensions of the wall boundary layer, tangential friction
stresses at the bottom of the flow and the law of resistance within the
limits of a jump on a hydraulically smooth and rough bottom. Investigations
showed that a jump can be regarded as a wall jet. It was found that ve-
locity distribution obeys logarithmic law in the wall boundary layer, but
the universal Schlichting-Abramovich dependence in the free-mixing region.
Bibliography with 19 titles.

1/1

1/2    007                  UNCLASSIFIED           PROCESSING DATE--16OCT70
TITLE--UPTAKE AND USE OF MINERAL NUTRIENTS BY CEREAL CROPS ON PEAT BOG
  SOILS -U-
AUTHOR-(02)-LUPINOVICH, I.S., KHAPKINA, Z.A.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (1), 33-8

DATE PUBLISHED-------70


SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--PHOSPHORUS FERTILIZER, SOIL TYPE, CEREAL CROP




CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0329       STEP NO--UR/0485/70/000/001/0033/0038

CIRC ACCESSION NO--AP0113255
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0113255

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  WINTER RYE AND BARLEY WERE GROWN ON A PEAT BOG SOIL FERTILIZED WITH SUPERPHOSPHATE AND 40PERCENT K SALT. N, P, AND K CONTENTS WERE DETD. IN PLANTS AT THE END OF THE GROWTH PERIOD.  THE N CONTENT OF PLANTS WAS USUALLY MUCH GREATER THAN THAT OF P OR K.  IN LOWLAND, FERTILIZATION INCREASED THE CONTENT OF P IN GRAIN AND STRAW WHILE THAT OF K REMAINED UNCHANGED.  THE STRAW TO GRAIN RATIOS WERE 1.64-2.40 AND 1.73-1.79 IN BARLEY AND RYE, RESP.  THE UPTAKE OF N AND P BY BARLEY WAS 40-50 AND 6-10 KG-TON OF GRAIN RESP., IN OLD ARABLE SOILS AND SLIGHTLY LESS IN LOWLANDS; THAT OF K VARIED SUBSTANTIALLY. THE UPTAKE OF N, P, AND K BY RYE WAS 37-40, 13-15, AND 26-40 KG-TON OF GRAIN.  THE USE OF AVAILABLE P FROM SOIL SOURCES AND FROM FERTILIZERS WAS 9-19 AND 6-25PERCENT, RESP., THE USE OF AVAILABLE K WAS 14-27 AND 30-52PERCENT, RESP.; IN LOWLANDS IT WAS USUALLY LESS.         FACILITY: NAUCH.-ISSLED. INST. POCHVOVED. AGROKHIM., MINSK, USSR.

UNCLASSIFIED

USSR

DORONIN, I. V., ZOZULYA, A. N., MAKHNEV, Ye. S., KHAPOV, V. A., and CHERNUKHA, A. I.

"Method for Estimating the Mechanical Characteristics of Steels Subjected to Thermomechanical Treatment"

Abstract: A relatively simple method is described for modeling the thermomechanical treatment process in high-alloy steels of the austenite and transitional austenite-martensite classes characterized by high $\gamma$-phase stability. The disadvantage of the method is the low deformation rate, which prevents it from completely imitating the conventional thermomechanical treatment process. The method has been successfully tested in processing steels of the Kh17N5M2, Kh17N5M3, and Kh21N5T types.

1/1

USSR                                            UDC: 53.07/08+53.001.89.

AFONIN, Yu. V., PONOMARENKO, A. G., SOLOUKHIN, R. I., and KHAPOV, Yu. I.

"Compact Electron Pulse Accelerator With Independent Power Supply"

Moscow, Pribory i Tekhnika Eksperimenta, No 5, 1973, pp 20-22

Abstract: Research in $CO_2$ ionization lasers under high pressure and plasma experiments for modeling conditions of accelerated particle generation in solar or terrestrial plasmas require high-powered electron pulse sources. The device described in this paper has been designed for such research, has small dimensions and an independent power supply, and can be remotely controlled, thus rendering it convenient for use under space conditions. The basic circuit of the electron accelerator is given, together with a block diagram of the power supply and remote control system. Pulse power of the electron accelerator is $4 \cdot 10^8$ watts, and the coefficient for the conversion of the electric field energy into electron-beam kinetic energy is 25%. The authors express their gratitude to V. A. Kornilov and B. V. Kulikov for their assistance with the design of the instrument.
1/1

Immunology

UDC 619-002.73-035.371-039.71(47)

USSR

TORSUYEV, N. A., Donetsk, POGORELOV, V., and DAVLEKAMOVA, F., Astra-
kham' and KHARABADZHAKHOV, K., Rostov-na-Donu

"Experience with Active Immunoprophylaxis of Leprosy with BCG Vaccine
in the USSR"

Moscow, Vestnik Dermatologii i Venerologii, No 1, 1970, pp 76-78

Abstract:  Prophylactic inoculation of children and adults with BCG
vaccine in recent years has produced excellent results in protecting
the population against leprosy in various endemic areas of the USSR.
For example, in the Muynak region of the Kara-Kalpak ASSR, only 1 or
131 children inoculated in 1967 with BCG vaccine developed a tubercu-
loid element (which soon regressed), whereas 15 of 231 nonvaccinated
children contracted the disease (both groups of children had leprous
parents).  Some 70,000 persons in the Kazakh SSR were vaccinated and
followed up for 5-10 years.  An average of 197 new cases were detected
annually in this republic from 1956 to 1960, but only 74 cases from
1960 to 1965.  These data confirm the experience gained with BCG
vaccine in other parts of the world, i.e., the incidence of leprosy
is much lower in vaccinated populations than in nonvaccinated ones.

1/2

USSR

TORSUYEV, N. A., et al., Moscow, Vestnik Dermatologii i Venerologii,
No 1, 1970, pp 76-78

The authors strongly recommend the compulsory vaccination of all
newborn infants in endemic zones, with reimmunization at definite
intervals of time thereafter.  The vaccine produces no complications.

2/2

UDC 621.316.543.26.017.42

USSR

MORDUKHOVICH, N. G., KHARACH, G. M., EFROS, D. G.

"Optimizing Contact Mechanisms in Switches"

Moscow, Radiotekhnika, Vol 25, No 9, 1970, pp 81-87

Abstract: Breakdowns in high-frequency switching devices are usually caused by erratic behavior of the switch contact points. The transfer resistance of the contact points is the most important characteristic determining resistance to wear and long life of the switch containing them; the lower is the transfer resistance, the more remote the likelihood of breakdown. Reduced and stable transfer resistances are difficult to achieve in high-frequency switching devices; in standard switches, sliding contacts suffering from increased wear due to surface friction are usually employed. Such measures as using wear-resistant materials for the contact surfaces or covering them with noble metals cannot guarantee stability and low transfer resistance, and new construction methods reducing friction and wear of the contacts must be utilized. The article discusses various construction systems and analyzes them mathematically. A quantitative description of rolling contact mechanisms is derived, and it is found that such contacts provide minimal wear. Also given is an analytical method for choosing materials and developing switch construction with optimal friction coefficients taken into account.

1/1

USSR                                    UDC 669.14:539.2:546.26

ZEMSKIY, S. V., LITVINENKO, D. A., GRIGORKIN, V. I., and KHARCHIKOVA, T. V.,
Central Scientific Research Institute of Ferrous Metallurgy imeni I. P.
Bardin and Lipetsk Affiliate of the Moscow Institute of Steel and Alloys

"Diffusion of Carbon in Alpha-Iron and Steels 17GS and 18KhNVA Containing
Carbides"

Abstract:  A method was developed for calculating the diffusion coefficients
of carbon in alpha-iron and steels containing a carbide phase in the case of
an "instantaneous" source of the substance being diffused onto the sample
surface.  The coefficients of diffusion of carbon in armco-iron and 17GS and
18KhNVA steels were determined and the temperature relationship of the dif-
fusion coefficients was found.  From the expressions derived for diffusion
coefficients it was evident that the combined alloying of ferrite with Mn and
Si (17 GS steel) and with Cr, W, and Ni (18KhNVA) leads to a lowering of the
diffusion coefficient magnitude and to an increased activation energy of
this process.  Thus, at 500°C the diffusion coefficients for carbon in 17GS
steel are 100 times less, and in steel 18KhNVA, 1000 times less than in armco
iron.  3 figures, 7 bibliographic references.
1/1

USSR                    $K$                    UDC 621.774:621.793.6

SHARADZENIDZE, S. A., KHARADZE, D. M., MINDLIN, I. G. (Deceased),
YENUKASHVILI, M. A., Rustav Metallurgical Plant

"Coating Tubes by the Thermodiffusion Method"

Moscow, Metallurg., No 5, May 70, pp 38-39

Abstract:  The tubes referred to in the title are those used in
petroleum refining.  These tubes must have long service life and
are usually subjected to chemically aggressive media.  The most
effective coatings for such tubes are zinc or aluminum applied by
the thermodiffusion method.  In this method, the surface layer of
the tube metal is impregnated to a depth of 0.1-0.2 mm by zinc,
aluminum, or some other anti-corrosive element diffused at a par-
ticular temperature.  Tubes coated with zinc by this method have
highly anti-corrosive characteristics, with a durability 15 times
that of untreated tubes in a variable medium -- sea water and air
for example.  In the Rustav Metallurgical Plant, the thermodiffu-
sion method is operated on an industrial scale.  A step-by-step
description of the process is given together with a schematic
diagram of the equipment involved.  Some figures are given of the
1/1  tube-coating production levels for this plant.

- 6 -

TITLE--COATING TUBES BY THE THERMODIFFUSION METHOD -U-

AUTHOR-(04)-SHARADZENIDZE, S.A., KHARADZE, D.M., MINDLIN, I.G.,
   YENUKASHVILI, M.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, METALLURG., NO 5, MAY 70, PP 38-39

DATE PUBLISHED----MAY70

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

TOPIC TAGS--SEA WATER, METALLURGIC PLANT, METAL TUBE, PETROLEUM REFINING,
   METAL CORROSION, ZINC PLATING, ALUMINUM COATING PROTECTIVE COATING,
   METAL COATING, DURABILITY, METAL SURFACE IMPREGNATION, METAL DIFFUSION,
   ANTICORROSION ADDITIVE, ALUMINIZING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0411          STEP NO--UR/0130/70/000/005/0038/0039

CIRC ACCESSION NO--AP0135882

CIRC ACCESSION NO--AP0135882
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE TUBES REFERRED TO IN THE TITLE
ARE THOSE USED IN PETROLEUM REFINING.  THESE TUBES MUST HAVE LONG
SERVICE LIFE AND ARE USUALLY SUBJECTED TO CHEMICALLY AGGRESSIVE MEDIA.
THE MOST EFFECTIVE COATINGS FOR SUCH TUBES ARE ZINC OR ALUMINUM APPLIED
BY THE THERMODIFFUSION METHOD.  IN THIS METHOD, THE SURFACE LAYER OF THE
TUBE METAL IS IMPREGNATED TO A DEPTH OF 0.1-0.2 MM BY ZINC, ALUMINUM, OR
SOME OTHER ANTI CORROSIVE ELEMENT DIFFUSED AT A PARTICULAR TEMPERATURE.
TUBES COATED WITH ZINC BY THIS METHOD HAVE HIGHLY ANTI
CORROSIVECHARACTERISTICS, WITH A DURABILITY 15 TIMES THAT OF UNTREATED
TUBES IN A VARIABLE MEDIUM, SEA WATER AND AIR FOR EXAMPLE.  IN THE
RUSTAV METALLURGICAL PLANT, THE THERMODIFFUSION METHOD IS OPERATED ON AN
INDUSTRIAL SCALE.  A STEP BY STEP DESCRIPTION OF THE PROCESS IN GIVEN
TOGETHER WITH A SCHEMATIC DIAGRAM OF THE EQUIPMENT INVOLVED.  SOME
FIGURES ARE GIVEN OF THE TUBE COATING PRODUCTION LEVELS FOR THIS PLANT.
       FACILITY:  RUSTAV METALLURGICAL PLANT.

UNCLASSIFIED

USSR                                              UDC 548.736.5

KHARAKH, YE. A., CHICHAGOV, A. V., and BELOV, N. V., Moscow State University imeni M. V. Lomonosov

"Crystal Structure of NaSmGeO$_4$"

Abstract: NaSmGeO$_4$ is obtained in the Na$_2$O-Sm$_2$O$_3$-GeO$_2$-H$_2$O system by the method of hydrothermal crystallization at a 40 percent concentration of NaOH, T = 450° C, and P = 1000 atm. The parameters of the rhombic primitive unit cell are $a$ = 5.27 ± 0.02, b = 11.70 ± 0.03, c = 6.50 ± 0.02 Å. Fedorov group Pbn2$_1$. Structurally NaSmGeO$_4$ resembles olivine-like (monticellite-like) NaYSiO$_4$ (coordination number Sm = 6, octahedron) rather than its nearest silicate analog NaSmSiO$_4$ (coordination number Sm = 6 + 2 = 8, trigonal prism with two "glued-on" semioctahedra).

1/1

- 26 -

1/2      015                    UNCLASSIFIED            PROCESSING DATE--13NOV70
TITLE--JOST FUNCTION FOR THE TWO CHANNEL SCATTERING PROBLEM -U-

AUTHOR-(02)-KHARAKHAN, M.L., SHIROKOV, YU.M.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 1, PP
  100-105
DATE PUBLISHED-------70


SUBJECT AREAS--PHYSICS

TOPIC TAGS--S MATRIX, MATRIX ELEMENT, PARTICLE SCATTER, HAMILTONIAN,
  INTEGRAL EQUATION, PARTICLE INTERACTION


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1029      STEP NO--UR/0646/70/003/001/0100/0105

CIRC ACCESSION NO--AP0130064
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0130064

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE GENERALIZATION OF THE JOST
FUNCTION IS INTRODUCED FOR THE CASE OF THE TWO CHANNEL SCATTERING OF THE
NONRELATIVISTIC SPINLESS PARTICLES INTERACTING THROUGH THE ARBITRARY
(NOT NECESSARY LOCAL) INTERACTION HAMILTONIAN.  THE PROBLEM OF DERIVING
OF THE TWO CHANNEL JOST MATRIX IN TERMS OF THE PHYSICAL S MATRIX IS
REDUCED TO THE NONSINGULAR INTEGRAL EQUATION FOR A SINGLE FUNCTION.  IT
IS DEMONSTRATED THAT THE EXPLICIT FORM FOR THE JOST MATRIX IS OBTAINABLE
IF THE USUAL ASSUMPTIONS HOLD ABOUT THE ANALYTICAL PROPERTIES OF THE S
MATRIX ELEMENTS.         FACILITY:  MOSKOVSKIY GORNYY INSTITUT.

UNCLASSIFIED

USSR                                          UDC 537.311.33

AKSENOV, V.V., ZANTOV, F.A., NIYAZOVA, O.R., KHARAKHORIN, F.F.

"Effect Of Nuclear Penetrating Radiation On The Semiconductor Compounds $A^{II} B^{IV} C_2^{V}$ In Crystalline And Vitreous States"

Translation:  The effect was studied of radiation on the semiconductor compounds $A^{II} B^V C_2^V$ in crystalline and vitreous states. Neutron and $\gamma$-radiation has practically no effect on vitreous specimens; in crystals, however, of $CdGeAs_2$, $As_2Se_3$ and other semiconductors they give rise to irreversible changes of the values of the resistivity and the mobility of the carriers. 2 ill. 5 ref. I.V.

1/1

Semiconductor Technology

"Semiconductor Properties of Vitreous $CdSiAs_2$"

Abstract: Experiments show that the vitrifaction of $CdSiAs_2$ in suffi-cient quantities for study requires much greater melt cooling rates than for $CdGeAs_2$. The vitreousness of the material was established visually, as well as from the absence of lines on X-ray patterns. The band gap of $CdSiAs_2$ is lower in the vitreous state (1.05 ev at 300° K) than in the crystalline state (1.62 ev at 80° K). The greater band gap of $CdSiAs_2$ glass than $CdGeAs_2$ (0.75 ev) or $CdGeP_2$ (0.9 ev) glass is in agreement with existing theories.

1/1

USSR

UDC 661.1:537.311.33

AKSENOV, V. V., PETROV, V. M., KHARAKHORIN, F. F., and YURUSHKIN, B. I.

"Semiconductor Properties of $CdGeAs_2$—$CdSnAs_2$ System Glasses"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 826-827

Abstract: The authors attempted to obtain crystalline and vitreous materials of the composition $CdSn_xGe_{1-x}As_2$. The crystalline specimens were prepared by the Bridgman method. Only ternary compounds themselves could be obtained as single crystals. Specimens of mixed composition were polycrystalline. Vitrification takes place only in the interval $0 \leq x \leq 0.5$. The vitreousness and homogeneity of the specimens underwent metallographic and x-ray phase analyses. The temperature dependence of the electrical conductance of several vitreous specimens was determined, and the spectral distribution of the absorption coefficient of specimens 150-300 microns in width was measured at

1/2

USSR

AKSENOV, V. V., et al., Izvestiya Akademii Nauk SSSR -- Neorganiches-
kiye Materialy, Vol 6, No 4, Apr 70, pp 826-827

room temperature in the photon energy range of 0.2-0.75 ev. The
width of the forbidden zone of the vitreous material (according to
electrical, optical and photoelectric measurement data) significantly
exceeds the corresponding value for the crystal, which apparently in-
dicates a change of short-range order. The width of the forbidden
zone obtained from electrical measurement data exceeds the correspond-
ing values obtained from optical and photoelectric measurements.

2/2

1/3     021               UNCLASSIFIED            PROCESSING DATE--16OCT70
TITLE--SELF DIFFUSION OF MERCURY, SULFUR, AND SELENIUM IN HGSE SUB1-X S
SUBX AND HGTE SUB1-X S SUBX SOLID SOLUTIONS -U-
AUTHOR-(04)-KHARAKHORIN, F.F., GAMBAROVA, D.A., ZAYTOV, F.A., LUTSIV, R.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER, 1970, 6(3), 564-5

DATE PUBLISHED-------70


SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MERCURY COMPOUND, SELENIUM COMPOUND, SULFUR COMPOUND, SOLID
SOLUTION, SINGLE CRYSTAL, ACTIVATION ENERGY, RADIOACTIVE ISOTOPE


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0865        STEP NO--UR/0363/70/006/003/0564/0565

CIRC ACCESSION NO--AP0118041
                        UNCLASSIFIED

2/3   021
CIRC ACCESSION NO--AP0118041
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  TEMP. DEPENDENCES OF SELF
DIFFUSION COEFFS. OF S, SE, AND HG IN SINGLE CRYSTALS OF HGSE SUB1-X S
SUBX AND HGTE SUB1-X S SUBX (X EQUALS 0.1-0.4) OF THE ELECTRONIC TYPE
WITH A CURRENT CARRIER CONCN. OF SIMILAR TO 5 TIMES 10 PRIME18 CM PRIME
NEGATIVE3 WERE STUDIED.  THE STUDY OF THE SELF DIFFUSION WAS DONE WITH
THE AID OF RADIOACTIVE ISOTOPES PRIME203 HG, PRIME75 SE, AND PRIME35 S
BY THE METHOD OV REMOVING SUCCESS LAYERS.  DIFFUSION ANNEALING OF THE
SAMPLES WAS DONE IN EVACUATED QUARTZ AMPULS AT 200, 300, 350, AND
400DEGREES FOR 30-80HR.  THE DIFFUSION PROCEEDED FROM THE GAS PHASE.
WITH INCREASING S CONCN. IN THE HGSE SUB1-X S SUBX SYSTEM FROM 1 TO
36PERCENT, THE SELF DIFFUSION COEFF. OF S AT 300DEGREES DECREASES FROM 5
TIMES 10 PRIME NEGATIVE13 TO 1.1 TIMES 10 PRIME NEGATIVE13 CM
PRIME2-SEC.  THE DECREASED IN THE SELF DIFFUSION COEFF. WITH ITS
INCREASED CONCN. IN THE SOLID SOLNS. INDICATES PREFERENTIAL DIFFUSION OF
S ALONG THE HG VACANCIES.  IN THE HGTE SUB1 NEGATIVEX S SUBX SYSTEM THE
SELF DIFFUSION OF S PROCEEDS PRIMARILY ALONG THE S AND THE TE VACANCIES.
UPON ANNEALING OF THE LATTER SOLID SOLNS. IN S VAPORS THE CARRIER
CONCN. DECREASES FROM 10 PRIME18 TO 2 TIMES 10 PRIME17 CM PRIME
NEGATIVE3.  WITH INCREASING CONCN. OF S IN HGSE SUB1 NEGATIVEX S SUBX
FROM 10 TO 30PERCENT, THE SELF DIFFUSION COEFF. OF SE AND HG INCREASES
AND THE MAX. VALUES ARE AT X EQUALS 0.2.  THE ACTIVATION ENERGY OF THE
DIFFUSION OF HG IS 0.3 EV, AND THAT OF SE IS 0.67 EV.  AFTER DIFFUSION
ANNEALING IN HG VAPOR THE CARRIER CONCN. INCREASES FROM 1 TIMES 10
PRIME18 TO 6 TIMES 10 PRIME18 CM PRIME NEGATIVE3, WHEREAS THE MOBILITY
DECREASES BY A FACTOR OF 2.
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0118041
ABSTRACT/EXTRACT--WITH INCREASING ANNEALING TEMP. SE VAPORS (10 PRIME
  NEGATIVE4 TORR), THE CURRENT CARRIER CONCN. DECREASES FROM 1 TIMES 10
  PRIME18 TO 2 TIMES 10 PRIME17 CM PRIME NEGATIVE3.

UNCLASSIFIED

1/2    026                    UNCLASSIFIED              PROCESSING DATE---30OCT70
TITLE--SEMICONDUCTOR PROPERTIES OF CDGEAS SUB2-CDSNAS SUB2 SYSTEM GLASSES
  -U-
AUTHOR-(04)-AKSENOV, V.V., PETROV, V.M., KHARAKHORIN, F.F., YURUSHKIN,
  B.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. METER. 1970, 6(4), 826-7

DATE PUBLISHED-------70


SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--SEMICONDUCTOR PROPERTY, ARSENIDE, CADMIUM COMPOUND, TIN
  COMPOUND, GERMANIUM COMPOUND, PHOTOCONDUCTIVITY, FORBIDDEN BAND, GLASS,
  DOPED ALLOY, GOLD, OPTIC PROPERTY, ELECTRIC PROPERTY, POLYCRYSTAL


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1453          STEP NO--UR/0363/70/006/004/0826/0827

CIRC ACCESSICN NO--AP0125084
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0125084
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ATTEMPT WAS MADE TO PREP.
CRYST. AND VITREOUS MATERIALS OF THE COMPN. CDSN SUBX GE SUB1-X AS SUB2.
THE CRYST. SAMPLES WERE PREPD. BY THE BRIDGMAN METHOD.  THE SAMPLES
WERE POLYCRYST.  FOR THE GIVEN GLASSES. VITRIFICATION OCCURS ONLY AT O
SMALLER THAN OR EQUAL TO X SMALLER THAN OR EQUAL TO 0.5.  THE TEMP.
DEPENDENCE OF THE ELEC. COND. OF SEVERAL SAMPLES AND THE RESP. WIDTH OF
THE FORBIDDEN BAND WERE DETD.  GLASSES OF THE COMPN. X LARGER THAN OR
EQUAL TO 0.20 WERE MEASURED ONLY TO 500DEGREESK, INASMUCH AS AT HIGHER
TEMPS. THEY CRYSTD. DURING THE MEASUREMENTS, WHICH RESULTED IN A SHARP
DECREASE IN THEIR ELEC. RESISTIVITY.  SPECTRAL DISTRIBUTION OF THE
ABSORPTION COEFF. FOR SAMPLES OF THICKNESS 150-300 MU WAS MEASURED AT
ROOM TEMP. WITHIN THE PHOTON ENERGY RANGE 0.2-0.75 EV.  THE SPECTRAL
DISTRIBUTION DURVES FOR THE PHOTOCOND. AT ROOM TEMP. WERE DETD. AND
FOUND TO BE RATHER DIFFUSE AT 0.5-2.5 MU.  NO DIFFERENCE WAS OBSD. FOR
SPECTRAL DISTRIBUTION OF PHOTOCOND. OF SAMPLES UNDOPED AND DOPED WITH 5
AT. PERCENT AU.  A SLIGHT ADDNL. MAX. OF PHOTOCOND. AT SIMILAR TO 0.8 MU
WAS OBSD., WHICH OBVIOUSLY MUST BE ATTRIBUTED TO THE PECULIARITIES IN
THE BAND STRUCTURE OF THE MATERIAL.  THE WIDTH OF THE FORBIDDEN BAND OF
THE VITREOUS MATERIAL CDSN SUBX GE SUB1-X AS SUB2 (ON THE BASIS OF
ELEC., OPTICAL, AND PHOTOELEC. MEASUREMENTS) CONSIDERABLY EXCEEDS THE
CORRESPONDING VALUE FOR THE CRYSTAL, WHICH APPARENTLY ATTESTS TO A
CHANGE IN THE SHORT RANGE ORDER.  THE COMPN. DEPENDENCE OF THE WIDTH OF
THE FORBIDDEN BAND HAS A MIN. NEAR X EQUALS 0.30.

UNCLASSIFIED

AA0044232

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243747 ELECTROCHEMICAL AMPLIFIER CELL for use in chemo-
tronic measuring instruments consists of a
dielectric top plate and bottom plate, with spacers to
prevent a contact between the electrodes. The input
control electrode consists of a system of flat concentric
rings connected in parallel and arranged in concentric
slots left by the output electrodes. All electrodes are
made of metal which is inert to the active solution.
26.7.67 as 1175574/18-10.I.V. STRIZHEVSKII et al.(1.10.
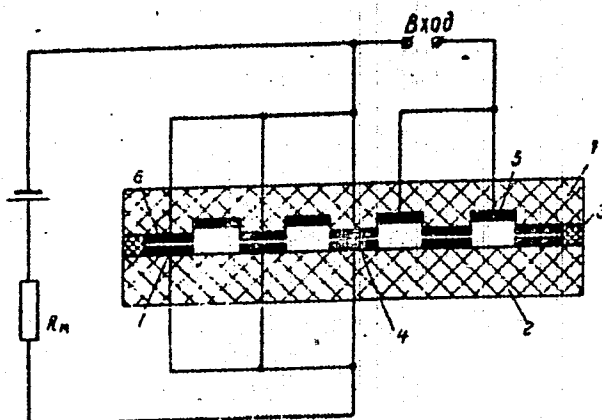69) Bul 17/14.5.69. Class 21g. Int.Cl. H 01 1.

AUTHORS: Strizhevskiy, I. V., Kharanovich, G. I.
Finkel'shteyn, E. B., Tarnizhevskiy, M. V.

1/2

4

19770729

AA0044232

Вход



$R_н$

2/2

19770730

Semiconductor Technology

BAGRATISHVILI, G. D., GOGESHVILI, M. D., DZHANELIDZE, R. B., CHAGELISHVILI, V. A., and KHARATI, R. G.

"Structure and Properties of Germanium Oxide Films"

Abstract: The authors undertook to obtain germanium oxide films during the oxidation of single-crystal germanium with gaseous oxygen and to compare them with $GeO_2$ films obtained by other methods, as well as to study their structure and properties. Specimens of $GeO_2$ films were obtained by the following methods: 1) pyrolytic decomposition of tetraethoxygermanium, 2) oxidation of Ge in an oxygen stream and 3) oxidation of germanium after gas etching in $O_2$ in an oxygen atmosphere in a closed system. The resultant $GeO_2$ films were studied by means of IR spectra and by electron

1/3

USSR

BAGRATISHVILI, G. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

diffraction. It was found that different crystallographic modifications of $GeO_2$ are obtained according to the experimental conditions. An amorphous modification of $GeO_2$ results from decomposition of tetraethoxygermanium, hexagonal from oxidation in an oxygen stream, tetragonal from oxidation in a closed system with preliminary gas etching with oxygen. The resultant crystallographic modifications are characterized by different work function and resistivity values, with these parameters increasing as follows: amorphous < hexagonal < tetragonal, coinciding with the direction of material density increase. The effect of water vapor at various temperatures on the structure and properties of $GeO_2$ was studied to find whether the transition of different modifications from one to the other is possible. IR spectra indicate that with the treatment

2/3

USSR

of amorphous $GeO_2$ in a stream of $H_2O$ + Ar the transition to a hexagonal modification begins at comparatively low temperatures. Treatment of tetragonal $GeO_2$ in a stream of $H_2O$ + Ar results in its irreversible transition to a hexagonal modification.

3/3

USSR                                                        UDC:   621.315.592

CHIGOGIDZE, Z. N., KHUCHUA, N. P., GUTNIK, L. M., KHARATI, R. G., VARLAMOV,
I. V., BEKIREV, U. A., TYUTYUN, A. A.

"Concerning the Mechanism of Failure of Gunn Diodes"

Abstract: Devices based on the Gunn effect operate most effectively at high
bias voltages; however, increasing the voltage causes breakdown of the de-
vice.  At present there is no unanimous opinion on the mechanism of failure
and degradation of Gunn diodes.  In this paper the authors investigate co-
planar Gunn diodes with plane-parallel and annular electrode configurations
both with and without a silicon dioxide passivating coating.  The diodes
were tested in the pulse mode.  It is shown that in accordance with pre-
viously available experimental data the failure of Gunn diodes takes place
as a result of formation of a shorting channel between the contacts of the
device.  Information is obtained on the dynamics of the visible portion of
the breakdown by means of motion picture photography of this process through
an optical microscope.  It is shown that silicon dioxide passivation of the

1/2

active region has an appreciable effect on the nature of the visible portion of the breakdown and on the ratio of the breakdown voltage to the threshold voltage. A microscopic x-ray analysis is made of the composition of the contact regions and the channel on various stages of thermal breakdown. It is found that a transverse magnetic field affects the position of the shorting channels and the ratio of the breakdown voltage to the shorting voltage. A study is made of Gunn diode emission in the infrared region of the spectrum at voltages close to the breakdown voltage. It is concluded that the cause of failure of Gunn oscillators at high bias voltages is the formation of current strings caused by the development of an S-shaped current-voltage curve due to impact ionization when a strong field domain passes over the specimen. The authors thank M. S. Shur for discussing the results of the paper, and N. N. Mamatsashvili for taking part in the measurements.

2/2

- 100 -

USSR

KHARATISHVILI, G. L., MACHAIDZE, Z. A., MARKOZASHVILI, N. I., and TADUMADZE, T. A.

"Abstract Variational Theory and Its Applications to Optimization Problems With Time Lags"

Abstraktnaya Variatsionnaya Teoriya i Yeye Primeneniya k Optimal'nym Zadacham s Zapazdyvaniyami (cf. English above ), Tbilisi, Metsniyereba Publishing House, 1973, 112 pp, Annotation p 4, Introduction pp 5-6

Translation: Annotation -- The work proves the quasiconvexity of filters, which makes it possible to obtain from the necessary criticality condition the necessary optimality conditions in the form of the maximum principle for optimization problems containing time lags, not only in the phase coordinates but also in the controls. The optimization problem with time lags subject to mixed constraints on phase coordinates and controls is studied separately. Proof is given of the necessary optimality condition that permits, in particular, solution of bottleneck problems in which the time-lag factor is considered. Finally, an algorithm is given and a standard program described

1/4

USSR

KHARATISHVILI, G. L., et al., Abstraktnaya Variatsionnaya Teoriya i Yeye Primeneniya k Optimal'nym Zadacham s Zapazdyvaniyami, Tbilisi, Metsniyereba Publishing House, 1973, 112 pp

that makes possible calculation of quasilinear optimal time-lag systems.

Excerpt from Introduction -- Extremal problems in linear topological spaces are formulated as problems in the determination of critical filters of a given mapping. Therefore, the criterion for finding the critical filters of mappings yields the corresponding criterion for solving the given extremal problem. To formulate nontrivial criticality criteria it is necessary to apply certain conditions not only to the class of mappings under consideration but also to the class of unknown critical filters. However, these constraints must be broad enough to comprehend the fundamental variational and optimization problems. The mappings under consideration are assumed to be differentiable, and the unknown filters to be quasiconvex; the respective definitions are given in 1.1.

2/4

- 72 -

USSR

KHARATISHVILI, G. L., et al., Abstraktnaya Variatsionnaya Teoriya i Yeye Primeneniya k Optimal'nym Zadacham s Zapazdyvaniyami, Tbilisi, Metsniyereba Publishing House, 1973, 112 pp

1.2 establishes the quasiconvexity of the filters pertinent to optimization problems with time lags (see 2.1). The differentiable mapping corresponding to these problems is then constructed and the necessary optimality condition derived from the necessary criticality condition in the form of the maximum principle for optimization problems containing time lags, not only in the phase coordinates but also in the controls (see 2.2).

2.3 and 2.4 prove theorems on the differentiability and continuous dependence of the solutions to the differential equations on the right-hand sides that are used in the preceding paragraphs.

Section 3 studies optimization problems containing a time lag in the controls in the presence of mixed constraints on the phase coordinates and controls. Bottleneck problems in particular reduce to these if we consider a time lag in the controls that in real systems, as a rule, is different from

3/4

USSR

KHARATISHVILI, G. L., et al., Abstraktnaya Variatsionnaya Teoriya i Yeye Primeneniya k Optimal'nym Zadacham s Zapazdyvaniyami, Tbilisi, Metsniyereba Publishing House, 1973, 112 pp

zero and plays an important role (see R. BELLMAN, Dinamicheskoye Programmirovaniye /Dynamic Programming/, Foreign Literature Press, 1960 /12/). The principal result of the section is the necessary optimality condition, given in the form of a maximum principle, proof of which is effected by the local cross-section method suggested by V. G. BOLTYANSKIY in Matematicheskiye Metody Optimal'nogo Upravleniya (Mathematical Methods of Optimal Control), Nauka Publishing House, 1969 /13/. The conclusion of the section gives an application of the maximum principle to bottleneck problems.

The concluding Section 4 is devoted to the method of numerical calculation of linear time-optimal systems containing time lags in both the controls and the phase coordinates. Substantiation of the computational algorithm is given, as well as a brief description of the standard program compiled on the basis thereof, which is used to calculate several test examples on a BESM-4 electronic computer. Results of the calculation are given in a table.

4/4

- 73 -

USSR                                                       UDC 621.317.4

KHARATISHVILI, L. S.

"Characteristic Features of Measuring Dynamic Characteristics of Ferro-
magnetic Materials at High Frequencies"

Tr. 15-y Nauchno-tekhn. konferentsii professorsko-prepodavatelsk. sostava
nauchn. rabotnikov problemn. i otraslev. labor. Gruz. politekhn. in-t.
Vyp. 7 (Works of the 15th Scientific and Technical Conference of the Pro-
fessorial and Teaching Staff of Scientific Workers of the Problem and Branch
Laboratories of the Georgian Polytechnical Institutes. Vyp. 7), Tbilisi,
1970, pp 115-119 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A149)

Translation: In connection with using the stroboscopic method of signal
conversion for measuring the dynamic characteristics of ferromagnetic
materials, the errors introduced by a stroboscopic converter into the
measuring channel are analyzed. The analysis results indicate significant
possibilities of the new method. The bibliography has four entries.

1/1

USSR

KHARATISHVILI, N. G., CHKHEIDZE, I. M., ELIZBARASHVILI, I. M.

UDC:  51:621.391

"Some Problems of Abbreviated Data Representation in Systems of Control, Measuring, and Monitoring"

Vladivostok, Inform. metody v sistemakh upr. izmereniy i kontrolya--sbornik (Information Methods in Monitoring and Measurement Control Systems--collection of works), t. 1, 1972, pp 48-53 (from RZh-Matematika, No 10, Oct 73, abstract No 10V424 by Yu. Lin'kov)

Translation: The paper deals with the question of approximating continuous signals $f(t)$, $t \in [0, T]$ with the aid of functions $f^*(t) = \sum_{k=1}^{n} a_k \tau_k (t)$, where $\{q_k(t)\}$ is a set of linearly independent functions and $a_k$ are certain constants. It is shown that for signals $f(t)$ from the class of continuous functions or functions of the class $Lip_1 M$ the best uniform approximation with the limitation $\|f(t) - f^*(t)\| < \varepsilon$ can be realized by partial Fourier-Haar sums. It is further shown that selecting a Haar system as the basis of the functions in the case of additive interference $\xi(t)$ which is a stationary process with correlation

1/2

USSR

KHARATISHVILI, N. G. et al., Inform. metody v sistemakh upr. izmereniy i kontrolya, t. 1, 1972, pp 48-53

function $\alpha \exp\{-\beta\tau\}$, $\alpha > 0$, $\beta > 0$, gives the approximation greater inter-ference immunity than a trigonometric system or a system of Kotel'nikov readings.

2/2

USSR

KHARATISHVILI, N. G., CHKHEIDZE, I. M. and ELIZBARASHVILI, I. M.

"Some Problems of Abbreviated Presentation of Information in Testing, Measurement and Control Systems"

Inform. Metody v Sistemakh Upr. Izmereniy i Kontrolya. T. 1 [Information Methods in Testing and Measurement Control Systems. Volume 1 -- Collection of Works], Vladivostok, 1972, pp 48-53 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V424)

Translation: The problem is studied of approximation of continuous signals $f(t)$, $t \in [0, T]$, by means of functions $f^*(t) = \sum_{k=1}^{n} a_k \phi_k(t)$, where $\{\phi_k(t)\}$ is the set of linearly independent functions, $a_k$ are constants. It is shown that for signals $f(t)$ from the class of continuous functions or functions of class $Lip_1 M$, the best even approximation, with the limitation $||f(t) - f^*(t)|| \leq \varepsilon$, can be achieved by partial Fourier-Haar sums. Furthermore, it is shown that the selection of the Haar-system functions as a basis in the case of additive noise $\xi(t)$, a stationary process with correlation function $\alpha \exp\{-\beta \tau\}$, $\alpha > 0$, $\beta > 0$, provides greater interference stability of the approximation than a trigonometric system or a system of Kotel'nikov readings.

1/1                                                                    YU. Lin'kov

USSR

KHARATISHVILI, N. G.

UDC 621.317.4

"Application of the Methods of Linear Compression of the Spectrum in High Frequency Magnetic Measurements"

Tr. 15-i Nauchno-tekhn. konferentsii professorsko-prepodavatelsk. sostava nauchn. rabotnikov problemn. i otraslev. labor. Gruz. politekhn. in-t. Vyp. 7 (Works of the 15th Scientific and Technical Conference of the Professorial and Teaching Staff of Scientific Workers of the Problem and Branch Laboratories of the Georgian Polytechnical Institute. Vyp. 7), Tbilisi, 1970, pp 120-125 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A148)

Translation: The existing methods of testing ferromagnetic materials are basically low-frequency methods. It is proposed that the methods of spectral transformation of the investigated signals be used for determining the dynamic characteristics of ferromagnetic materials at high frequencies. The purpose of these methods is time expansion of the signal (compression of the spectrum) while retaining its shape. Accordingly, the high-frequency signal can be investigated with the help of the existing low-frequency equipment. Several means of increasing the length of the signal without changing its shape have been investigated: stroboscopic conversion method, application of systems with distributed parameters, and so on.   1/1

USSR

UDC 669.184.266:14.018.2

KACHUR, B.K., KUKURUZNYAK, I.S., NIKIFOROV, B.V., TARAPUROV, N.P., UMNOV, V.D. POGORELYY, V.P., GALATON, YE.G., KHARCHENKO, B.L., and PLOKHIKH, V.A. (Ukrainian Scientific Research Institute of Metals, Krivoy Rog Metallurgical Plant)

"Smelting of Low-Alloy Steel in a 130-ton Converter"

Moscow, Metallurg, No 9, Sep 71, pp 14-16

Abstract: A description is given of the technology of smelting low-alloy steels (OST-1, OST-2, 25G2C, and 35GC) in 130-ton oxygen converters at the Krivoy Rog Metallurgical Plant. Pig iron (881 kg per ton of steel) containing 0.6-0.9% Mn, 0.4-0.8% Si, not more than 0.06% S, and not more than 0.1% P, is poured into the converter at 1250-1350°C. Fresh burnt lime (65 kg), limestone (15-20 kg), and fluorspar (2-5 kg) per ton of steel were used as slag forming materials. The use of liquid alloying elements (75% FeMn, 65% FeSi and SiMn) in the ladle makes it possible to reduce the expenditure of ferroalloys, to improve the macro- and microstructure of the metal, and to minimize the content of nonmetallic inclusions. The steel obtained satisfies the requirements of GOST 5058-65.

1/1

Acc. Nr: AP0044852         K
PRIMARY SOURCE: Khirurgiya, 1970, Nr 1 , pp 101-104

Ref. Code: UR0531

# THE EFFECTIVENESS OF ANTIBIOTIC THERAPY IN SURGERY

### G. I. Kharchenko, V. V. Makarov

Etiotropic therapy with antibiotics should be carried out with special consideration of the features peculiar to their irregular distribution between the blood and different tissues, differences in the concentration and rate of excretion of the antibiotic from the organism depending on the type of its administration. In experiments on rabbits the authors established that in intracardiac administration of penicillin and chlortetracycline the blood concentration was 3—60 times higher in comparison with that after intramuscular introduction. These data point to the participation of individual fractions of serum proteins in the molecular process of transportation and distribution of antibiotics in the organism. In connection with the features specific to the circulation of antibiotics in the organism in localized inflammatory processes in surgery it is deemed expedient to employ them locally.

REEL/FRAME
19771707

DI      02

KHARCHENKO, G. T.        (Maj. Gen.)        Mil

PARTY-MINDEDNESS IN TEACHING MILITARY-TECHNICAL DISCIPLINES

by Maj Gen Avn G. T. Kharchenko and Col B. I. Tolyatinov

The 24th CPSU Congress worked out concrete tasks to further improve the entire system of education in accordance with the demands of developing the socialist economy, science and culture, and the scientific-technical revolution. "In the area of higher and secondary specialized education," it states in the Resolution of the congress, "it is necessary to more extensively train workers in new and promising sectors of science and technology and to better arm young specialists with modern knowledge, skills in organizational and public-political work, and the ability to use the knowledge received in practice."

"All work in educating and bringing up young people should serve to develop communist convictions and morality and boundless devotion to the socialist Homeland in the new generations."

These demands by the party are directly relevant to military/educational institutions also. They express the essence of one of the general principles of training and education — communist party-mindedness and purposefulness. The command, political departments, and instructional personnel of the VVA IVO [Military Command Academy of the Antiaircraft Defense Forces] are guided by them in their daily activity. This is a result of the fact that military science itself, which includes the disciplines that are taught, has a party and class nature, and also by the fact that the task of developing a communist worldview, ideological conviction, and high morale and fighting qualities in our students can only be resolved through the entire system of educational and out-of-class work. Party-mindedness in training specialists, including also military specialists, shows itself with particular clarity in the ideological direction of training periods. "In any school, the most important thing is the ideological-political direction of the lectures," said V. I. Lenin.

V. I. Lenin, Polnoye Sobraniye Sochineniy [Complete Works], Vol 47, p 194.

- 61 -

Refractory Materials

Abstract:  Experimental material on the effect of the heating rate of the heat-and mass-transfer processes on the thermophysical parameters of roasted refractories is summarized.  The material, published for the first time in the Soviet literature, can be used as a basis for further studies for determination of effective methods of heat treatment of magnesian refractories.

1/1

USSR                                          UDC 621.923:669.295

KHARCHENKO, I. V., BELETSKIY, V. M., and TABACHNIK, V. I.,

"Grinding VT16 and VT22 Titanium Alloys"

Moscow, Stanki i Instrument, No 2, Feb 74, pp 33-34

Abstract: The grinding of VT16 and VT22 titanium alloys using different types of grinding wheels and cutting-cooling liquids was studied for plane grinding with lateral feed, circular outer grinding, and eccentric grinding. Data are given for the different grinding parameters, where for example it was established that, when grinding with a narrow KZ25SM1K6 wheel, the magnitude of specific pressure ($P_s$) for VT22 alloy was approximately 1.5 times greater, and for VT16 alloy -- 1.2 times greater, than for VTZ-1 alloy. It was determined for all the grinding methods studied that wheel velocity is the most significant parameter with the optimum wheel velocity being 36 m/sec. Best productivity was accomplished with a monocorundum grinding wheel and amounted to 2.3 $mm^3/mm^3$. Results of this study were verified and have been introduced into production. Three figures.

1/1

UNCLASSIFIED                        PROCESSING DATE--04DEC70

1/2    045
TITLE--STUDY OF THE WEAR OF THE ABRASIVE DURING FINE GRINDING -U-

AUTHOR-(03)-BOGOMOLOV, N.I., SAIUTIN, G.I., KHARCHENKO, I.V.

COUNTRY OF INFO--USSR

SOURCE--FIZIKO-KHIMICHESKAIA MEKHANIKA MATERIALOV, VOL. 6, NO. 2, 1970, P. 116-118

DATE PUBLISHED-------70

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

TOPIC TAGS--AVIATION INSTITUTE, ZIRCONIUM CARBIDE, FRICTION, TITANIUM ALLOY, SILICON CARBIDE, WEAR RESISTANCE, ALLOY DESIGNATION, ABRASIVE MINERAL, METAL GRINDING/(U)A1203 ABRASIVE, (U)W2B5 ABRASIVE, (U)VT8 TITANIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0090          STEP NO--UR/0369/70/006/002/0116/0118

CIRC ACCESSION NO--AP0125920
                                UNCLASSIFIED

2/2     045

CIRC ACCESSION NO--AP0125920

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  STUDY OF THE WEAR OF ABRASIVES INCLUDING SIC, A1203, W2B5, AND ZRC DURING FINE GRINDING OF ARMCO IRON, TITANIUM, AND TITANIUM ALLOY VT8.  IT IS SHOWN THAT UNDER FINE GRINDING CONDITIONS, THE EFFECT OF CHEMICAL COMPOSITION OF THE GROUND MATERIAL ON THE WEAR INTENSITY OF ABRASIVES IS MUCH MORE PRONOUNCED THAN AT EXTERNAL FRICTION OF ABRASIVES ON METAL.          FACILITY:  KIEVSKII INSTITUT INZHENEROV GRAZHDANSKOI AVIATSII, KIEV, UKRAINIAN SSR.

USSR

KHARCHENKO, K., Candidate Of Technical Sciences

"Shortwave Log-Periodic Antenna"

Radio, No 4, April 1972, pp 17-18 and insert

Abstract:  A detailed description is given of a shortwave log-periodic antenna
consisting of a number of parallel linear dipoles arranged in one plane.
Drawings are presented of a diagrammatic representation of the antenna, the
basic units of construction of the antenna, an over-all view of the construction
of the antenna-feeder device for three ranges, and the dimensions of the antenna
elements.  The cross section of a collecting line and dipoles fulfilled from two
tubes are shown as well as the method of fastening the dipoles and the dipoles
fulfilled from two tubes to the collecting line.  An explanation of how a log--
periodic antenna operates is also given.

1/1

USSR                                   UDC 547.1'118'122;621.892.009.6

GORDASH, YU. T., KHARCHENKO, L. S., RABINOVICH, I. L., BACHINSKIY, T. P.,
GUPALO, A. P., ZEMLYANSKIY, N. I., KOTOVICH, B. P., and MURAV'YEV, I. V.,
All-Union Scientific Research and Project and Design Institute of the
Petroleum Conversion and Petrochemical Industry, Kiev

"Investigation of Sulfur-Containing Organophosphorus Compounds as Additives
to Lubricating Oils"

Abstract:  The effectiveness of derivatives of thiophosphoric acid as addi-
tives to lubricating oil was studied.  Fifteen compounds of this type
including O,O-dialkyl-S-alkyl dithiophosphates, O-diethylaminoethyl-S,S-dipro-
pyl trithiophosphate, bis(O,O-diethyldithiophosphate)-benzylidene, bis(O-
methyl-O-butylthiophosphone)disulfide, O-alkyl-S,S-dialkyl trithiophosphates,
and S,S,S-tetraethyl tetrathiophosphate were synthesized for this purpose.
The formulas and characteristics of these compounds are listed in a table.
The effects of addition of the 15 compounds to oil DS-11 on the thermal
oxidation stability of the oil, the corrosion of Pb plates, the over-all
index of wear, the critical load of seizing, and the critical load of welding
were determined and compared with those of additive DF-11 (Zn butyloctyl-
1/2

USSR

GORDASH, YU. T., et al., Neftekhimiya, Vol 11, No 1, Jan-Feb 71, pp 135-140

dithiophosphate). The results of the tests showed that use of trialkyl tetrathiophosphates, bis(0,0-dialkylthiophosphone)disulfides, and 0-dialkylaminoalkyl-S,S-dialkyl trithiophosphates as multifunctional additives to lubricating oils would be of advantage. The effects of the $CCl_3$ group in reducing wear and seizing of friction surfaces were confirmed by the results of tests on dithiophosphates containing an -SC(=O)$CCl_3$ group. The tests with 0,0-difurfuryl-S-trichloroacetyl dithiophosphate indicated that this compound would be a good all-around additive for lubricating oils.

2/2

TITLE--LUBRICATING ADDITIVE FOR WASHING LIQUIDS -U-

AUTHOR-(05)-YAROV, A.N., KHARCHENKO, L.S., KENDIS, M.SH., GORDASH, YU.T.,
  ZHIDOVTSEV, N.A.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,988
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70


SUBJECT AREAS--MATERIALS

TOPIC TAGS--LUBRICATING OIL, CHEMICAL PATENT, LUBRICANT ADDITIVE,
  INDUSTRIAL WASTE




CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1804        STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130637
                              UNCLASSIFIED

CIRC ACCESSION NO--AA0130637
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  A LUBRICATING ADDITIVE FOR WASHING
   LIQS. IS BASED ON OIL AND FAT INDUSTRY BY PRODUCTS, SUCH AS TAR OILS
   FROM BLACK COTTONSEED OIL SOAPSTOCK, TECH. FAT, OR THEIR MIXTS.  TO
   IMPROVE THE LUBRICATING PROPERTIES OF THE ADDITIVE IN AN ALK. MEDIUM,
   THE OIL AND FAT WASTE PRODUCTS ARE TREATED WITH C SUB1-20 ALCS. IN THE
   PRESENCE OF H SUB2 SO SUB4 AT 65-120DEGREES.

UNCLASSIFIED

TITLE--MULTIFUNCTIONAL ADDITIVE FOR LUBRICATING OILS -U-

AUTHOR-(05)-KHARCHENKO, L.S., GORELOV, S.A., GORDASH, YU.T., RABINOVICH,
   I.L., CHUSHKINA, R.D.
CCUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,578
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70


SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--LUBRICATING OIL, CHEMICAL PATENT, THIOL, PHOSPHATE ESTER,
   BENZENE DERIVATIVE, LUBRICANT ADDITIVE



CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0084       STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127711
                        UNCLASSIFIED

CIRC ACCESSION NO--AA0127711
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   O, O DIALKYL S BENZOTHIAZOLYL
   THIOPHOSPHATE OR O, O DIALKYL SE BENZOTHIAZOLYL SELENOPHOSPHATE ARE
   USEFUL AS POLYFUNCTIONAL ADDITIVES IN LUBRICATING OILS.

UNCLASSIFIED

1/2    024                    UNCLASSIFIED          PROCESSING DATE--04DEC70
TITLE--SYNTHESIS AND CRYSTALLOGRAPHIC STUDY OF THE OXYTUNGSTATE CHLORIDES
  LN SUB3 WO SUB6 CL SUB3, LN IS CE, PR, OR ND -U-
AUTHOR-(03)-KHARCHENKO, L.YU., KLEVTSOV, P.V., POLYANSKAYA, T.M.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(6), 1286-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--CRYSTALLOGRAPHY, TUNGSTATE, SINGLE CRYSTAL, CHLORIDE, RARE
  EARTH COMPOUND, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1248        STEP NO--UR/0020/70/191/006/1286/1288

CIRC ACCESSION NO--AT0138259
                          UNCLASSIFIED

CIRC ACCESSION NO--AT0138259
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  SYNTHESIS AND CRYSTALLOGRAPHIC
STUDIES OF OXYTUNGSTATE CHLORIDES, CRYSTD. FROM AN ANHYD. SOLN. CONTG.
LIF, WERE MADE.  THE FORM OF LN SUB3 WO SUB6 CL SUB3 SINGLE CRYSTALS
CRYSTALLIZE EITHER AS ELONGATED HEXAGONAL PRISMS OR THIN HEXAGONAL
PLATES; SINGLE CRYSTALS ARE RELATED TO THE L SUB6 PC CLASS WITH THE
LATTICE PARAMETER RATIO C-A EQUALS 0.57.  THE CHEM. FORMULA OF THE LN
SUB3 WO SUB6 CL SUB3 COMPD. WAS DETD. BY CHEM. ANAL. AND STRUCTURAL
ANAL.  FOR ND OXYTUNGSTATE CHLORIDE, THE COMPN. WAS ND 51.9, W 23.4, CL
12.3PERCENT; NO ALKALI METALS WERE DETECTED.   X RAY POWDER DIFFRACTION
PATTERNS REVEALED THE ISOSTRUCTURAL CHARACTER OF LN SUB3 WO SUB6 CL
SUB3; FOR PR SUB3 WO SUB6 CL SUB3 THE LATTICE PARAMETERS ARE A 9.314 AND
C 5.269 ANGSTROM.  DECOMPN. OF THE LN SUB3 WO SUB6 CL SUB3 COMPDS.
BEGINS AT 1000DEGREES, WHILE HEATING IN AIR AT 1100DEGREES FOR 5 HR
COMPLETELY DECOMPS. THE COMPD.          FACILITY:  INST. NEORG. KHIM.,
NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2    016                    UNCLASSIFIED              PROCESSING DATE--16OCT70
TITLE--HYDROTHERMAL SYNTHESIS OF SAMARIUM, EUROPIUM, AND GADOLINIUM
   TUNGSTATES -U-
AUTHOR-(02)-KHARCHENKO, L.YU., KLEVTSOV, P.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 594-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SAMARIUM COMPOUND, EUROPIUM COMPOUND, GADOLINUM COMPOUND,
   TUNGSTATE, CHEMICAL SYNTHESIS, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0907        STEP NO--UR/0363/70/006/003/0594/0596

CIRC ACCESSION NO--AP0118076
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0118076

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KLN(WO SUB4) SUB2, WHERE LN EQUALS SM, EU, AND GD, WERE PREPD. FROM MIXTS. OF OXIDES AND CARBONATES (LN SUB2 O SUB3-WO SUB3 EQUALS 1:3, K SUB2 CO SUB3-LN SUB2 O SUB3 EQUALS 1:1:4) DURING CRYSTN. IN 19-50PERCENT KCL SOLNS. AT 500-50DEGREES AND WITH THE AUTOCLAVES BEING FULLED UP TO 60-70PERCENT.  THE 2 PHASES KLN(WO SUB4)SUB2 AND LNWO SUB4 OH CRYSTALLIZE SIMULTANEOUSLY UNDER THE EXPTL. CONDITIONS.  CHEM. ANAL. CONFIRMED THE FORMULA KSM(WO SUB4)SUB2 FOR THE SM TUNGSTATE.  THE HEATING AND COOLING CURVES OF KLN(WO SUB4)SUB2 SHOWED THAT THESE COMPOS. MELT CONGRUENTLY AT 1050-80DEGREES AND THAT PRIOR TO THE M.P. (AT 40-70DEGREES BELOW THE M.P.) THEY UNDERGO A REVERSIBLE PHASE TRANSITION, WHICH IS ASSOCD. WITH THE POLYMORPHIC PHASE TRANSFORMATION.  THIS PHASE TRANSFORMATION IN THE KLN(WO SUB4)SUB2 MAY BE THE REASON WHICH MAKES DIFFICULT THE GROWING OF THEIR SINGLE CRYSTALS FROM THE MELT.  DIFFRACTION PATTERNS SHOW THAT THE HYDROXY TUNGSTATES OF THESE ELEMENTS ARE ISOSTRUCTURAL WITH EACH OTHER AND WITH MONOCLINIC NDWO SUB4 OH AND PRWO SUB4 OH.   THEIR IR PATTERNS SHOW THAT THESE COMPOS. DO NOT CONTAIN WATER AS H SUB2 O MOLS.  THE ABSORPTION BAND IN THE 3550 CM PRIME NEGATIVE1 REGION CORRESPONDS TO THE VALENCY VIBRATIONS OF THE OH PRIME NEGATIVE GROUP.  LNWO SUB4 OH WHEN HEATED IN AIR AT 575-650DEGREES DECOMPS. TO FORM OF LN SUB2 W SUB2 O SUB9; THIS WAS ALSO CONFIRMED BY IR AND X RAY STUDIES.  EU SUB2 W SUB2 O SUB9 AND GDW SUB2 O SUB9 WERE PREPD. THIS WAY AND INDEXED.      FACILITY: INST. NEORG. KHIM., NOVOSIBIRSK, USSR.

USSR                                                         UDC 539.194

BABKOV, L. M. KOVNER, M. A., MEL'NIK, V. I., PUChKOVSKAYa, G. A., KhARChENKO, N. P., and ShPAK, N. T.

"Vibration, Luminescence, and Absorption Spectra of Benzophenone and Their Interpretation"

Leningrad, Optika i Spektroskopiya, Vol 35, No 1, Jul 73, pp 58 - 64

Abstract: Benzophenone has a number of properties that are presently of interest: significant piezoelectric effect, 100% conversion from the excited singlet level to the triplet state, high photochemical activity in hydrogen-containing solvents, and effective transfer of excitation energy. The majority of these effects are due to the characteristics of the electron structure of the benzophenone molecule.

In this study, infra-red spectra and luminescence and absorption spectra of benzophenone are obtained and their oscillatory structure is resolved. The problem of normal molecular oscillations of benzophenone in the ground electron state is solved. On the basis of a calculation of the frequencies and shapes of oscillations the frequencies are related to types of symmetry of the $C_2$ group and to oscillations of bonds and angles. The changes in the oscillatory frequencies with excitation to the singlet and triplet electron states are determined and an interpretation of the vibron transitions is suggested.
1/1

USSR

UDC 541.14+535.34-15+535.373

MEL'NIK, V. I., PUCHKOVSKAYA, G. A., KHARCHENKO, N. P., and SHPAK, M. T.

"Peculiarities of IR Absorption and Phosphorescence of Products of Benzophenone Photochemical Reactions"

Abstract: The authors isolated in pure form the products of the benzophenone-benzpinacone photochemical reaction, studied their IR absorption and phosphorescence spectra, and compared the results with benzophenone data. The effect of low temperatures and solution concentrations on photochemical reaction efficiency was studied. There was found to be considerable weakening of the photochemical transformations of benzophenone at low temperatures.

1/1

- 90 -

*/*

USSR

UDC 577.1:615.7/9

KIRICHEK, L. T., KARAMYSHEV, A. N., NALBAT, A. S., KOSENKO, P. I.,
KHARCHENKO, N. S.

"Some Aspects of the Systemic Toxic Action of Metaphos"

Translation: After a single injection of rats, cats, and rabbits
with metaphos at doses of 1-1/2 $LD_{50}$, there are not only the speci-
fic toxic effects produced by the insecticide but changes in liver
function: decrease in total serum protein, dysproteinemia, decreased
cholinesterase activity in serum and liver tissue, positive thymol
test, change in duration of prothrombin time, decrease in glycogen
level of the liver, increased amount of protein in urine, decreased
diuresis after a water load, and histologic changes in all organs.

1/1

USSR

UDC 546-655'74'28:548.3

BODAK, O. I., MIS'KIV, M. G., TYVANCHUK, A. T., KHARCHENKO, O. I., and GLADYSHEVSKIY, YE. I., L'vov State University imeni Ivan Franko

"System Cerium--Nickel--Silicon in the Region 33.3 - 100 at. % Ce"

Moscow, Neorganicheskiye Materialy, Vol. 9, No 5, May 73, pp 864-866

Abstract: A study is made of the phase ratio of the system Ce-Ni-Si in the region 33.3 - 100 at. % Ce. A complete isothermal cross section of the diagram of state is constructed. The area of homogeneity and the crystalline structure of compounds formed in alloys in the interval 33.3 - 100 at. % Ce are determined.

1/1

- 73 -

UDC 612.883.81 + 613.648

"Effect of X-ray Irradiation on the Conditioned Motor Reflex Activity of Young Rats"

Translation: Irradiation of young rats -- 3-4 months old -- with x-rays in doses of 500, 600, and 700 r leads to a disturbance of their conditioned reflex activity manifested by increased latent period and duration of the reflex, as well as in the number and magnitude of the interval reactions. At higher doses (600 and 700 r) these changes have a dual phase character: immediately after the exposure (1-7 days) and after a period of relative stabilization (18-24 days). The irradiation leads also to a dual phase lowering of the general activity of animals: on 5-7th and 18-24th days. The radiation effect is exhibited principally by a marked diminution of the inhibition process, which appears both early (4-7 days) and about 2-3 weeks after irradiation.

1/1

UDC 612.826.4

USSR

VOZNAYA, A. I. and KHARCHENKO, P. D.

"Relationship Between the Conditioned Effect and the Intensity and Duration of Stimulation of the Hypcthalamus"

Kiev, Fiziologichniy Zhurnal, No 5, 1973, pp 630-636

Translation of abstract: Electrostimulation of the same site in the lateral hypothalamus of dogs was found to both intensify and weaken the food secretory conditioned reflex. Systematic study showed that the magnitude of the conditioned reflex regularly varied with the intensity and duration of the stimulating current. Stimulation of the hypothalamus with a current of minimum intensity inhibited the conditioned reflex, whereas currents of greater intensity increased it. The increase reached a peak and then diminished. With currents of still greater intensity, the conditioned reflex decreased and then disappeared. The diminution of the increase in magnitude of the conditioned reflex and of the conditioned reflex as a whole resulted from the development of inhibition. The latter as a whole resulted from the development of inhibition. The latter occurred at the end of the action of the conditioned stimulus and stimulation of the hypothalamus; the

1/2

USSR

VOZNAYA, A. I. and KHARCHENKO, P. D., Fiziologichniy Zhurnal, No 5, 1973, pp 630-636

stronger the current, the earlier inhibition appeared. And the longer the stimulation of the hypothalamus, the more pronounced the inhibition and the greater the decrease in the conditioned reflex.

2/2

## PARTICIPATION OF HYPOTHALAMUS IN THE REGULATION OF CONTENT AND CIRCULATION OF BLOOD AND LYMPH

P. D. Kharchenko, V. P. Glagolev, V. O. Tsibenko,

L. M. Ponomarenko, L. O. Smirnova

Department of Physiology, State University, Kiev

### Summary

The effect of hypothalamus stimulation was investigated on the regional blood circulation, lymph stream rate and lymph content, on the physicochemical properties of blood and acetylcholine content in it.

The data obtained testify to the fact that, when stimulating hypothalamus, there appear not isolated reactions of one system or organ, but the whole complex of vegetative reactions and processes connected between themselves.

1/1     REEL/FRAME
19820919     2

USSR                                UDC   621.791:338.45

MOSENKIS, Yu. G., "Lenin Forge" Plant, ASHIS, A. YE., and KHARCHENKO, P. F.,
Institute of Electric Welding imeni YE. O. Paton, Academy of Sciences UkrSSR

"Efficiency of Using New Welding Materials for Corner Joints With Reduced Cross
Section"

Abstract:  A study was made of the economy of welded constructions with reduced
amounts of weld metal.  In square Tee-joints, in the absence of bevelled edges,
the amount of weld metal can be reduced by reducing the fillet weld size.  This
can be done by using electrode materials of higher strength, which would ensure
adequate plasticity of the weld.  A table shows the economy of reducing fillet
weld size in manual and semi-automatic welding in $CO_2$, using UONI-13/45 and
ANP-1 electrodes and Sv-08G2S and Sv-08KhGSMF wires.  A figure shows the tech-
nological cost of 1 km of square Tee-joint by semi-automatic welding in $CO_2$,
depending on fillet size.

1/1

- 7C -

USSR

UDC 539.374

KHARCHENKO, T. G., LUKOVICH, V. V.

"Possibility of Simulating Elastic-Plastic Bending of Plates"

Minsk, V sb. 26 Nauchno-tekhn. konferentsiya Belorussk. politekhn. in-ta. Materialy Sektsii stroit. mekhan. (26th Scientific and Technical Conference of the Belorussian Polytechnical Institute. Materials of the Construction Mechanics Section -- Collection of Works), 1970, pp 138-144 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 V341)

Translation: The problem of transverse bending of plates of arbitrary outline made of material subjected to the Trask condition is solved on the basis of the relations of deformation theory of plasticity. Expressions are presented for the bending moments and torques for an elastic core and for the part of the material converted to the plastic state. The latter are obtained under the assumption of ideal plasticity and also linear or step workhardening. The yield condition is represented in the form of an equation the left-hand side of which has biharmonic structure

1/2

USSR

KHARCHENKO, T. G., et al, V sb. <u>26 Nauchno-tekhn. konferentsiya</u>
<u>Belorussk. politekhn. in-ta. Materialy Sektsii stroit. mekhan.</u>,
<u>1970, pp 138-144</u>

and the right-hand side is nonlinear and depends on the form of
the diagram of the material (workhardened or ideal). This repre-
sentation together with conversion to the finite-difference
scheme permitted realization of the iteration procedure on a var-
iable structure integrator supplemented by a unit for calculating
the nonlinear right-hand side. The block diagram of the inte-
grator is presented. The bibliography has 5 entries.

2/2

USSR                                                    UDC: 621.315.592

KOVAL', Yu. P., MORDKOVICH, V. N., TEMPER, E. M., and KHARCHENKO,
V. A.

"Optical Characteristics of Silicon Irradiated With Neutrons"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp
1317-1322

Abstract: This paper considers infrared absorption by silicon ir-
radiation and consequent isochronal annealing. The silicon was n-
type, with a resistivity of 200 ohm·cm and an oxygen concentration
of $3-4 \cdot 10^{17}$/cc. Part of the crystals were bombarded with neutrons
without special cooling, with a temperature of 250° C, the other
part being bombarded while in water. The annealing was done in a
range of 100-800° C, in steps of 50°, for 30 minutes at each step.
For the specimens irradiated in water, at a temperature of less
than 60° C, very strong absorption of infrared rays of 2-4 $\mu$ wave-
length was observed. High absorption of 17-25 $\mu$ wavelengths was
also seen in these specimens. The silicon crystals irradiated at
250° C, on the other hand, were transparent to the 2-4 $\mu$ as well
as the 17-25 $\mu$ wavelengths. Curves are plotted for the absorption
of the crystals as functions of the wavelength and the annealing
1/2

USSR

KOVAL', Yu. P., et al, Fizika i tekhnika poluprovodnikov, No 7,
1972, pp 1317-1322

temperature.  Differences in absorption displayed by crystals of
different growth methods are also discussed.  The authors express
their gratitude to V. G. Goryachev and S. P. Solov'yeva for their
interest in the work and their comments on the results.

2/2

- 83 -

USSR

UDC: 539.1.074.55

PODSEKIN, A. K., SOLOV'YEV, S. P., KHARCHENKO, V. A.

"Making PN-Junctions by the Method of Radiation Doping in a Nuclear Reactor"

Moscow, Atomnaya Energiya, Vol 31, No 5, Nov 71, pp 521-522

Abstract: A method is proposed for low-temperature synthesis of PN-junctions in semiconductor crystals by exposure in a nuclear reactor to initiate the necessary nuclear reactions which lead to formation of the required impurity atoms. For practical reasons, the proposed method is most readily applied to silicon-30, resulting in N-silicon doped with phosphorus-31. The semiconductor can be produced with a given resistivity. The paper is devoted to a theoretical analysis of the optimum conditions for producing a PN-junction by the proposed method. In principle, the method should be applicable to synthesis of more complicated junctions such as PNP, PIN, and the like. One figure, one table, bibliography of eight titles.

1/1

UNCLASSIFIED                    PROCESSING DATE--30OCT70

1/2    027
TITLE--THE EFFECT OF MISHMETAL ON THE STABILITY OF ALLOYED CAST STEEL AT LOW TEMPERATURES -U-
AUTHOR-(05)-BRAYNIN, I.YE., PILYUSHENKO, V.L., KHARCHENKO, V.A., KONDRASHEV, A.I., GASHUTIN, V.P.
COUNTRY OF INFO--USSR
SOURCE--KIEV, TEKHNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP 49-50
DATE PUBLISHED------70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--CHROMIUM ALLOY, MANGANESE ALLOY, MOLYBDENUM ALLOY, CAST STEEL, IMPACT STRENGTH, DUCTILITY, MECHANICAL PROPERTY, LOW TEMPERATURE METAL, MISCH METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1313        STEP NO--UR/0418/70/000/001/0049/0050

CIRC ACCESSION NO--AP0123272
                        UNCLASSIFIED

2/2    027
CIRC ACCESSION NO--AP0123272

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.   RESEARCH RESULTS ARE GIVEN ON THE
EFFECT WHICH MISHMETAL HAS ON THE PROPERTIES OF MANGANIFEROUS,
CHROMMANGANESE, AND CHROMMANGANESE MOLYBDENUM GRADES OF STEEL AT
TEMPERATURES BELOW ZERO.   IT IS SHOWN THAT THE INTRODUCTION OF MISHMETAL
INTO CAST ALLOYED STEEL RAISES ITS IMPACT DUCTILITY AT ROOM TEMPERATURE
AND AT TEMPERATURES BELOW ZERO.   THE BEST COLD STABILITY IS EXHIBITED BY
STEEL ALLOYED WITH THE FOLLOWING COMPLEX OF ELEMENTS:  CHROMIUM,
MANGANESE, MOLYBDENUM, AND MISHMETAL.

UNCLASSIFIED          PROCESSING DATE--13NOV70

1/2    016
TITLE--CHANGES OF BLOOD SERUM PROTEIN FRACTIONS IN PATIENTS WITH MALIGNANT
NEOPLASMS -U-
AUTHOR-(05)-TSUTSAYEVA, A.A., LOBASENKO, N.P., LYSENKO, A.I., ROZINOV,
L.P., KHARCHENKO, V.F.
COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 99-101

DATE PUBLISHED--------70


SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEOPLASM, BLOOD SERUM, BLOOD PROTEIN


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1735          STEP NO--UR/0475/70/000/005/0099/0101

CIRC ACCESSION NO--AP0129103
                         UNCLASSIFIED

UNCLASSIFIED

2/2    016
IRC ACCESSION NO--AP0129103
ABSTRACT/EXTRACT--(U) GP-0-    ABSTRACT.  PATIENTS WITH MALIGNANT TUMOURS
SHOW A QUANTITATIVE QUALITIVE CHANGE OF THE BLOOD SERUM PROTEIN CONTENT.
INCREASE OF BLOOD SERUM GLOBULINS AND DECREASE OF ALBUMINS, DECREASE OF
THE ALBUMIN GLOBULIN COEFFICIENT IN ONCOLOGICAL PATIENTS ARE NONSPECIFIC
OF THE TUMOR GROWTH.  BUT AT THE SAME TIME THE BLOOD SERUM OF
ONCOLOGICAL PATIENTS SHOWS AN ATYPICAL PROTEIN NOT CONNECTED WITH C
REACTIVE PROTEIN, WHICH IS DETECTED IN THE ALPHA 2 FRACTION AND APPEARS
REGULARLY AT THE II-III STAGES OF THE DISEASE.    FACILITY:
KAFEDRA MIKROBIOLOGII, KHAR'KOVSKOGO MEDITSINSKOGO INSTITUTA
BIOFIZICHESKAYA LABORATORIYA, KHAR'KOVSKOGO NAUCHNO-ISSLED.    INSTITUTA
VAKTSII I SYVOROTOK, OBLASTNOY ONKOLOGICHESKIY DISPANSER.

UNCLASSIFIED

UNCLASSIFIED         PROCESSING DATE--04DEC70

1/2    012
TITLE--ON THE SOLUTION OF THREE PARTICLE INTEGRAL EQUATIONS BY THE
SEPARABLE EXPANSION METHOD -U-
AUTHOR-(03)-KHARCHENKO, V.F., PETROV, N.M., KUZMICHEV, Y.E.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS B (NETHERLANDS), VOL. 32B, NO. 1, P. 19-22 (25 MAY
1970)
DATE PUBLISHED--25MAY70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELEMENTARY PARTICLE, INTEGRAEQUATION, ALGEBRAIC EQUATION, PAIR
THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605030/E02 STEP NO--NE/0000/70/032/001/0019/0022

CIRC ACCESSION NO--AP0141849
                    UNCLASSIFIED