USSR

UDC: 669.721.042.62

ARUSOO, A. K., <u>KARRO, Kh. Kh.</u>, LAUGIS, Yu. Ya., LOOTUS, Ya. K., LOYGOM, V. V.,
SAKKOS, Kh. A., <u>TIYSMUS, Kh. A.</u>

"MHD Drives for Pumping of Liquid Magnesium"

MGD v Metallurgii i Liteyn. Proiz-ve [MHD in Metallurgy and Foundry Produc-
tion -- Collection of Works], Kiev, 1972, pp 126-130 (Translated from
Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G202, by G.
Svodtseva).

Translation: The Tallin Polytechnical Institute has developed and introduced
to metallurgical production several induction MHD drives for feeding liquid
Mg from a continuous refining furnace to a casting conveyor. The basic tech-
nical data are presented on the MHD drives and a schematic diagram of the power
portions is presented. The drives operate under manual control. During tapping,
the static head and hydraulic resistance are increased. This means that conser-
vation of constant productivity requires that the supply voltage be increased by
1.2-1.8 times. The channel of the pump is replaced every three to five days.
A diagram of the activity of the MHD drive under manual control is presented.

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USSR

KARRYYEV, M. O.

"All-Union Scientific Conference on Medicinal Plants"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Biologicheskish Nauk, No 1, 1972, pp 94-96

Abstract: The All-Union Scientific Conference, "Expanding the Use of Natural Medicinal Plant Resources Taking Into Account the Experience of Folk Medicines," took place in Tbilisi in October, 1971. This conference was convoked by the Ministry of Health Georgian SSR, the Ministry of the Medical Industry USSR, the Ministry of Health, Turkmen SSR, and the All-Union Scientific Society of Pharmacists. The conference was attended by more than 450 persons; more than 50 reports were presented.

The conference was opened by the Deputy Minister of Health, USSR, P. I. Gerasimov. In his report, "The Significance of Medicinal Plants in Modern Medicine and Satisfying the Demand for Them by Institutions and Establishments of the Public Health System," he noted that more than one third of the compounds used in modern medicine are of vegetable origin, and that this trend is definitely increasing. Repeated mention was made at the conference

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USSR

UDC 553.677:543.422.4.001.5

KAFRYYEV, N. A., YUGOV, V. A., SAMORUKOVA, L. M.

"Spectroscopic Investigation of Slag"

Dokl. Nauchno-tekhn. seminara Metrol. v radioelektron.(Transactions of the Scientific and Technical Seminar Metrology in Radioelectronics), Tezisy, Ch 1, Moscow, 1970, pp 143-148 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.642)

Translation: Results are presented of experimental investigations of the transmission spectra in the infrared region of the crystalline films of muscovite which are used as the backing in low inertia thin-film bolometers. The observed interference phenomena cause a considerable discontinuity of the slag spectrum. Since the reflectivity and the transmission of backing change from region of spectrum to another, then the receiver will produce higher response signal at the same wave length and smaller signal at others. Thus, the radiation receiver will not satisfy the desired continuity of spectral characteristics, a fact which should be taken into consideration during designing of bolometers. 3 ill., 4 bibl. entries.   V. S. K.

1/1

USSR

UDC 669.295.018.9(088.8)

5

TURKINA, A. N., ODOYEVSKIY, L. S., KHAZANOVA, T. P., KARSANOV, G. V., ANOSHKIN, N. F., TSISTYAKOV, Ye. P., PAVLOV, A. G., TRUBIN, A. N., and TETYUKHIN, V. V.

"Master Alloy for Production of High-Strength Titanium Alloys"

USSR Author's Certificate No 309061, filed 15/07/69, published 20/09/71 (Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract No 3G159P by G. Svodtseva)

Translation: A master alloy for the production of high-strength Ti alloys, containing Mo, V, and Al. To increase the quality of the ingots produced, the alloy includes Cr and Fe with the following relationships of components (in %): Mo 32-34, V 32-34, Al 18-22, Cr 6-8, Fe 5-7. The master alloy can be produced either by direct smelting of the metals in an open induction furnace or by an aluminothermal method in a furnace.

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KARSANOV, G. V.

STUDY OF THE STRUCTURE AND TEMPERATURE OF THE BRITTLE-DUCTILE TRANSITION OF SOME ALLOYS OF THE Cr-Ti-V-B SYSTEM

[Article by V. S. Zolotorevskiy, S. V. Lndenbaum, G. V. Karsanov, I. P. Kharamov, Moscow Steel and Alloys Institute, Department of Physical Metallurgy of Nonferrous, Rare and Radioactive Metals; Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 5, 1971, submitted 6 March 1971, pp 133-135]

One of the prospective groups of heat-resistant materials developed at this time is dispersion-hardened low-alloy chrome alloys [1-3]. Along with good high-temperature properties, these alloys must have plasticity at close to room temperatures. This depends on the content of alloying elements and the structure of the alloy.

In this paper the goal was to study the effect of the titanium concentration on the structure and temperature of the brittle-ductile transition of hot-extruded bars of alloys of the Cr-Ti-V-B system in the initial and heat-treated states. The titanium concentration in alloys varied from 0.25 to 1.5 percent, and the vanadium and boron content were constant and amounted to 1.5 and 0.05 percent, respectively.

Samples 10 × 10 × 15 mm cut from bars obtained by hot extruding of in-gots were used for the structural studies. The samples were heated in the TVV-4 furnace in an argon atmosphere for 5, 15, 25 and 50 hours at 1,100, 1,200 and 1,400 degrees. After completion of isothermal holding the samples were cooled with the furnace. The structure was studied by means of light and electron (UEMV-100V) microscopes. The metallographic microsections and thin foils were prepared in an electrolyte with the following compositions: 86 ml of concentrated H3PO4, 51 ml of concentrated H2SO4, and 100 g of CrO3. The electron microscope study was performed on single-stage carbon replicas with extracted particles and on self-supporting foils prepared by the procedure of [4]. The phase analysis by means of calculating the electronograms taken from the particles extracted in the replica was performed by the standard procedure of [5]. In addition, a phase x-ray micrographic analysis was performed with respect to the debyegrams of the previously electrolytically deposited second phase powder. The transition temperature from the brittle state to the plastic

JPRS 53372
9 Mar 72
UDC 621.728

Mechanical Properties

KARSANOV, G. V., KURDYUMOVA, G. G., MIL'MAN, Yu. V., PONOMAREV, Yu. N.,
SARZHAN, G. F., TREFILOV, V. I., FIRSTOV, S. A., KHAZANOVA, T. P., and YUSHKO,
V. G., Moscow, Kiev

"Investigation of the Structural Condition and Mechanical Properties of a Two-
Phase Alloy Containing Chromium and Nickel"

Abstract: The structure of a chromium alloy containing 34.4 wt % Ni was
investigated by methods of electron-microscopy of thin foils and X-ray and
metallographic analyses, after being subjected to various thermal and thermo-
mechanical treatments. The investigation data are compared with mechanical
bending test data and analyzed from the standpoint of dislocation concepts
and ideas of the character of the electronic structure of transition metals.
Reference is made to microphotographs of the structure of the hardened alloy
Cr - 34.4 Ni and its structural changes resulting from annealing at different
temperatures and to diagrams showing effects of annealing at 900°C on
mechanical properties, lattice parameter, hardness, and relative quantities of
α- and γ- phases. The probability is indicated of increasing the strength
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USSR

KARSANOV, G. V., et al., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 71, pp 67-74

characteristics of the investigated alloy at the expense of precipitation strengthening. Five illustr., 12 biblio. refs.

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USSR

UDC: 621.396.6:621,318

GERBERG, A. N., KARSANOVA, N. M.

"Calculating the Topography of the Magnetic Field in the Gap of Permanent Magnets With Conical Poles"

Elektron. tekhnika. Hauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific and Technical Collection. Ferrite Technology), 1970, vyp. 2 (24), PP 70-76 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V426)

Translation: Permanent magnets with conical poles made from magnetically soft steels are used to produce a magnetic flux concentrated in a small volume (which is necessary for many different electronic devices). The authors have worked out a method which can be used to find the optimum relative dimensions of conical poles and the dimensions of the gap depending on the predetermined nature of the field between them. The problem is solved on the basis of potential theory. Curves are plotted which characterize field distribution: the dependence of field strength in the center on the dimensions of the gap, the dependence of the size of the uniform region of the field on the angle between the planes which form the pole, etc. Six illustrations, bibliography of four titles. N. S.
1/1

USSR

KARSHIN, V. M.

"Evaluation of the Effectiveness of Using Complex Signals to Combat External Interference in the Absence of A Priori Information on the Interference"

Abstract: The author determines how the operating quality of a discrete signal receiver which integrates input data with a weight proportional to the signal is related to signal shape in the presence of external stationary correlation noises. Conditions are elucidated under which it may be adviseable to use complex (wide-band) signals for coupling to combat interference. It is shown that an "equivalent" exchange of transmitter power for the signal frequency band when combatting interference requires at least a tenfold transmitter power reserve as compared with the case of no interference for the same reception quality, and when several stations are working on a single frequency, and in the absence of other external interferences, it is advisable to provide twice the power reserve.

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USSR

Graphite

GRIGORYAN, V. A. and KARSHIN, V. P., Moscow

UDC: 669.046.562

"Effect of Surface-Active Agents on the Dissolution Kinetics of Graphite in Molten Iron"

Moscow, Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 78-81

Abstract: It was the purpose of this paper to investigate the dissolution kinetics of graphite in iron in the presence of sulfur and oxygen as surface-active agents and to determine the characteristics of the act of chemical transformation. The study was conducted by the rotary disk method. The test specimens were prepared from AG-1500 grade graphite with a density of 1.87 g/cm^3. The metal was fused in a resistance furnace with a graphite heater. The oxygen content in the metal was varied by aluminum deoxidation, while that of sulfur by addition of iron sulfide. The dissolution rate was determined by the weight loss of the graphite specimen believed to be associated with the simultaneous processes of dissolution and oxidation, the latter displaying a lower rate of the elementary act. The reduction in dissolution rate with oxygen and sulfur additions is satisfactorily described by an adsorption isotherm. Sulfur addition produces changes in the surface properties of the graphite-melt interface, while the addition of

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USSR

GRIGORYAN, V. A.,.et al, Izvestiya Akademii nauk SSSR, Metally, No 1,
Jan-Feb 72, pp 78-81

oxygen makes it possible to determine the parameters of the chemical
interaction between graphite and the oxygen dissolved in the molten metal.
The behavior of both additions may be established only when the process is
realized in the diffusion region. (3 illustrations, 1 table,
4 bibliographic references).

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USSR   UDC 669.046.5

GRIGORYAN, V. A., MINAYEV, Yu. A., KARSHIN, V. P., and ALEYEV, R. A.

"Surface Phenomena in the Processes of Interphase Transfer in Metallurgical Systems"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS), (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys). Izd-vo "Metallurgiya," No 61, 1970, pp 46-48

Translation of Abstract: The role of an interphase boundary in the graphite single crystal solution in liquid iron, and in the sulfur transfer from metal into slag, is considered. 3 figures.

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USSR

VISHKAREV, O. M., KARSKIY, N. YE., and LEVKOPULO, I. A., Central Scientific
Research Institute of Technology and Machine Building

"Corrosion Resistance of Nickel Alloys in Sodium"

Abstract: Present-day nickel alloys, relative to their heat resistance, may be
used in power units with sodium heat-transfer agents at 800--900°C. The basic
deterrent to the wide use of these materials is their low corrosion resistance
in sodium. Earlier research indicates that increasing their aluminum content
to 3--6% considerably raises their corrosion resistance. This work deals with
the behavior of nickel alloys with a high aluminum content in sodium. The
materials involved were: heat-resistant nickel alloy with 5% Al (Kh10M4V4Yu5T3K5),
pure nickel, and austenitic steel (Kh20N30M3B5). The testing conditions in a
flow of a sodium coolant were: 900°C, 300 hours, temperature gradient in flow
20 deg/m, expenditure by volume 0.2 m^3/hr, linear rate 0.05 m/sec, oxygen content
in sodium 2.10^{-2} wt%, filter-trap working temperature 135--150°C. The nickel
alloy with the higher aluminum content exhibited the highest corrosion resistance.
The result is attributed to the formation of a protective aluminum-rich oxide

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USSR

film. A table in the original article gives container test data at $800^{\circ}C$ under various oxidizing conditions. A test in argon with an excess of Cr_2O_3 was conducted to exclude the specific effect of sodium on nickel alloys. The decrease in the aluminum content in the nickel alloy after 2000 hours of testing is related to the separation of the surface layer. There was no separation in the absence of sodium in both open air and argon with Cr_2O_3 additions. Separation increases with the increase of oxygen in the sodium. The depth of peeling increases with the duration of testing.

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USSR   UDC 669.71.053.4(008.8)

PEREVOSKIN, YU. L., FURMAN, A. A., KOGAN, V. M., VAKSMAN, P. A.,
and KARTALOV, B. V.

"Method for Preparing Solutions of Basic Aluminum Chlorides"

USSR Author's Certificate No 260624, filed 29 Feb 68, published
5 May 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11
G106)

Translation: A method is proposed for the preparation of solu-
tions of basic Al chlorides by mixing Al $(OH)_3$ with HCl and
subsequent neutralization of the obtained solution. To increase
the purity of product, the neutralization of the solution is
conducted with metallic Al in quantities, which ensure formation
of the basic Al chlorides of the composition $Al_n(OH)_{3n-1}Cl$, where
n = 1-3.

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UNCLASSIFIED   PROCESSING DATE--02OCT70

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TLE--PREPARATION OF SOLUTIONS OF BASIC ALUMINUM CHLORIDES -U-

THOR-(05)-PEREVOZKIN, YU.L., FURMAN, A.A., KOGAN, V.M., VAKSHAN, P.A.,
KARTALOV, B.V.
UNTRY OF INFO--USSR

URCE--U.S.S.R. 260,624
FERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47(4)
TE PUBLISHED--06JAN70

BJECT AREAS--CHEMISTRY

PIC TAGS--CHEMICAL PATENT, ALUMINUM HYDROXIDE, ALUMINUM CHLORIDE,
AQUEOUS SOLUTION

NTROL MARKING--NO RESTRICTIONS

CUMENT CLASS--UNCLASSIFIED
OXY REEL/FRAME--1993/0030   STEP NO--UR/0482/70/000/000/0000/0000

RC ACCESSION NO--AA0113030
                        UNCLASSIFIED

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RC ACCESSION NO--AA0113030

BSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   SOLNS. OF BASIC AL CHLORIDES WERE
PREPD. BY MIXING AL(OH)SUB3 WITH HCL AND NEUTRALIZING THE RESULTING
SOLN. WITH ENOUGH METALLIC AL TO GUARANTEE THE FORMATION OF AL SUBN (OH)
SUB3N-1 CL, WHERE N WAS 1-3.

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USSR   UDC 65-658.562

KARTAMYSHEV, G.N., MALKIS, A.D., and FINKEL', A.I., Engineers

"Machineless Information Monitoring and Control System"

Abstract: The use of still-expensive centralized monitoring machines in com-
paratively small enterprises is not always advantageous, since it significant-
ly increases capital costs without any increase in output. However, it is
possible for comparatively small enterprises to have a modern information
monitoring and control system possessing most known merits of centralized
monitoring machines. All the basic functions usually performed by such mach-
ines (except for digital recording) are effected in this system by groups of
series devices and the unit method of circuit construction, in which each of
the groups has the function of an analogous machine unit. The machineless
system was developed by a branch of Yuzhgiprobiosinkez [Southern State Instit-
ute for the Planning of Biosynthesis]. The article uses a hydrolysis plant
to illustrate the construction principle of the system. A group centralized
monitoring and control system is created, consisting of five functional units.

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USSR

KARTAMYSHEV, G.N., et al., Mekhanizatsiya i Avtomatizatsiya Proizvodstva,
No 1, 1971, pp 19-22

Unit 1 includes pickups for various parameters of each hydrolysis apparatus,
normalizing transducers, controllers with program setters, and slave mech-
anisms coupled with stop-control valves. The number of units corresponds
to the number of hydrolysis apparatuses. Unit 2 consists of multiple-point
recording and signaling potentiometers, with their number corresponding to the
number of controlled parameters for each hydrolysis apparatus. Unit 3 is a
mnemocircuit on a console with built-in signal indicators. Unit 4 consists
of displays, the number of which corresponds to the number of controlled
parameters in each hydrolysis apparatus. Unit 5 consists of remote-control
blocks, slave mechanism position indicators, and bulbs signaling the position
of the valves. The potentiometers are of the EPR-109RDM2 type; the elec-
tronic controllers, of the RPIB-T type. BR-01 relay units with a controlled
dead zone serve as "overshoot" signals. The "overshoot" signaling system is
similar to that existing in nearly all series information machines: for ex-
ample, MARS-200, ELRU-2M, "Zenit," "Tsikl-2," "Pusk-3" etc., but is distin-
guished by the group display principle. The program setters used are BPVZ-01

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USSR

KARTAMYSHEV, G.N., et al., Mekhanizatsiya i Avtomatizatsiya Proizvodstva,
No 1, 1971, pp 19-22

program blocks with a cam program carrier, with three slide wires connected
to the cam in the block. The instruments making up the machineless system
are placed in two adjoining rooms with 6 x 9 m total floor space. The cost
of this system is 49 percent below that of a system using the ELRU-2M machine
and 16 percent below that of a system using individual measuring instruments
for each parameter and individual control panels for each hydrolysis appar-
atus.

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USSR   UDC 531.767:534.17

KARTASHEV, A. I., ETSIN, I. Sh.

"Potentialities of Using the Doppler Effect for the Measurement of Low
Velocities and Amplitudes of Mechanical Oscillations"

Trudy Metrologicheskikh Institutov SSSR (Works of the Metrological Institutes
of the USSR), No 1, 114 (174), 1970, pp 45-53 (from Referativnyy Zhurnal,
Metrologiya i Izmeritel'naya Tekhnika, No 1, 1971, Abstract No 1.32.419)

Translation: The potentialities of use of the Doppler effect for the measure-
ment of low velocities of a solid moving in a straight line and the ampli-
tudes of mechanical oscillation are considered theoretically. It is shown
that utilization of the Doppler effect makes it possible to measure the
velocities of reflecting surfaces within the range of 10^{-6} - 500 m/sec, and
that of nonreflecting surfaces within the range of 10^{-3} - 500 m/sec, when the
surface is several hundred meters removed from the measuring instrument.
Harmonic analysis of the beat signal, frequency-modulated due to the Doppler
effect, permits measurement of the mechanical-oscillation amplitudes of non-
reflecting surfaces within the range from several microns to a millimeter
at distances of up to 10 - 30 meters. 3 figures. 8 bibliographic entries.
1/1

USSR

KARTASHEV, A. I., ETSIN, I. Sh., All-Union Scientific Research Institute
of Metrology imeni D. I. Mendeleyev

"Possibilities of Using the Doppler Effect for Measuring Low Velocities
and Amplitudes of Mechanical Oscillations"

Abstract: The authors consider the possibilities of using a method of
registration of the Doppler shift in the frequency of laser emission for
measuring small velocities of a rectilinearly moving body and low ampli-
tudes of mechanical oscillations. In the proposed method, one of the re-
flecting mirrors of a Michelson-Twyman-Green interferometer is securely
fastened to the moving body. The rate of displacement of the body is de-
termined by placing a photomultiplier cathode in the plane of the exit
pupil of the interferometer and processing the resultant signal on a
radio-frequency spectrum analyzer. The procedure can be used to measure
linear displacements of 10^{-6}-500 m/s when the reflecting surface is located
several hundred meters from the measuring instrument, as well as displace-

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USSR

KARTASHEV, A. I., KHARLAMOVA, G. N., All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleyev

"Results of Measurement of the Speed of Light by the Interference Modulator Method With Photoelectric Registration"

Abstract: A report on research to determine the speed of light in a vacuum. The work is a repetation of the experiment done at the All-Union Scientific Research Institute of Metrology in 1952 (Kartashev, A. I., "A New Method of Measuring the Speed of Light", Trudy VNIIM, No 26(86), Moscow-Leningrad, "Mashgiz", 1955), but with a number of improvements made in the interference modulator. Diagrams of the Fabry-Perot interference standard and the optical system of the installation are given, and the design improvements are explained. The measurement procedure is described. The results give an average value of $299\,791.8 \cdot 10^3$ m/s with a mean-square error of $0.66 \cdot 10^3$ m/s. In the opinion of the authors, the equipment and procedure used in the experiment give a precision which is close to the

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AA0043547

KARTASHEV A.I

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243215 REMOTE TRANSMISSION OF OPTICAL IMAGES is
effectively done without the distortion
which usually comes from phase shift due to
atmospheric scatter of signals. The device
consists of a source 1 of continuous spectrum light,
two wedge-type interference filters 2,3 in axes
crossed over at right angles, the image for trans-
mission 4 and an optical transmission system 5.
At the opposite end of the system is, essentially
the reverse arrangement, consisting of receiving
optics 6, two more crossed-over wedge filters 7,
8 and the received image plane 9. The images may,
for example, be film: 9 may be a screen. The light
from source 1 is dispersed through the image in
frequency spectra at right angles, so that to
each point of the image there corresponds a unique
frequency, and a given intensity. These quantities
are detected and demodulated in the same sense at
the receiving end, giving two-dimensional transfer
30.1.67 as 1129654/26-25. A.I.KARTASHEV & A.N.KOROLEV
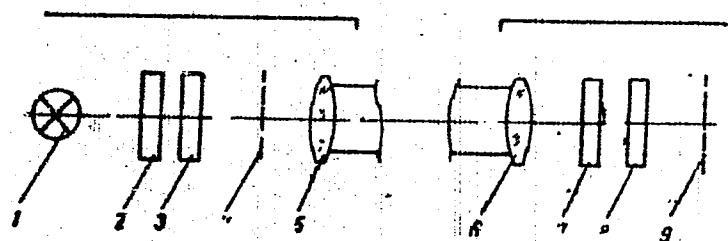(18.9.69) Bul 16/5.5.69. Class 42h.Int.Cl.G 02b.

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19761987

AA0043547

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19761988

USSR

IVASHEVSKIY, S. N., KARTASHEV, A. I., and KOROLEV, A. N.

"Device for Converting Graphic Information"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovar-nyye znaki, No 28, 1972, Author's certificate 352282, p 149

Abstract: This invention contains an information carrier, a photo-graphic camera connected to a feedback amplifier, and a cathode-ray tube. A rotating mirror is also involved, as a drawing of the apparatus shows. The functional possibilities of the device are extended by the amplifier, the mirror, and a modulator tube.

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USSR   UDC 621.37/.39:621.319/314/.651.004

KARTASHEV, I. A. and LAVRINENKO, V. V.

"Miniature Piezotransformers for Integrated Circuit Power Supplies"

Abstract: This article investigates the construction of piezoelec-
tric transformers capable of delivering   power levels of units of
milliwatts to one watt, and of operation at frequencies of 10 kHz
up to several MHz in the context of integrated circuits. Analysis
of known structures has shown that structures with excitation of
longitudinal acoustical oscillations in rectangular specimens, and
structures with excitation of radial oscillations in disc speci-
mens are most satisfactory for satisfying requirements. Expres-
sions are derived for conditions of maximum operating efficiency
for transformers of various structural types. Sketches of the dif-
ferent types are given. It is found that high efficiencies of the
order of 75% and more can be obtained at frequencies up to 1 MHz
for such transformers in integrated circuits.

1/1

USSR

KARTASHEV, I. A., LAVRINENKO, V. V.

"Miniature Piezotransformers for the Feed Networks of Integrated Circuits"

Abstract: A study was made of the problems of creating miniature piezotrans-
formers on frequencies of 10 kilohertz to 1 megahertz. The possible versions
of the designs of the micropiezotransformers are analyzed, and results are
presented from testing experimental models. On the basis of the results ob-
tained, conclusions are drawn on the prospectiveness of the designs of low-
power miniature piezotransformers.

     The transformation coefficient with respect to voltage of the simplest
designs of the transformers in the maximum efficiency mode varies in various
materials from 0.9 to 1.4, and with respect to current it is constant and equal
to 0.7. If values of the transformation coefficients with respect to voltage
are required from 0.2 to 5, designs with sectional input or output are used,
or multilayered designs with transverse or longitudinal energy conversion.
When creating multilayered designs of piezotransformers, the problem of joining
the individual ceramic plates into a monolithic acoustic unit is solved by
using pastes based on glass and silver. The micropiezotransformer made of
piezoceramic described in the single-layer execution (3 × 3 × 0.2 mm) with a
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USSR

KARTASHEV, I. A., et al., _Poluprovodnikovaya tekhnika i mikroelektronika_, No 6, 1971, pp 46-49

characteristic weight of 22.5 milligrams transmitted a load of 450 milliwatts on a frequency of 590 kilohertz, which corresponds to 20 watts/gram.

2/2

USSR

KARTASHEV, K. B., PISTUNOVICH, V. I., PLATONOV, V. V., RYUTOV, V. D., FILIMONOVA, YE. A.

"Detection of Fast Electrons in Plasmoid Injection into a Transverse Magnetic Field"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15, No. 1, 5 Jan 72, pp 7-9

Abstract: Fast electrons observed in the injection of a plasmoid into a transverse magnetic field are described. The experiments were conducted on the INYeS device described by Golovin, et al, at the IV International Conference on Plasma Physics and Thermonuclear Research at Madison in June 1971. It is noted that when a plasmoid enters a transverse magnetic field, there should occur a redistribution of energy between the ion and electron components, as has been discussed theoretically by many authors using a one-dimensional model of an equilibrium boundary layer between the plasma and the magnetic field. In this model the plasma flow incident on the magnetic field is reflected as a whole from the "magnetic wall" and acceleration of electrons and slowing down of ions occurs in the transition layer formed due to separation of the

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USSR

KARTASHEV, K. B., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, Vol. 15, No. 1, 5 Jan 72, pp 7-9

charges. Upon injection of the plasmoid into the magnetic field there was
recorded x-radiation with an energy of the order of the energy of the incident
protons. The radiation was recorded by a scintillation detector from the
central region of the trap. Oscillograms of the x-radiation are shown for
different magnetic field strengths. The intensity of the radiation increased
with an increase in the field strength from 1 to 2.5 koe. In the absence of
a magnetic field the radiation was never observed. A first narrow radiation
peak on the time scale corresponds to the time of input of the plasmoid into
the magnetic field. A second, wider peak arises simultaneously with the
beginning of radiation of the spectral line of copper CuI,-- i.e., at the time
of entry of the plasmoid into the trap from the plasma gun -- for a plasmoid
moving with a velocity of $3 \cdot 10^6$ cm/sec and containing a large number of im-
purities. Electromagnetic radiation in the range 4.6-0.8 cm was recorded
simultaneously with the x-radiation; as in the case of radiation, it was
never observed in the absence of a transverse magnetic field;and its intensity
increased with an increase in the field strength. The intensive radiation in
the range of characteristic plasma frequencies and their harmonics indicates

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USSR

KARTASHEV, K. B., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, Vol. 15, No 1, 5 Jan 72, pp 7-9

the existence of a plasma with a high level of oscillations in the trap. A
second pulse of x-radiation indicates the presence of high-energy electrons
held in the trap. The study indicates that a considerable number of electrons
acquire energy and are captured in the trap upon the entry of a fast plas-
moid into a transverse magnetic field. The authors conclude that it remains
unclear as to what serves as the target for the slowing down of fast electrons
responsible for the appearance of the first x-radiation peak and that the
experimental results cannot be fully explained within the framework of the
aforementioned one-dimensional model.
2/2

3/3

4/4

USSR

KARTASHEV, K. B., et al

"Investigation of Charge Exchange of a Dense Plasma Current in a Magnesium Target"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, September 1970, pp 779-784

Abstract: Charge exchange of a plasma cluster with an ion density $n_i \approx 10^{12}$ cm^{-3} in an ultrasonic magnesium jet is investigated experimentally. It is shown that charge exchange takes place in accordance with the classical model of pair collisions; in this case no appreciable scattering of the particles with increase of the target thickness up to $n_m l \approx 2 \cdot 10^{16}$ cm^{-2} is observed. Scattering occurring at $n_m l \gtrsim 3 \cdot 10^{16}$ cm^{-2} cannot be ascribed exclusively to coulomb scattering, since the accuracy of measurement of the target thickness is not sufficient for this. It is found that an ultrasonic magnesium jet may serve as a "shutter" for a plasma moving with a velocity $v < 5 \cdot 10^7$ cm/sec.

1/1

USSR   UDC 636.2:615.9

GLADENKO, I. N., MALININ, O. A., TRIFONOVA, T. K., SHULYAK, V. D., and
KARTASHEV, M. V., Ukrainian Scientific Research Institute of Experimental
Veterinary Medicine

"Toxic Properties of Sevin and Prophylaxis of Poisoning"

Abstract: An aqueous suspension of sevin in a 0.1-0.85% concentration has
satisfactory acaricidic activity on sheep treated in vats, without any toxic
manifestations. Even the 0.1% dose resulted in total kill of the parasitic
mites. Oral administration of sevin leads to a rapid absorption so that in 30
min it can be observed in considerable quantities in blood, all parenchymatic
organs and skeletal muscles. Maximal concentration after 4-6 hrs is observed
in liver and kidneys. After 4 days no traces of sevin can be found in any organs.
Sevin exhibits no cumulative properties, being rapidly excreted from the organ-
ism. Sevin residues may be found in milk and meat. Milk from the cows exposed
for three days to this agent should be checked for residual content of the
chemical; no beef should be slaughtered within one week of the exposure to
sevin.
1/1

1/2   021   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--DIAGNOSTICS OF NONHOMOGENEOUS FINITE PLASMA -U-

AUTHOR--KARTASHEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELECTRONIKA (RADIO AND ELECTRONICS), 1970, NO 2,
 PP 357-361
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA PHYSICS, INHOMOGENEOUS PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1859   STEP NO--UR/0109/70/000/002/0357/0361

CIRC ACCESSION NO--AP0130686
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0130686

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF DIAGNOSTICS OF
A NONHOMOGENEOUS PLANE LAYERED FINITE PLASMA BY SOLUTION OF THE INVERSE
STURM LIOUVILLE PROBLEM IS EXAMINED.

UNCLASSIFIED

USSR

UDC: 681.327

KARTASHEV, V. V.

"An Accumulator for a Permanent Memory"

USSR Author's Certificate No 325632, filed 1 Sep 69, published 14 Mar 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan
73, abstract No 1B388 P)

Translation: There are well-known permanent memories which are based on trans-
formers having a single readout winding set independently or differentially,
these transformers differing with respect to the type of recording of the "1"
and "0" code depending on the shape of the core. In accumulators using single-
aperture cores, number lines are threaded through apertures where it is required
to record a "1" code in accordance with the given address. This type of data
recording is called "wired-unwired".

In accumulators which are two-aperture cores (E-shaped cores being one
modification) the number lines pass either through a single aperture for record-
ing a "1" code or through the other aperture for recording a "C" code. In the
first case, as in the second, cores with a closed magnetic circuit are used
to produce a high-amplitude output signal.

1/2

USSR

KARTASHEV, V. V., USSR Author's Certificate No 325632

    However, conventional accumulators are either complicated and cumber-
some from the design standpoint (involving mechanical devices for reliable
friction contact between the composite core elements) or complicated from
the technological standpoint (difficulty of installing and changing number
lines when putting in one-piece cores). Thus, the more cores the accumu-
lator contains, the more complicated it is.
    The proposed accumulator contains two transformers on each two-
-aperture core. The readout windings of these transformers are wound in
one direction and placed on the outside legs, while the number buses for
recording a "1" code pass through the apertures of each core in opposite
directions. The cores may be of the E-shaped composite type. Thus, the
use of a single core in the accumulator for two digits of binary infor-
mation considerably reduces dimensions and simplifies construction.

2/2

USSR   UDC: 621.396.6.181.5(088.8)

KARTASHEV, V. V.

"A Device for Extracting Flat Micromodules"

USSR Author's Certificate No 264495, filed 23 Dec 66, published 16 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V211 P)

Translation: A device containing clamping jaws is proposed for extracting
flat micromodules, for instance when they are being unsoldered. To simplify
extraction of micromodules located close together, the clamping jaws are
hinged to a spring-return rod and located between two movable supports.

1/1

USSR   UDC 543.53:539.1.074.4.082

KARTASHEV, Ye. R., CHULKIN, V. L., SHTAN', A. S.

"Use of a Cerenkow Counter to Determine the Content of Certain Elements in
Solutions by the Neutron Activation Method"

Tr. VNII Radiats. Tekhn. [Works of All-Union Scientific Research Institute
for Radiation Technology], 1972, No 7, 118-123 (Translated from Referativnyy
Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 12, 1972, Abstract
No 12.32.996, by V. S. K.).

Translation: A table of elements is presented, solutions of which form iso-
topes during activation analysis upon bombardment by neutrons which emit high-
energy beta particles. It is suggested that the concentration of these
elements be determined using a Cerenkow counter as a detector. An installa-
tion is developed, consisting of an activation chamber (C) with neutron source
surrounded by a moderator, a measurement C, systems providing for even pump-
ing of the solution being analyzed through the measurement and activation
C_{n} and recording apparatus. The measurement C has a cylindrical shape with
nipples for injection and withdrawal of the solution. The walls of the C are
coated to provide diffuse reflection. The ends of the C are made of organic
glass, in optical contact with the output windows of an FEU-56 photomultiplier.

1/2

USSR

Kartashev, Ye. R., Chulkin, V. L., Shtan', A. S., Tr. VNII Radiats. Tekhn., 1972, No 7, pp 118-123.

Devices of this type can also be used to determine leakage of fissionable products in the cooling system of a reactor. 2 figures, 1 table, 5 biblio. refs.

KARTASHEV Yu. G.

AA0040657

UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

241017 THERMAL TREATMENT OF OBJECTS MADE OF REFRACT-
ORY ALLOYS, involving heating, quenching and
tempering is characterized in that in order to
increase the ultimate strength at bending, by 10-30%
the refractory alloys are subjected to ultrasonic
treatment during the tempering stage. The proposed
method is especially effective in the treatment of
objects made of refractory alloys containing 6% and

more by weight of cobalt.
16.9.66 as 1114589/22-1. N.K. ROMANENKO et al.
(18.8.69) Bul 13/1.4.69. Class 40b, 40d. Int.Cl.
C 22c, C22 f.

LD 18

AUTHORS: Romanenko, N. K.; Pogodin-Alekseyev, G. I.; Gavrilov,
V. M.; Leshchenko, I. G.; Kartashev, Yu. G. and
Novgorodov, A. S.   19750246

USSR

KARTASHEV, YU. V., SHABRANSKIY, V. A.

"The Mutual Placement of Random Points on a Straight Line"

Vychisl. i Prikl. Mat. Mezhved. Nauch. Sb. [Computational and Applied Mathematics. Interdepartmental Scientific Collection], 1973, No 21, pp 145-151 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V13)

Translation: Let x_0, x_1, ..., x_n, ... be a sequence of random quantities such that $x_n = n \cdot h + \varepsilon_n$, where ε_n, $n = 0, 1, ...$, are independent, identically distributed random quantities, while h is an arbitrary real positive number.
    Suppose the random quantities ξ_0, ξ_1, ..., ξ_n, ... are such that

$$P\{\xi_i = x_n\} = q^k p, \quad q = 1 - p$$

$$P\{\xi_k = x_n / \xi_{k-1} = x_l\} = \begin{cases} q^{n-l-1} \cdot p, \text{ where } i < n-1 \\ 0, \text{ where } i \geq n \end{cases}$$

The limiting behavior of the distributions and parameters of the ran-dom quantities $\xi^1_k = \xi_{k+1} - \xi_k$ and $\eta^1_k = |\zeta^1_k|$ Author's view

1/1   - 5 -

USSR   UDC: 537.311.33:546.19'681

STUKEN, I. B., KARTASHEVA, I. A., IVANOVA, M. A.

"Change in the Electrical Properties of Gallium Arsenide With Beryllium Diffusion"

Translation: It is demonstrated that beryllium is an acceptor impurity in gallium arsenide. Beryllium was introduced into specimens of GaAs of type N ($N = 5 \cdot 10^{17}$/cc and $7 \cdot 10^{17}$/cc) by diffusion (depth of the PN junction was 12-30 microns). The surface conductivity σ and the Hall effect were measured in the initial specimens and in the specimens after beryllium diffusion. In specimens with initial concentration $N = 5 \cdot 10^{17}$/cc, the shallow acceptor level with activation energy of ~0.04 eV was determined from the relation $\log V_x = f(1/T)$; this level is due to beryllium. Bibliography of 3 titles. M. D.

1/1

USSR   UDC 541.121

ROZEN, A. M., NIKOLOTOVA, Z. I., and KARTASHEVA, N. A.

"Regularity of the Extraction by Organic Oxides R_3XO and Bases R_4XNO_3 in the Series N-P-As"

Abstract: Changing the structure of the extracting agent shows little effect on the mechanism of extraction; however, with sufficient increase of the basicity of organic oxides, qualitative changes in the mechanism of the extraction may occur. It has been shown in this study that in the acidity range 0.5 to 7 M the extractive capability by the amine mechanism of the extraction of uranium or americium decreases gradually in the series $R_3N \approx$

$R_3NO > R_3AsO$. The extractive power of the oxides by the amine mechanism is symbatic to their basicity. Nitric acid is extracted in form of the complexes $(HNO_3)_i S$, where S is a molecule of the extract and i = 1,2,3,4. Uranyl nitrate, on the basis of spectroscopic data is extracted as a hydrated trinitrate ion. Plutonium is extracted as $[R_4N^+]_2 [Pu(NO_3)_5]^{2-}$.

1/1

ROZEN, A. M., NIKOLOTOVA, Z. I., KARTASHEVA, N. A., ZARUBIN, A. I., and
TETERIN, E. G.

"The Relationship Between the Extraction Power of Neutral Phosphorusorganic
Compounds and Their Structure. III. The Effect of Anions. Extraction of
Uranyl Chloride"

Abstract: Extraction of uranyl chloride was studied in a series of neutral
phosphorusorganic compounds from tributylphosphate (TBP) to trioctylphosphine
oxide (TOPO) in the temperature range 0-70°C. It was determined that
effective extraction constants are about 600 fold lower than those of uranyl
nitrate. This may be due to the fact that higher hydration of chloride ions
results in stronger forces keeping the uranyl chloride in aqueous phase; also
the chloride ion is bound much tighter to the uranium than nitrate ion. A
linear relationship was found between the logarithm of extraction constants
and structural characteristics of the extracting agents: total electronega-
tivity, Taft constants, Kabachnik constants, IR frequency, etc. Heat effects
of the extraction were measured and calculated from the temperature function
of concentration constants. The calculated effects do not correlate with
1/2

USSR

ROZEN, A. M., et al., Radiokhimiya, Vol 13, No 5, 1971, pp 700-704

structural characteristics and differ considerably from the directly measured
values. Concentration constants in this case are not suitable for the
calculation of heat effect.

2/2

- 16 -

Lasers / Masers

KARTASHEVA, N. N.

"Optimum Thresholds Of Detection Of Coherent Optical Radiation On A Background Of Thermal Noise"

Abstract: In an optical binary system optimum thresholds are determined with use of the criteria of an ideal observer, and the corresponding values of the total probability of error are calculated. 3 Fig. 3 ref. Received by editors, 14 June 1971.

1/1

1/2   023   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--RADIOISOTOPE RENOGRAPHY AS A METHOD OF DETERMINING THE RENAL
   FUNCTIONAL CONDITION IN SYSTEMIC LUPUS ERYTHEMATOSUS IN CHILDREN -U-
AUTHOR-(03)-KARTASHEVA, V.I., BURTSEV, V.I., FILATOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--PEDIATRIYA 49(2): 54-58. ILLUS. 1970

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOGRAPHY, PEDIATRICS, SKIN DISEASE, IODINE ISOTOPE, KIDNEY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0340   STEP NO--UR/0546/70/049/002/0054/0058

CIRC ACCESSION NO--AP0125033
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0135833
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   DATA OF RADIOISOTOPE RENOGRAPHY
WITH THE AID OF HIPPURAN I PRIME131 IN 30 PATIENTS WITH SYSTEMIC LUPUS
ERYTHEMATOSUS AT THE AGE OF 7 TO 17 YR WERE GIVEN. RADIOISOTOPE
RENOGRAPHY MAKES IT POSSIBLE TO REVEAL RENAL AFFECTION IN THE ABSENCE OF
PATHOLOGICAL CHANGES OF THE URINARY TRACT.   CHANGES IN A RENOGRAM ARE
NOT PATHOGNOMIC FOR LUPUS NEPHROPATHY AND ARE SUCH IN THE BILATERAL
INVOLVEMENT OF THE KIDNEYS.   FACILITY: I. M. SECHENOV 1ST MOSCOW
MED. INST., MOSCOW, USSR.

UNCLASSIFIED

"An Installation for Aging Photocells"

Abstract: An installation consisting of a specially designed integrating
photometer with twelve tubes and four incandescent light-measurement
bulbs is used for studying changes in sensitivity (overall and spectral)
of twelve photocells simultaneously. Uniform illumination of the cathodes
of all photocells is provided by using opal glass in the photometer ports
in front of the twelve tubes, and by lamps inside the ring shade for the
photometer ports. Photocell illumination by white light or in separate
regions of the spectrum is provided by a disc with several colors of light
filters and one empty aperture. One of the incandescent bulbs is for con-
stant illumination of the photocells during aging, and the other three
are used for periodic illumination in photocurrent measurements. Three
figures.
1/1

KARTASHKIN, A. S.

UDC 629.7.058.74.001

"Measuring the Angular Position of a Target by Scanning Radar against a Background of Correlated Noise," Yu. A. Nifontov, V. A. Kulikov, Trudy i Teshnika Radiolokatsii, III, (Radar Theory and Practice, III, Works of the Moscow Order of Lenin Aviation Institute imeni Sergo Ordzhonikidze), No 207, Mashinostroyeniye Press, 1970, pages 16-23

The problems of estimating the target azimuth against a background of correlated noise are solved. The potential accuracy of angle gauging is determined. A study is made of a quasioptimal algorithm for measuring the angular position of the target. The bibliography has 6 entries.

UDC 629.7.058.54.001

"Estimating the Direction-Finding Accuracy of a Scanning Radar Using the Markov Chain Apparatus," V. A. Kulikov, Y. A. Nifontov, A. S. Kartashkin, Trudy i Teshnika Radiolokatsii, III, (Radar Theory and Practice, III, Works of the Moscow Order of Lenin Aviation Institute imeni Sergo Ordzhonikidze), No 207, Mashinostroyeniye Press, 1970, pages 24-29

A method of calculating the estimate dispersion of the azimuth measured by a scanning radar is discussed. The azimuth is calculated by the maximum output voltage of the binary integrator using the "q out of n" criterion. In order to estimate the accuracy of direction-finding, the apparatus of discrete Markov chains is used. It is demonstrated that the transition probability matrix for the Markov chain in the given case will be a Jacobian matrix. Expressions are derived for calculating the matrix elements. The accuracy characteristic of the direction finding is calculated for a number of pulses in the packet n = 5 as an example. There is 1 illustration and a 7-entry bibliography.

KartASHKIN, A.S.   Radar

ESTIMATING THE DIRECTION FINDING
ACCURACY OF A SCANNING RADAR USING THE MARKOV CHAIN APPARATUS

V. A. Likharev, Candidate of Technical Sciences

The problem of the direction finding accuracy of a scanning radar in the presence of analog and digital processing, were the subjects of references [1, 2, 3, 4]. Here, the dispersion of the angular coordinate estimate was defined either in terms of the Cramer-Rao inequality, just as in references [2,3] or by the Monte Carlo method [1, 4] or by expansion of the signal function at the output of an adequate receiver in a Taylor series, just as in reference [5].

There are more deficiencies in the enumerated methods. Thus, for example, the Cramer-Rao inequality permits only the lower bound of the asymptotically effective and asymptotically correct estimate to be found. In practice, the sample size, as a rule, is limited. This leads to high cost in finding the dispersion of the parameter estimates by the Monte Carlo method with a large number of repetitions of the experiment, that is, large expenditures of machine time. In addition, the Monte Carlo method gives results only in numerical form. Expansion of the signal function in a Taylor series for two terms of the series only gives limited accuracy of the estimate.

Statement of the Problem

In this paper a study was made of a method of finding the dispersion of the angular coordinate estimate during digital processing of radar data based on using the apparatus of discrete Markov chains.

A pulse single-beam radar scans space with a constant angular velocity. In the presence of a point target in the scanning zone, a video pulse appears at the radar output. This packet is distorted by noise and fluctuations of the effective scattering cross section of the target. The total number of pulses in the packet is n. After time digitalization and binary quantization, of the output voltage of the radar, the series of 0's and 1's obtained enters

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USSR   UDC   621.396.932.1

LIKHAREV, V. A., FURMAN, Ya. A., KARTASHKIN, A. S.

"Using the Apparatus of Markov Chains to Evaluate the Accuracy of Direction Finding With a Search Radar"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 207, pp 23-28 (from RZh-Radiotekhnika, No 12, Dec 71, Abstract No 12G77)

Translation: A method is outlined for calculating variance in estimating the azimuth measured by a search radar. The azimuth is evaluated from the maximum output voltage of a binary integrator utilizing an "m out of n" criterion. The apparatus of discrete Markov chains is used to evaluate the accuracy of direction finding. It is shown that the matrix of transition probabilities for the given case is a Jacobi matrix. Expressions are presented for calculating the elements of the matrix. The accuracy characteristics of direction finding are calculated for the packet $n = 5$ as an example. One illustration, bibliography of 7 titles. Resumé.

1/1

1/2   030   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--DIGITAL RANGE FINDING AND MOVING TARGET SELECTION -U-

AUTHOR-(03)-LIKHAREV, V.A., KARTASHKIN, A.S., LEBEDEV, YE.K.

COUNTRY OF INFO--USSR

SOURCE--KIEV. IZVESTIYA VUZOV SSSR-RADIOELEKTRONIKA, VOL 13, NO 2, 1970,
    PP 192-204
DATE PUBLISHED-------70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--SIGNAL DETECTION, RADAR SIGNAL PROCESSING, RADAR RANGE
    FINDING, MOVING TARGET INDICATOR, RADAR RANGE TRACKING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0150   STEP NO--UR/0452/70/013/002/0192/0204

CIRC ACCESSION NO--AP0110116
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0110116
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS IS A REVIEW OF THE
BIBLIOGRAPHY DEALING WITH DIGITAL PROCESSING OF RADAR INFORMATION, WHICH
IS WIDELY USED FOR DETECTING SIGNALS IN BACKGROUND NOISE AND CLUTTER.
THE SUBJECTS CONSIDERED IN THIS REVIEW ARE DIGITAL MULTI CHANNEL
DETECTORS AND RANGE FINDERS, TRACKING RANGE FINDERS, DOPPLER FILTERS,
DEVICES FOR DETECTING SIGNALS OF MOVING TARGETS BY USING TRAJECTORY
ATTRIBUTES, AND DIGITAL DEVICES FOR INTRA PERIOD SUBTRACTION. RANGE
MEASUREMENT IS DISCUSSED FIRST. IN ANALOG RANGE MEASURE, INFORMATION IS
FIRST ACCUMULATED FOR ALL DISTANCES, AND THEN THE DELAY TIME IS
ESTIMATED; IN DIGITAL RANGE MEASURE, AN ANALOG DIGITAL TRANSFORMATION IS
MADE FIRST, THEN THE DELAY TIME IS MEASURED.   THE BLOCK DIAGRAMS OF
SEVERAL RANGE SYSTEMS ARE PRESENTED AND DISCUSSED. SIMILAR DIAGRAMS FOR
DIGITAL RANGE TRACKING SYSTEMS AND DIGITAL DEVICES FOR SELECTING MOVING
TARGETS ARE ALSO SHOWN AND EXPLAINED.

UNCLASSIFIED

USSR   UDC 621:396.96

LIKHAREV, V. A., KARTASHKIN, A. S., and LEBEDEV, Ye. K.

"Digital Range-Finding and Moving-Target Selection"

Kiev, Izvestiya VUZov SSSR-Radioelektronika, Vol 13, No 2, 1970, pp 192-204

Abstract: This is a review of the bibliography dealing with digital processing
of radar information, which is widely used for detecting signals in background
noise and clutter. The subjects considered in this review are digital multi-
channel detectors and range-finders, tracking range-finders, Doppler filters,
devices for detecting signals of moving targets by using trajectory attributes,
and digital devices for intra-period subtraction. Range measurement is dis-
cussed first. In analog range measure, information is first accumulated for
all distances, and then the delay time is estimated; in digital range measure,
an analog-digital transformation is made first, then the delay time is measured.
The block diagrams of several range systems are presented and discussed. Simi-
lar diagrams for digital range-tracking systems and digital devices for select-
ing moving targets are also shown and explained. Thirty-five references are
listed in the bibliography at the end of this article.

1/1

USSR   UDC 621.791.001.5:669.14+669.291:541.124/128

SIVOV, Ye. N., and KARTASHKIN, B. A., Candidates of Engineering Sciences,
Moscow Institute of Aviation Technology

"Interaction of Molten Steel With Solid Niobium and the Formation of the
Intermetallic Layers"

Abstract: Tests were conducted into the reaction processes occurring when
steel and niobium are welded. Welding was done using an electron-beam unit
at a vacuum of 5×10^{-5} mm Hg with the beam focused on the niobium base
(VN-2AE niobium alloy), 0.5 mm thick, and a weighed portion of Kh18N10T
steel (approximately 0.4 g). It was established that the basic processes
involved in welding steel with niobium is the wetting of the niobium with
the molten steel and the dissolving and subsequent diffusion of niobium
into the steel. Temperature and length of contact of the molten metal with
the solid metal are the determining factors of these processes. It was
shown that the formation of intermetallic layers leads to a significant
lowering of the mechanical properties of niobium+steel joints. For a layer
thickness of 2-3 microns the weld joint strength is reduced from 55 to
37 kgf/mm^2. The established principles make it possible to evaluate the

1/2

USSR

SIVOV, Ye. N., and KARTASHKIN, B. A., Svarochnoye Proizvodstvo, No 1,
Jan 73, pp 6-8

probability of intermetallic layer formation both during welding and during
performance of the weld seam at high temperatures. A method of calculating
intermetallic layer thickness has been developed in relation to the process
temperature and time of solid and liquid phase contact. Seven figures, 1
table, 5 bibliographic references.

2/2

UDC 621.79

USSR

KARTASHKIN, B. A., CHADOV, A. N., and SHORSHOROV, M. KH, Moscow

"Mechanism and Kinetics of Bond Formation When Applying Coatings by Evaporation and Condensation of Metals in a Vacuum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 45-53

Abstract: An investigation is made of the mechanism and kinetics of formation of a strong bond between a coating and substrate and of the evaporation and condensation of metals in a vacuum based on an analysis of the dependence of the coating's adhesive strength with respect to the substrate on the substrate temperature and degree of activation of the flux of condensing atoms.

For the transition from physical adsorption to the stage of chemical interaction, a certain activation energy is required. This energy is connected with having the atoms overcome the energy barrier on the surface of the solid state. Numerous experimental investigations at the Institute of Metallurgy imeni Baykov of the USSR Academy of Sciences have demonstrated that this energy can be communicated to the system not only by activating the substrate surface by heating, ion pickling, deformation, etc., but also by increasing the kinetic and potential (excitation and ionization) energy of the condensed atoms. Thus, an investigation is made of the mechanism of interaction of the vapor flux atoms on collision with the substrate

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USSR

KARTASHKIN, B. A., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-June 70,
pp 45-53

surface.

The bond formation process is described mathematically. The following mechanism is considered: out of the number of atoms Y incident on the substrate surface in the time t, X_1 form a strong chemical bond if collision occurs directly with the atoms of active sections of the surface. The remaining atoms in the amount Y_1 the collision of which with the surface took place in other sections of the surface, enter into a physical bond, expending part of their energy on desorption of the gas atoms or other contamination. Part of the atoms X_2 from the total number Y_1 succeed in forming a chemical bond during their active life, and the other part remains in the state of physical interaction with the surface atoms, and their energy relaxes to the mean energy level of the substrate atoms. Finally, some number of atoms X_3 out of the number Y_2 form chemical bonds as a result of fluctuation processes during subsequent application of the coating. All of the processes take place in series or parallel with respect to time at certain rates V_1, V_2, V_3, V_4, V_5, which require interpretation as the number of condensed atoms forming strong chemical bonds with the substrate surface per unit time. It is proposed that the bonding strength of the coating with the substrate is determined by the number of atoms entering into strong chemical bond per unit area of the substrate surface.

2/4

USSR

KARTASHKIN, B. A., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-June 70, pp 45-53

Under these assumptions processes 1 and 2 end at the time of formation of a continuous condensate layer on the substrate, and process 3 ends on completion of the process of application of the coating of defined thickness.
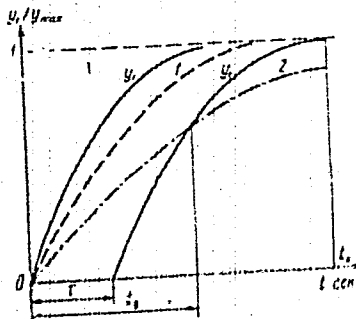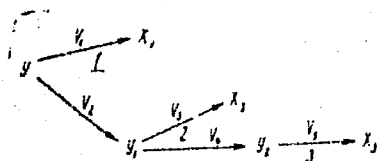
Preliminary estimates show that the essential contribution to the total bonding strength can be made by process 1 only if its activation energy is on the order of 10 cal/mol. This low energy of activation of formation of chemical bonds has

3/4

USSR

KARTASHKIN, B. A., Et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-June 70, pp 45-53

low probability in the investigated processes; therefore, there are sufficient grounds to consider that mechanism 2 is the basic mechanism in the formation of a strong bond.

On the basis of an analysis of the mechanism of interaction of the flux of condensing atoms with the substrate surface a model is proposed and the kinetic equation of the process of formation of a strong bond between the coating and the substrate is derived. The derived equation and specially stated experiments permitted determination of the energy activation of this process as a function of the parameters of application of the coating. The energy of activation for all interacting pairs is close to half the energy of sublimation. This agrees well with the data of reference [3]. The energy (kinetic and potential) of the condensing atom flux has a significant effect on the process kinetics. The proposed procedure permits approximate calculation of the parameters for application of the coatings. The energy of activation of formation of a strong bond between the coating and substrate is tabulated for various evaporation procedures.

4/4

UDC 621.762.002.5(088.8)

USSR

BATRAKOV, P. D., BULANOV, A. A., BRIK, A. G., and KARTASHOV, A. I.

"Device for Mixing Viscous and Powdered Materials"

USSR Author's Certificate No. 266195, Filed 17/01/66, Published 24/07/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract
No. 2 G471 P)

Translation: The device contains rotating shafts contacting cylindrical
surfaces with cleaning scrubbers, mounted on a common support. In order
to increase the product quality by repeated mixing, both shafts are
connected to a cylindrical rotating drum with blades on the outside of
the drum, articulated at the ends of the drum and connected by levers
with rollers in a shaped slot in an end feeler installed on the support.
The upper portion of the device carries a scraper in order to clean the
blades of material accumulating on them, while the feeler is made in
this area so that the entire working surface of the blade contacts the
edge of the scrubber as it moves.

1/1

1/2   006   UNCLASSIFIED   ⁄ PROCESSING DATE--09OCT70
TITLE--INFLUENCE OF SOLUBLE NITROGEN COMPOUNDS ON THE PURIFICATION AND
    SUGAR LEVEL IN MOLASSES -U-
AUTHOR-(05)-GOLUBEVA, A.D., KARTASHOV, A.K., LIMANSKAYA, A.YA., DOTSENKO,
    L.D., VERCHENKO, L.M.
COUNTRY OF INFO--USSR

SOURCE--SAKH. PROM. 1970, 44(2), 27-31

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NITROGEN COMPOUND, FOOD PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0946   STEP NO--UR/0339/70/044/002/0027/0031

CIRC ACCESSION NO--AP0109103
                      UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0109103
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DECREASED TECH. EFFICIENCY OF
SUGAR BEET FACTORIES IN 1964-8 AS COMPARED WITH 1956-7 IS DUE TO THE
POOR TECH. QUALITY OF SUGAR BEETS WHICH CONTAIN 70-5, 30-70, AND
400-600PERCENT OF THE NORMAL LEVELS OF K, P, AND N, RESP.

UNCLASSIFIED

USSR   UDC 53:51

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

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

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

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USSR

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

2/2

USSR

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

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

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

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

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

1/1

USSR   UDC: 8.74

SIRODZHA, I. B., SALYGA, V. I., MYSHKO, Ye. I., VASILENKO, Yu. A., KARTA-
SHOV, L. N., PRYANITSKIY, A. M., KUZ'MINA, O. I.

"Modeling the Process of Teaching Pattern Recognition by the Method of
R-Functions With the Use of a Digital Computer"

Probl. bioniki. Resp. mezhved. temat. nauch.-tekhn. sb. (Problems of
Bionics. Republic Interdepartmental Thematic Scientific and Technical
Collection), 1971, vyp. 7, pp 106-112 (from RZh-Kibernetika, No 4, Apr
72, Abstract No 4V582)

Translation: The paper deals with a mathematical model of instruction
whose basis is a developed learning algorithm of pattern recognition
distinguished by the use of a fundamentally new procedure of predicative
description of arbitrary geometric forms in multidimensional spaces with
the aid of R-functions. Authors' abstract.

1/1

Radiobiology

KARTASHOV, P. A., All Union Institute of Experimental Veterinary Medicine

"Immunogenesis in Irradiated Animals"

Abstract: Immunity was studied in sheep immunized 1 week, 1, 3, and 6 to 12 months after whole-body irradiation with lethal doses. Polyvalent sheep paratyphoid vaccine was used as the antigen and the animals received a radioprotective agent prior to exposure. Specific antibodies were found in animals vaccinated a week after irradiation, but immunity was weaker than in nonirradiated animals. In sheep vaccinated a month after irradiation, antibody formation started at the same times as in controls. In the production phase, antibodies were formed slowly after the first vaccination but rapidly after the second. Immunity was the same as in controls. In sheep vaccinated after 3 months, antibody formation started at the same time as in controls, but in the production phase the rate of increase was slower and 30 days after vaccination, the agglutinin titer in irradiated animals was half that in controls. In animals vaccinated 6 to 12 months after irradiation with 400 to 600 r (with prior injection of a radioprotective agent) or 540 r fractionally without the radioprotective agent (the dose was not lethal), anitbody pro-
1/2

USSR

KARTASHOV, P. A., Veterinariya, No 4, 1971, pp 46-47

duction started the same time as in controls, but the rate was slower in
the production phase.

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USSR   UDC 616-011.28+636.32.38

KARTASHOV, P. A., Candidate of Veterinary Sciences, All Union Institute of
Experimental Veterinary Medicine

"Radiation Sickness in Sheep"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 6, 1970, pp 74-78

Abstract: Exposure of sheep to gamma-ray radiation (300 to 600 r) or X-ray radia-
tion (1,200 r) caused acute radiation sickness and death (except in some of the
animals receiving 300 or 350 r of Co^{60} gamma-rays or 1,200 r of X-rays). The
clinical course of the ensuing radiation sickness was divided into four distinct
periods: primary reaction, apparent well-being, height of the sickness, and conclud-
ing stage, all with characteristic symptoms. In the absence of dosimetric data,
the symptoms are useful in assessing the severity of the sickness and the suitabil-
ity of the animal's meat for human consumption. The most reliable early indicator
of severe radiation sickness is digestive disturbances and diarrhea which appear
within 18 to 24 hours after irradiation. Such animals should be slaughtered before
the temperature rises. Body temperature is another diagnostic criterion. If below
$40^{\circ}C$, the meat is still edible. Biochemical indices (e.g., cholinesterase activity
and content of formed elements in the blood) are of value in predicting the outcome
of radiation sickness. Still another factor characterizing the severity of the
disease is the blood picture.
1/1

USSR

UDC 621.317.7.083.4

KARTASHOV, R. P., P'YANYKH, B. Ye., GOLUBEV, V. V.

"Magnetic Current Null-Balance Device"

USSR Author's Certificate No 284035, Filed 4/01/70, Published 22/01/71, (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychis- litel'naya Tekhnika, No 11, 1971, Abstract No 11 A134 P from the Resume).

Translation: A magnetic current null-balance device is suggested which contains an unbalanced trigger and a transformer based on a core with a rectangular hysteresis loop, with windings displacing the measured signal and output windings. In order to increase the sensitivity, the output windings of the transformer are connected to the input of the unbalanced trigger, the outputs of which are connected to the bias windings. 3 Figures.

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Converters

USSR   UDC: 621.314.26

KARTASHOV, R. P.

"Effectiveness of Processes of Frequency Conversion"

V sb. Ustroystva preobrazovat. tekhn. (Devices in Conversion Technology--
collection of works), vyp. 4, Kiev, 1970, pp 28-34 (from RZh-Radiotekhnika,
No 6, Jun 71, Abstract No 6D22)

Translation: Criteria are introduced for evaluating the effectiveness of
frequency conversion on the basis of representation of the conversion
process as a process of periodic modulation of primary voltages with sub-
sequent isolation of the variable frequency or frequency spectrum by some
conventional method. Expressions are derived for the coefficients of ef-
fectiveness which characterize both the quantitative and qualitative aspects
of the process. Bibliography of four titles. N. S.

1/1

Acc. Nr.
ÎP0041508   Abstracting Service: Ref. Code
CHEMICAL ABST.   *41/70*   *4R 0366*

KARTASHOV V.R.

89690g Electrophilic halogenation of olefins. IV. Anomalous chlorination of β-methallyl alcohol ethers. Bodrikov, I. V.; Smolyan, Z. S.; Mamakina, Z. P.; Kartashov, V. R. (Gor'k. Politekh. Inst., Gorki, USSR). Zh. Org. Khim. 1970, 6(1), 5-8 (Russ). The chlorination of $ROCH_2CMe:CH_2$ (I) (R is Me, Et, or iso-Pr) gives a mixt. of $ROCH_2C(.CH_2)CH_2Cl$ (II), $ROCHClCMeClCH_2Cl$ (III), and a small amt. of $OCH-CMeClCH_2Cl$ (IV). The products from I were identified by the prepn. of II from $H_2C:C(CH_2Cl)CH_2Br$ and RONa and the degradation of III with $CaCO_3$ to IV. The formation of II and III proceeds through the intermediate ion $ROCH_2C^+MeCH_2Cl$, which loses H^+ preferentially from the Me group giving II as the major product.   CPJR

REEL/FRAME

19751376

Acc. Nr: Abstracting Service: Ref. Code:
ЛP0041505   CHEMICAL ABST.

89561r Molecular rearrangements during addition to un-saturated compounds. V. Intramolecular rearrangement during the halogenation of 3-methyl-1-buten-3-ol. Kartashov, V. R.; Krom, E. N.; Bodrikov, I. V. (Gor'k. Politekh. Inst., Gorki, USSR). Zh. Org. Khim. 1970, 6(1), 15-19 (Russ). The reaction of H_2C:CHCMe$_2$OH with tert-BuOCl in MeOH at 0-5° gave 8.5% ClCH$_2$CHMeCOMe, 2.5% 2-chloromethyl-3,3-dimethyloxirane (I), and 73.5 mixt. of 1:10 ClCH$_2$CH(OMe)-CMe$_2$OH (II)–MeOCH$_2$CHClCMe$_2$OH (III). The structure of I was proven by dehydrochlorinating ClCH$_2$CHClCMe$_2$OH with KOH. The action of KOH on II and III gave, resp., 2-methoxy-

$$ClCH_2 \overset{Me}{\underset{O}{\diagdown\diagup}} Me \quad (I)$$
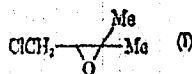
3-methyloxetane or 2-methoxymethyl-3,3-dimethyloxirane. In AcOH soln., 1:1 II–III product ratio is obtained. The formation of anti-Markovnikov product II depends on the electrophilic activity of the entering group and thus changes with the solvent polarity.   CPJR

REEL/FRAME
19751373

USSR   UDC 669.15'26'74-194:620.186

KARTASHOVA, L. I., BANNYKH, O. A., and ZURIN, L. F., Institute of Metallurgy imeni A. A. Bavkov

"Structure and Properties of Kh12G14 Steels With Nickel and Aluminum"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No. 2, 1971, pp 37-40

Abstract: This work presents a study of the influence of combined alloying with nickel and aluminum on the structure and mechanical properties of type-Kh12G14 low-carbon Cr-Mn steel. Four groups of alloys were studied, each characterized by a constant nickel content (0, 1.5, 3.0, and 4.7%) and 0.5-3.0% aluminum, plus 0.048-0.068% C; 12-13.8% Cr; 12.6-14% Mn; 0.5-0.62% Si; 0.012-0.017% S; 0.01-0.018% P; 0.01% Ce; 0.005% B. The solubility of aluminum in the austenite increases with decreasing hardening temperature from 1250 to 1100°C and depends on the nickel content. Increasing the nickel content to 4.7% increases the limiting concentration of aluminum by more than two times. The compositions studied showed high plasticity and ductility. These properties were retained after holding at 630°C for 1000 hours. Work hardening decreases with increasing nickel content and aluminum content. The yield point of the steels depends on δ-ferrite content, varying between 21 and 40 kg/mm^2.

1/1

110970k   Reactions of peroxides catalyzed by Lewis acids.
IV.   Reaction of perbenzoylcyclohexyl carbonate with aluminum
chloride.   Kartashova, N. A. (USSR).   Zh. Org. Khim. 1970,
6(2), 262-5 (Russ).   In the decompn. of BzOOCO$_2$R (R is cyclo-
hexyl) in PhMe contg. AlCl$_3$ the main reaction products are
CO$_2$, HCl, BzOH (formed from PhCO$_2$AlCl$_3$ during workup),
tolyl benzoate isomers, tolylcyclohexane, and PhOH.   The
formation of these products is explained on the basis of complex
BzOOCO(---AlCl$_4$)R (I) formation.   The internal rearrange-
ment of I gives (PhOCO)$^+$ and AlCl$_3$---OCOR)$^-$ which react
further.   PhMe reacts with I giving tolyl benzoates.   CPJR

7

K

110968r Reaction of perbenzoyl cyclohexyl carbonate with aluminum chloride. Kartashova, N. A. (USSR). Zh. Org. Khim. 1970, 6(2), 395-6 (Russ). The reaction between perbenzoyl cyclohexyl carbonate (I) and $AlCl_3$ at $\sim0°$ gave CO_2, HCl, $PhCO_2H$, $PhCO_2Ph$, chlorocyclohexane, and 1,2-dichlorocyclohexane. The reaction proceeds through a cyclic $I.AlCl_3$

$\langle\ \rangle$—OC(O)OOBz   (I)
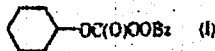
complex, which initially decomp. to CO_2, cyclohexyl hypochlorite, and $PhCO_2AlCl_2$.   CPJR

AJ

7

USSR

UDC 669.018.58:621.789

VLASKINA, K. I., KARTASHOVA, N. F., and POVOLOTSKIY, YE. G.

"Heat Treatment of Ticonal Alloys"

Abstract: This article contains the results of investigating the heat treatment and properties of crystal-isotropic ticonal alloys with 41-42% Co and a variable content of other components (nickel, aluminum, titanium, and copper). The magnetic properties of the alloys and their coercive force reach limiting values after isothermal thermomagnetic processing.

The thermal behavior of the permeability, coercive force, residual induction, and maximum magnetic energy were studied. The structure of the alloys was investigated by optical and electron microscopes.

The temperatures of existence of a homogeneous β_2-phase and the optimal hardening temperatures of all 22 alloys investigated are tabulated. Figures are presented showing the magnetic properties of certain alloys as a function of the isothermal treatment temperature.

It is concluded that in selecting the optimal hardening temperature of ticonal alloys, it is necessary to consider obtaining a homogeneous β_2-solid solution free

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USSR

VLASHINA, K. I., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1970, pp 29-32

of separations of the high-temperature α-phase and the intergrain "superheating structure" during heating. The isothermal treatment temperature (with a field or without it) must correspond to the beginning of intense development of the disperse β-decomposition. Here, the optimal temperature of isothermal treatment depends on the chemical Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1970, pp 29-32 composition of the alloy, especially on the titanium and copper content. In the investigated ticonal alloys, no Curie point was detected in the single-phase state preceding disperse $\beta_2 \rightarrow \beta + \beta_2$-decomposition; therefore, the effectiveness of heat treatment of these alloys must be considered the result of the effect of the applied magnetic field on β-decomposition, simultaneously converting the alloys to the ferromagnetic state. The alloy containing 42% Co, 14% Ni, 8% Al, 6.5% Ti, 3% Cu, and the rest iron in the crystal-isotropic state has a maximum magnetic energy of $6.24 \cdot 10^6$ gram-force·oersteds after isothermal heat treatment with a coercive force of $_I H c = 1,810$ oersteds ($_B H c = 1,680$ oersteds).

2/2

USSR

BURKOV, V. N., KARTASHOVA, O. Ye., KATSNEL'SON, M. G., NURKHAYDAROV, B. Kh.

"Problem of Control of Consumption of Finished Products and Algorithm for its Solution"

Izv. AN KazSSR. Ser. fiz.-mat. [News of Academy of Sciences, KazSSR, Physics-Mathematics Series], 1973, No 1, pp 7-13 (Translated from Referativnyy Zhurnal - Kibernetika, No 8 V568 by the authors)

Translation: The problem is studied of operative planning of consumption of finished products at enterprises with limited intermediate capacities. The problem is reduced to the transport problem with limitations on through-put capacity of communications lines. An algorithm is suggested for its solution, considering the greatly extended nature of the matrix of expenditures.

1/1

BORISOVA, L. N., KUCHEROVA, N. F., KARTASHOVA, T. A., and ZAGOREVSKIY, V. A.,
Institute of Pharmacology, Academy of Medical Sciences USSR, Moscow

"Indole Derivatives. 39. Fischer Cyclization of 3-Methylpiperidone-4-aryl-
hydrazones"

Abstract: Previous investigations have shown that Fischer cyclization of 3-
substituted N-methylpiperidone-4-arylhydrazones follows an unusual course and
results in the formation of 1,2,3,4-tetrahydropyrimido[3,4-a]indoles. The
present study was initiated to determine the products formed by the condensa-
tion of 3-methylpiperidone-4 with arylhydrazines (containing -H, -CH$_3$, -OCH$_3$,
or -COOC$_2$H$_5$ in the para position) in alcoholic HCl. On the basis of UV, IR,
and PMR spectra the four products of the reactions were characterized as
5-methyl-1,2,3,4-tetrahydropyrimido[3,4-a]indole (I), 5,7-dimethyl-1,2,3,4-
tetrahydropyrimido[3,4-a]indole (II), 5-methyl-7-methoxy-1,2,3,4-tetrahydro-
pyrimido[3,4-a]indole (III), and 5-methyl-7-carbethoxy-1,2,3,4-tetrahydropyri-
mido[3,4-a]indole (IV). The structure of II was further confirmed through its
conversion into 2,5,7-trimethyl-1,2,3,4-tetrahydropyrimido[3,4-a]indole via the
intermediate 2-formyl-5,7-dimethyl-1,2,3,4-tetrahydropyrimido[3,4-a]indole.
Furthermore, I, II, III, and IV may be dehydrogenated over palladium black to
1/2

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USSR

BORISOVA, L. N., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 645-647

5-methylpyrimido[3,4-a]indole and 5,7-dimethylpyrimido[3,4-a]indole, i.e., forming a new heterocyclic system of pyrimido[3,4-a]indoles.

2/2

1/2   018

UNCLASSIFIED

TITLE--PLANNING AN EXPERIMENT USING COMPOSITION PROPERTY DIAGRAMS -U-

PROCESSING DATE--27NOV70

AUTHOR-(04)-SEREDA, E.A., KARTASHOVA, T.M., BELYAKOVA, L.K., GUZEYEV, V.V.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 55-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, POLYVINYL CHLORIDE, SYNTHETIC
RUBBER, GRAPHIC TECHNIQUE, ORGANOLEAD COMPOUND, CHEMICAL STABILIZER,
PHOSPHATE ESTER/(U)SKN26 RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1693

STEP NO--UR/0191/70/000/002/0055/0057

CIRC ACCESSION NO--AP0112687

UNCLASSIFIED

CIRC ACCESSION NO--AP0112687   UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE USE OF THE SIMPLEX METHOD FOR

PROCESSING DATE--27NOV70

THE STUDY OF PHYS. PROPERTIES OF A TERNARY PLASTIC SYSTEM AS A FUNCTION
OF COMPN. WAS DISCUSSED.   THE EXPTS. WERE CONDUCTED WITH A SYSTEM
COMPOSED OF S-70 POLY(VINYL CHLORIDE), SKN-26 RUBBER, TRICRESYL
PHOSPHATE, AND A MIXT. OF STABILIZERS (2PBCO SUB3.PB(OH) SUB2 AND
TRIS(NONYLPHENYL) PHOSPHITE).   SEVERAL QUADRATIC EQUATIONS, WHICH
EXPRESSED THE PHYS. PROPERTIES OF PLASTICS AS A FUNCTION OF COMPN., WERE
DERIVED AND THE DATA WERE PLOTTED ON A TRIANGULAR DIAGRAM.   THE ANAL.
METHOD CUT THE NO. OF EXPTS. BY GREATER THAN TWO THIRD AND THE CALCD.
CURVES MATCHED THE EXPTL. ONES FAIRLY WELL.

UNCLASSIFIED

USSR

UDC 619:576.851.21-809.31

KARTASHOVA, V. M., All-Union Scientific Research Institute of Veterinary Sanitation

"A New Elective Medium for Isolating Pathogenic Streptococci"

Moscow, Veterinariya, No 1, 1972, pp 106-107

Abstract: The elective nutrient medium proposed for isolating pathogenic Streptococci from the milk of healthy cows and cows with mastitis has the following composition: meat-peptone broth 1000 ml, lactose 5 g, bromcresol purple (alcohol-water solution 1:100) 2 ml, cattle serum 100 ml, and neomycin 50 units per ml of medium. Lactose and the bromcresol indicator are added to 1000 ml of meat-peptone broth at pH 7.4 to 7.6. The mixture is thoroughly stirred and then placed in a cold water bath and heated for 8 to 10 min. Serum and neomycin are added after the mixture has cooled to 50 to 56°C. Medium (violet-blue color) is then poured into a series of test tubes in amounts of 4.5 to 5 ml. Samples of milk or of its centrifugates (0.1 to 0.2 ml) are inoculated into the test tubes which are placed in an incubator at 37°C for 24 hours, when the reaction is checked. A change of color to lemon or lemon-green is indicative of growth of Streptococci. This medium proved to be highly elective for foreign microflora and quite sensitive to 1/2

USSR

KARTASHOVA, V. M., Veterinariya, No 1, 1972, pp 106-107

pathogenic Streptococci of the A, B, C, D, E, L, and P serological groups.
Staphylococci, E. coli, spore bacteria, and so forth did not grow on it.

2/2

USSR   UDC: 581.2

RUBIN, B.A., GUZHOVA, N.V., KARTASHOVA, YE. R., ANDREYCHUK, T.V., and MATVEYEVA, YE.S., Moscow State University Imeni M.V. Lomonosov.

"Oxidative Apparatus of the Agent of Cotton Wilt (Fusarium Oxysporum Vasinfectum) of Different Pathogenicity"

Abstract: Concurrent experiments and analytical observations on two strains of Fusarium oxysporum vasinfectum, the virulent FV-15 strain, and the avirulent FA-61 strain, show that the catalytic and cytochrome oxidase processes in mycelia of these fungi are localized in the structural elements in a manner similar to that in higher plants. But the intensity of any particular function or enzymatic activity in the two strains is not alike. Both catalysis and cytochrome oxidase activity in FV-15 are much higher than in FA-61. The content of protohematin correlates with the activity of porphyrin enzymes: these are higher in FV-15, indicating a much higher intensity in the porphyrin-mycelium exchange. Generally, the differences, concerning all phases of oxidative and metabolic processes, have a definite influence on the pathogenicity of the fungus. The degree of pathogenicity is correlated positively with the intensity of metabolic activity.

1/1

USSR   UDC: 519.2

KARTAVTSEV, S. R.

"Laws of Distribution of Random Quantities"

Uch. zap. Kursk. gos. ped. in-t (Scientific Notes. Kursk State Pedagogical
Institute), 1971, 61, pp 108-127 (from RZh-Kibernetika, No 1, Jan 72,
Abstract No 1V15)

[No abstract]

ZORKIN, A. F., KARTAVTSEVA, L. F.

"Dispersion Properties of a Rectangular Wave Guide with Partial Ferrite Filling"

Translation: Approximate formulas are obtained for the critical frequencies,
dispersion and fields of the fundamental and closest to fundamental types of
waves of the system. There are 4 illustrations and a 2-entry bibliography.

1/1

USSR   UDC 621.373.531.2(088.8)

KAMENSKIY, I. V., KARTAVYKH, YU. V.

"Blocking Generator"

USSR Author's Certificate No 277835, Filed 8 Feb 69, Published 20 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G228P)

Translation: A blocking generator is proposed. It contains a transformer, an auxiliary transistor in the start circuit, a commuting transistor, and a series impact excitation circuit. In order to stabilize the pulse length, the circuit is connected via a separating semiconductor diode to the collector of the blocking generator transistor, and the base of the commuting transistor the collector of which is connected to the base of the blocking generator transistor, is connected to the midpoint of the impact excitation circuit.

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USSR

KARTAZHEV, I.A., LAVRINENKO, V.V.

"Miniature Piezotransformer For Power-Supply Networks Of Integrated Circuits"

Translation: The problems are considered of creating miniature piezotransformers at frequencies of 10 kHz--1 MHz. An analysis is presented of possible variations of the construction of micropiezotransformers and the results are given of tests of prototypes. On the basis of the results obtained, conclusions are drawn concerning the prospects for construction of low-power miniature piezotransformers. 5 ill. 3 ref. Summary.

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1/2   026   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--EFFECT OF SYNTHETIC FATTY ACID COMPOSITION ON THE PROPERTIES AND
   STRUCTURE OF LITHIUM LUBRICANTS -U-
AUTHOR-(04)-GUSAROVA, M.S., VAYNSHTOK, V.V., KARAKASH, S.I., KARTININ,
   B.N.
COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (3), 12-14

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FATTY ACID, ORGANOLITHIUM COMPOUND, GREASE, FLUID VISCOSITY,
   UREA, CHEMICAL STABILITY/(U)AU SPINDLE OIL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1517   STEP NO--UR/0318/70/000/003/0012/0014

CIRC ACCESSION NO--AP0113504
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0118504

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   SUBSTITUTION OF LI SOAPS OF THE N-
AND ISOALKANOIC ACIDS IN A C SUB17-20 FATTY ACID FRACTION FOR LI SOAPS
OF THE ORIGINAL FRACTION IMPROVED AND WORSENED, RESP., THE CONSISTENCY
OF LUBRICANTS PREPD. BY DISPERSING 9PERCENT OF THE SOAP IN AU SPINDLE
OIL AS INDICATED IN THEIR RESP. DROP POINTS, 200 AND 130DEGREES;
COLLOIDAL STABILITIES, 10.4 AND 13PERCENT; YIELD STRENGTHS, 14, 21.6,
55.6 AND 2.1, 7.8, 32.3 AT 50, 0, AND MINUS 40DEGREES; AND EFFECTIVE
VISCOSITIES, 8.2, 37.6, 110, 122, 626, 1500 AND 4, 17.2, 46.6, 79, 234,
218 P AT 1260, 50, AND 10 SEC PRIME NEGATIVE1 AT 0DEGREES AND AT THE
SAME SHEAR VALUES AT MINUS 40DEGREES, RESP.   WHEN THE ISOALKANOIC ACIDS
WERE SEPD. BY EXTN. WITH SELECTIVE SOLVENTS RATHER THAN BY COMPLEX
FORMATION WITH UREA, REMOVAL OF UNSAPONIFIABLE COMPDS. ALSO IMPROVED
LUBRICANT QUALITY AND STABILITY. REMOVAL OF THE DICARBOXYLIC AICDS
PRESENT (2.8PERCENT) IN A C SUB10-16 FATTY ACID FRACTION BEFORE PREPN.
OF THE LI SOAPS AFFECTED THE LUBRICANT PROPERTIES VERY LITTLE.   LI
SOAPS PREPD. FROM THE FORMER DISPERSED TOO POORLY FOR LUBRICANT PREPN.
FAICLITY: MIN-KHGP IM. GUBKINA, MOSCOW, USSR.

UNCLASSIFIED

TITLE--STABILITY OF FIELD ELECTRON EMISSION, AND MIGRATION PROCESSES
  PRECEDING THE DEVELOPMENT OF A VACUUM ARC -U-
AUTHOR-(02)-FURSEY, G.N., KARTSEV, G.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(2), 310-19

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--FIELD EMISSION, FIELD EMISSION MICROSCOPE, ELECTRON BEAM
  STABILITY, VACUUM ARC, ELECTRODE PROPERTY, CURRENT DENSITY, HIGH PURITY
  METAL, IMPURITY LEVEL, TUNGSTEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0762   STEP NO--UR/0057/70/040/002/0310/0319

CIRC ACCESSION NO--AP0101137
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0101137

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IMPURITY MIGRATION PROCESS
WHICH LEADS TO A CHANGE IN THE GEOMETRY OF A CATHODE SURFACE AND
SUBSEQUENTLY TO A VACUUM ARC AND THE STABILITY OF FIELD EMISSION WERE
STUDIED BY USING THE MUELLER FIELD EMISSION MICROSCOPE. THE CHANGE IN
THE SURFACE OF THE W ELECTRODE WAS STUDIED AS A FUNCTION OF TIEM, TEMP.
(FROM ROOM TEMP. TO 2000DEGREESK), RESIDUAL GAS PRESSURE (SMALLER THAN
OR EQUAL TO 5 TIMES 10 PRIME NEGATIVE5 MM HG), ELEC. FIELD STRENGTH, AND
POWER GENERATED BY THE ELECTRON AT THE ANODE. THE INTENSITY OF THE
APPEARANCE OF THE MIGRATION NONUNIFORMITIES ON THE CATHODE DEPENDS ON
THE RESIDUAL GAS PRESSURE, THE INITIAL PURITY OF THE CATHODE SURFACE,
AND THE POWER OF THE ELCTRON BEAM PRECEDING THE VACUUM ARC FORMATION
STAGE. ALL OTHER CONDITIONS BEING EQUAL, THE ELEC. STABILITY OF THE
VACUUM SPACE DEPENDS ON THE PURITY OF THE CATHODE SURFACE. THE EMISSION
IMAGES TAKEN AT 10 SEC DURATION AND 10 PRIME NEGATIVE7 TORR SHOW THAT AT
300DEGREESK THE INITIALLY PURE CATHODE SURFACE IS COVERED WITH IMPURITY
IONS. AT 1000DEGREESK THE EMISSION IMAGE IS UNIFORM, EXCEPT AT THE
EDGES OF THE CUBE. AT 1400 AND 1650DEGREESK, THE SURFACE REMAINS
UNIFORM (CLEAN) DURING THE ENTIRE PULSE DURATION. THE PRESENCE OF
ADSORBED IMPURITIES AND THEIR MIGRATION ON THE CATHODE SURFACE LEADS TO
THE INSTABILITY OF THE EMITTER. WITH A PURE CATHODE SURFACE, THE CRIT.
C.D. IS DETD. BY THE HEAT EXCHANGE CONDITIONS. AT 10 PRIME NEGATIVE9
AND 10 PRIME NEGATIVE5 TORR, THE CRIT. C.D. IS SIMILAR TO 10 PRIME7 A-CM
PRIME2. .

UNCLASSIFIED

3/3   039   UNCLASSIFIED   PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0101137
ABSTRACT/EXTRACT--AN INCREASE IN TEMP. TO LARGER THAN 1650DEGREESK LEADS
  TO THE DESORPTION OF IMPURITIES AND PERMITS ONE TO OBTAIN A FIELD
  ELECTRON CURRENT CLOSE TO THE CRIT.   FACILITY: LENINGRAD, GOS.
  UNIV., LENINGRAD, USSR.

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Sciences USSR and Moscow Institute of Fine Chemical Technology imeni
M. V. Lomonosova

"Dielectric Study of the Interaction of Silicon, Germanium, and Tin Tetra-
chlorides With n-Tributylorthophosphate"

Abstract: The title study was carried out in order to establish the thermody-
namic properties and structures formed during the reaction of these tetrachlo-
rides with tributylorthophosphate (TBP) by a dielectrometric titration. No
significant reaction was observed in the $SiCl_4$-TBP and $GeCl_4$-TBP systems. In
the $SnCl_4$-TBP, stepwise molecular complexes were formed having ratios of
reactants of 1:1 and 1:2. Equilibrium concentrations were calculated by com-
puter for the complex-forming reactions between $SnCl_4$ and TBP. From these
equilibrium constants were determined. The dipole moments were measured for the
complexes and related to the specific conformation of the complex.

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