

1/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--EFFECT OF DIFFUSION ON THE COURSE OF CATALYTIC REACTIONS IN A
CHROMATOGRAPHIC SYSTEM -U-

AUTHOR--(03)-BERMAN, A.D., YANOVSKIY, M.I., ROGINSKIY, S.Z.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 864-7 (PHYS CHEM)

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYSIS, CHROMATOGRAPHY, DIFFUSION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1579

STEP NO--UR/0020/70/190/004/0864/0867

CIRC ACCESSION NO--AT0116987

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0116987

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EFFECT OF DIFFUSION ON CATALYTIC REACTIONS IN A CHROMATOGRAPHIC SYSTEM IS DISCUSSED CONSIDERING AN IRREVERSIBLE REACTION, 2A YIELDS B, AND A 2ND ORDER REVERSIBLE REACTION, A FORMS AND IS FORMED FROM 2B. GRAPHS FOR THE DEPENDENCE OF THE RATE CONSTS. ON THE DIFFUSION COEFF. ARE GIVEN. FACILITY:
INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

Chromatografiya

PROBLEMS OF CHROMATOGRAPHY

(Symposium in Leningrad)

[Article by Corresponding Member of the AS USSR K. V. Chumilov and Doctor of Chemical Sciences K. I. Sakdymatskiy Moscow, Vestnik Akademii Nauk SSSR, Russian Vol 12, No. 10, October 1972, pp. 15-17]

A symposium on chromatography, dedicated to the memory of the outstanding Russian scientist M. S. Tsvet -- the founder of that method, the hundredth anniversary of whose birth was marked in 1970, was held on 16-18 May in Leningrad. It was organized by the Scientific Council for Chromatography of the AS USSR jointly with a number of academic and branch scientific institutions and VUZ.

Participating in the symposium were over 100 persons representing all directions of chromatography. Noted for the first time in such a broad assembly of chromatographers were the servers of M. S. Tsvet in the creation of chromatography, which has now become an irreplaceable method of separating mixtures and investigating the properties of substances. The program of the symposium was so compiled that its participants were able to obtain a concept of the achievements and prospects of development of the main directions of chromatography.

K. V. Chumilov noted the great contribution of chromatographic methods to scientific and technological progress. K. I. Sakdymatskiy, in a report entitled "M. S. Tsvet and chromatography", showed that the discovery of chromatography was a natural stage in the development of science and technology, one stipulated by the transition to the use of increasingly complex multicomponent systems. M. S. Tsvet not only discovered the very fact of separation of a mixture on a layer of sorbent into the components composing it, but also developed theoretical

YANOVSKIY, M. I.

Adsorption on a carrier is an irreplaceable component of the chromatographic process. The results of the study of the adsorption of various substances on a solid surface are of interest to a wide range of scientists. The results of the study of the adsorption of various substances on a solid surface are of interest to a wide range of scientists. The results of the study of the adsorption of various substances on a solid surface are of interest to a wide range of scientists.

The third group of reports dealt with applications of gas chromatography in various investigations. With it it is possible to obtain data on the kinetics of detection (J. F. Hendrick, Holland) and on the kinetics of adsorption (J. F. Hendrick, Holland) and on the kinetics of adsorption (J. F. Hendrick, Holland) and on the kinetics of adsorption (J. F. Hendrick, Holland).

The participants in the symposium were present at the solemn unveiling of a memorial plaque, honoring N. S. Tsvet at his home at 25 Ulitsa Soyuzna Pechalnikov, where the outstanding scientist lived and worked in 1897-1992.

In summing up the results of the symposium it should be noted that it convincingly demonstrated the high level of development of the theory of the method and the breadth and variety of its practical problems being solved by means of chromatography. At the same time the symposium showed the need for further development of theoretical investigations, especially with the use of computers, for substantial investigations and development of work on the creation of new sorbents with a broad complex of structural properties and the possibility of assuring in the molecular reactions of various kinds, and for searching for new detecting systems with high selectivity and sensitivity.

USSR

UDC: 621.378.325:535.411.13

KNYAZ'KOV, B. N. and YANOVSKIY, M. S.

"Single-Band Modulation in a Quasi-Optical Strip"

Moscow, Radiotekhnika, No 9, 1972, pp 7-11

Abstract: This article is based on an Author's Certificate, No. 251034, credited to the two authors mentioned above, in which a polarization phase shifter with reflecting phase sections in the form of wire grids was proposed for a quasi-optical transmission line. The present paper considers the application of this phase shifter to single-band modulation. A cross section drawing of the device is given together with an explanation of its operation. An expression is given for the phase shift in terms of the phase shifter's parameters, and it is noted that this expression is more complex than the waveguide type of polarization phase shifter. An expression is also obtained for its output spectrum, and a table of the amplitudes for the useful signal components in the spectrum is presented. The results of measurements of the phase shift on a Michelson interferometer are given together with an explanation of how these measurement were made. It is noted that the device does not set up a back reflection in the transmission line.

1/1

1/2 016

TITLE--USE OF FINELY DIVIDED METAL POWDERS AS SUPPORTS IN GAS CHROMATOGRAPHY -U- UNCLASSIFIED PROCESSING DATE--30OCT70

AUTHOR--(05)--YANOVSKIY, S.M., ALKSNIS, O., LIBERMAN, I.I., SAZONOV, M.L., ZHUKHOVITSKIY, A.A. COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 136-8

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS CHROMATOGRAPHY, STAINLESS STEEL, PARTICLE SIZE, CHEMICAL LABORATORY APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0135

STEP NO--UR/0032/70/036/002/0136/0138

CIRC ACCESSION NO--AP0125951

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125951

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STAINLESS STEEL POWDER OF PARTICLE SIZE 40-45 MU WAS USED AS A SUPPORT FOR GAS-LIQ. CHROMATOG. THE COLUMNS WERE PACKED WITH DRY POWDER, AND A LIQ. PHASE (HEXADECANE) WAS APPLIED BY PASSING ITS SOLN. IN CCL SUB4 (1:5) THROUGH THE COLUMN UNDER VACUUM (WATER PUMP). THE PERMEABILITY OF THE POWDER FOR CARRIER GAS WAS PROPORTIONAL TO SQUARE OF THE DIAM. OF THE PARTICLE. APPLICATION OF SMALL SIZE PARTICLES WITH GOOD GAS FLOW ALLOWED A DECREASE OF THE HETP (HEIGHT EV. TO A THEORETICAL PLATE) DOWN TO 1 MM. AN INCREASE OF COLUMN DIAM. DID NOT DECREASE ITS EFFECTIVENESS, I.E. SUCH COLUMNS WERE PARTICULARLY USEFUL FOR PREPARATIVE WORK. USE OF H AS CARRIER GAS GAVE BETTER SEPN. THAN N. THE RELATIONS BETWEEN HETP AND GAS FLOW ACCORDING TO PARTICLE SIZE AND COLUMN DIAM. ARE GIVEN. FACILITY: VSES. NAUCH.-ISSLED. GEOLUGORAZVED. NEFT. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 026

UNCLASSIFIED

PROCESSING DATE--15OCT70

TITLE--SOME INDICES OF THE ORGANISM FUNCTIONAL STATE DURING DROWNING AND REANIMATION -U-

AUTHOR--(04)-SOKOLYANSKIY, I.F., GERYA, YU.F., ZAPLATKINA, A.I., YANKOVSKIY, V.D.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGICHNIY ZHURNAL, 1970, VOL 16, NR 3, PP 326-329

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DROWNING, RESUSCITATION, BODY TEMPERATURE, BLOOD PRESSURE, CLINICAL DEATH, BLOOD TRANSFUSION, ACIDOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1352

STEP NO--UR/0238/70/016/003/0326/0329

CIRC ACCESSION NO--AP0115327

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0115327

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES WERE TRACED OF OXYGEN TENSION IN ARTERIAL BLOOD AND SKELETAL MUSCLE, OF BLOOD PRESSURE, RESPIRATION, BODY TEMPERATURE CONCENTRATION OF THE HYDROGEN IONS IN BLOOD AND OTHER INDICES OF THE ORGANISM FUNCTIONAL STATE DURING THE DROWNING OF DOGS IN SALT WATER AND THEIR FOLLOWING REANIMATION. CLINICAL DEATH, COMING FROM THE LAST MOVEMENT OF THE THURAX, LASTED FROM 9 MIN 36 SEC UP TO 21 MIN. REANIMATION OF THE DROWNED ANIMALS WAS CARRIED OUT BY THE METHOD OF ARTIFICIAL BLOOD CIRCULATION ACCORDING TO S. S. BRYUKHONENKO OR ACCORDING TO A VARIANT OF THIS METHOD, USING A PUMP OF AUTOJECTOR AND A DONOR (LIVING ORGANISM). THE DIFFERENCE IS SHOWN IN THE DYNAMICS OF PO SUB2 CHANGES IN ARTERIAL BLOOD AND SKELETAL MUSCLE. IT DECREASES IN BLOOD QUICKER THAN IN THE MUSCLE WHEN SUBMERGING AN ANIMAL INTO WATER, AT THE SAME TIME DURING REANIMATION, AFTER PROLONGED CLINICAL DEATH, PO SUB2 IN THE SKELETAL MUSCLE REACHES CONSIDERABLE VALUES WITH RECOVERY OF RESPIRATION AND HEART ACTIVITY, IF THE BLOOD FLOW RATE IS HIGHER THAN 100 ML-KG-MIN. DATA ARE OBTAINED EVIDENCING FOR A RELATIVELY QUICK LIQUIDATION OF BLOOD ACIDOSIS, AS WELL AS FOR THERMOGENESIS INTENSIFICATION. AFTER SWITCHING OFF THE EXTRACORPORAL BLOOD CIRCULATION, AS A RULE THE FREE OXYGEN CONCENTRATION IN THE MUSCLE DROPS. IT MIGHT BE A REASON FOR PUTTING THE REANIMATED ANIMALS INTO CONDITIONS OF THE ELEVATED OXYGEN PRESSURE.

FACILITY: DEPARTMENT OF PATHOLOGY OF HYPO AND PYPEROXY, THE A. A. BOGOMOLETZ INSTITUTE OF PHYSIOLOGY, ACADEMY OF SCIENCES, UKRAINIAN SSR.

UNCLASSIFIED

172 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--EFFECT OF THE ADSORPTION OF A TUNGSTATE MELT ON THE SHAPES AND GROWTH MECHANISM OF CORUNDUM CRYSTALS -U-

AUTHOR--(03)-VORONKOVA, V.I., YANOVSKIY, V.K., KOPTSIK, V.A.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 362-6

DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, PHYSICS, CHEMISTRY

TOPIC TAGS--TUNGSTATE, CORUNDUM, CRYSTAL GROWTH, ADSORPTION, EPITAXIAL GROWTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1995/0891

STEP NO--UR/COTC/70/015/002/0362/0366

CIRC ACCESSION NO--AP0116401

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0116401

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF EPITAXIAL ADSORPTION OF THE SOLVENT IN GROWING ALPHA AL SUB2 O SUB3 FROM ALKALI AND ALK. EARTH TUNGSTATE MELTS WAS STUDIED AT 1100-1250DEGREES. THE HEXAGONAL DIPYRAMID WITH (22BAR43) EDGES WERE RETAINED AT GROWTH RATES OF 0.1-25 MM-DAY, REGARDLESS OF THE ALKALI OR ALK. EARTH OXIDE PRESENT IN THE SOLVENT, WITH THE EXCEPTION OF CRYSTALS OBTAINED BY SPONTANEOUS CRUSTN. FROM SRWC SUB4 ABOVE 1400DEGREES. IN THIS CASE, RHOMBOHEDRAL CRYSTALS WITH (10BAR11) EDGES WERE OBTAINED. THE ADDN. OF CRYOLITE CALCO. ON THE BASIS OF NA SUB6 W SUB8 O SUB27 PLUS XNA SUB3 ALF SUB6 YIELDS YNA PRIME POSITIVE PLUS (X-2)AL SUB2 O SUB3 PLUS ZWO SUB4 PRIME NEGATIVE NEGATIVE PLUS UWO SUB3 F GAVE TRUNCATED PYRAMIDS AND BIPYRAMIDS WITH HEIGHT:DIAGONAL RATIOS FROM 1:1 TO 1:10. THE SIDE PLANES (22BAR43) AND (10BAR11) REMAINED. THE (22BAR43) PLANES GREW IN LAYERS STARTING PRIMARILY FROM THE SHARP APEXES. THESE LAYERS END IN RECTILINEAR MACROSCOPIC STEPS IN THE (BAR1100) DIRECTION. AT SUFFICIENTLY HIGH TEMPS. ADSORPTION DECREASED, GROWTH BECAME RHOMBOHEDRAL, AND THE DECCMPN. OF POLYMER ANIONS ON ISOLATED NO SUB4 PRIME NEGATIVE NEGATIVE TETRAHEDRONS, IN THE PRESENCE OF FLUORIDES, DEVELOPED BASAL PINACOIDS. FACILITY: MOSK. GOS. UNIV., IM. LOMONOSOVA, MOSCOW, USSR.

USSR

UDC 531.789.1.087.92.082.13

ETKIN, L. G., YANOVSKIY, V. YA.

"Vibration-Frequency Pickup for Measuring Torque and Axial Forces"

V sb. Vibratsionno-chastotn. preobrazovateli Ch. 1 (Vibration-Frequency Converter--collection of works), Part 1, Moscow, "Energiya", 1970, pp 93-104 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.329)

Translation: Description is given of one- and two-component vibration-frequency pickups of torque and axial forces on rotating shafts, designed by NIKIMP (Sci-Res and Design Inst for Testing Equipment Instruments and Mass Measurement Devices). It is shown that the frequency output of converter allows efficiently to solve the problem of information transfer from the rotating shaft without the loss of accuracy during changing of the parameter of reader and also of the communication line. The design circuits of some torque pickups are presented and also accuracy characteristics of the pickups. Description is given of a non-contact current reader used in torque pickups. 9 ill., 1 table, 7 bibl. entries.

Resume

1/1

USSR

UDC 531.789.1.087.92.088

SINEL'NIKOV-MURYLEV, G. A., YANOVSKIY, V. YA.

"Effect of Centrifugal Forces on the Performance of Torque Pickups"

V sb. Vibratsionno-chastotn. preobrazovately Ch. 1 (Vibration-Frequency Converter--collection of works), Part 1, Moscow, "Energiya", 1970, pp 104-112 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.311)

Translation: The vibration-frequency pickups for measuring torque and axial forces, mounted on rotating shafts, are subjected to the action of considerable centrifugal forces. Description is given of several designs of torque and axial force pickups and the effect of centrifugal forces on the metrological characteristics of two types of pickups are considered. Formulas are given for the quantitative estimate of centrifugal errors and description of the method of compensation of some forms of errors. 5 ill., 1 bibl. entry.

Resumé

1/1

1/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70
-U-

TITLE--RESPONSES OF THE AUDITORY CORTEX NEURONS TO PAIRED CLICKS

AUTHOR--(02)-SERKOV, F.N., YANOVSKIY, YE.SH.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 3, PP 227-235

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AUDITORY SYSTEM, NEURON, NEUROPHYSIOLOGY, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1998/0390

STEP NO--UR/0660/70/002/003/0227/0235

CIRC ACCESSION NO--AP0121075

UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0121075

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DURATION OF REFRACTORY PERIOD OF 75 NEURONS IN THE CAT'S AUDITORY CORTEX ACTIVATED BY A CLICK WITH A LATENT PERIOD NOT MORE THAN 30 MSEC. WAS STUDIED BY THE PAIRED CLICK METHOD. THE INVESTIGATION WAS PERFORMED ON CATS UNDER D TUBOCURARINE. 68 UNITS HAD NO SPONTANEOUS SPIKE ACTIVITY, IN 7 NEURONS IT WAS RARE AND IRREGULAR. IT WAS FOUND THAT THE CONDITIONING CLICK PRODUCED IN ACTIVATED UNITS THE STATE OF PROLONGED REFRACTORINESS TO THE TESTING ONE. THE DURATION OF REFRACTORINESS RANGED FROM 3 TO 700 MSEC. THE REFRACTORY PERIOD OF EACH UNIT WAS CONSTANT, BUT IT VARIED IN DIFFERENT NEURONS. A DEPENDENCE WAS FOUND BETWEEN THE NUMBER OF CELLS ACTIVATED BY THE TEST CLICK AND INTERCLICK INTERVAL. WHEN THE INTERVAL BETWEEN TWO CLICKS BECAME SHORTER THE NUMBER OF NEUROUS ACTIVATED BY THE SECOND CLICK DECREASED. IT WAS SUGGESTED THAT SUCH INTERRELATIONSHIP MIGHT BE A NEUROPHYSIOLOGICAL MECHANISM OF SHORT TIME INTERVAL PERCEPTION DISCRIMINATION.

FACILITY: THE A. A. BOGRMOLETZ INSTITUTE OF PHYSIOLOGY, ACADEMY OF SCIENCES, UKRAINIAN SSR, KIEV.

UNCLASSIFIED

172 008
UNCLASSIFIED
TITLE--ON THE PROBLEM OF SEARCH FOR FERTILIZER MINERALS IN SIBERIA -U-
PROCESSING DATE--16OCT70
AUTHOR--YANSHIN, A.L.
COUNTRY OF INFO--USSR
SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 4, PP 11-23
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, AGRICULTURE
TOPIC TAGS--MINERALOGY, PHOSPHATE, FERTILIZER PRODUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0157
STEP NO--UR/0210/70/000/004/0011/0023
CIRC ACCESSION NO--AP0114553
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114553

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ROLE OF LENIN AND HIS COLLABORATORS IN THE DEVELOPMENT OF THE FERTILIZER INDUSTRY OF OUR COUNTRY AND THE RESEARCH STUDIES OF THE SOURCES OF FERTILIZER MINERALS IS STRESSED. THE SURVEY OF THE CONTEMPORARY STATUS OF THE RESEARCH STUDIES IN SEARCH FOR THE PHOSPHATE ROW MINERALS IN SIBERIA IS GIVEN. THE HISTORICAL ASPECTS OF THE PROBLEM CONCERNING THE SEARCH FOR POTASH SALTS WITHIN THE SIBERIAN PLATFORM ARE REPORTED TOGETHER WITH THE RESULTS OF THE SEARCH WORKS. CONCLUSIONS ON THEIR PROGRESSIVE TRENDS AND THE PROBABILITY OF POTASH SALT DISCOVERY OF ECONOMIC IMPORTANCE ARE DRAWN.

FACILITY: IGIG SO AN SSSR, NOVOSIBIRSK.

UNCLASSIFIED

1/1

USSR

UDC: 53.08+535.853

MEFIMOV, V. M., ISKOL'DSKIY, A. M., and YANSHIN, E. V.

"Detection of a Point Signal in Noise for Images of Discrete Structure"

Novosibirsk, Avtometriya, No 6, 1971, pp 42-52

Abstract: In the photographic recording of small objects of low brightness, as in the registration of weak stars or laser location of the moon, a method of increasing the sensitivity of the recording equipment is through an electronic-optical converter. Since the use of high-gain converters in such recording systems involves substantial difficulties because of the limitations in the dynamic range of the photomaterial used as the memory device, the authors of this article analyze the possibilities of the traditional method of single-frame memory and propose methods for broadening these possibilities. Multiframe memory is also discussed. Experiments are described to determine the probability of detection of the point signal in noise, and a description of

1/2

- 173 -

USSR

YEFIMOV, V. M., et al., Avtometriya, No 6, 1971, pp 42-52

the experimental apparatus is given. Formulas are derived for accurate computation of this probability if the noise in question is generated by an outside source. The authors thank Yu. Ye. Nesterikhin for posing the problem, Yu. A. Grigor'yevich for assisting in the experiments and discussing the results, and G. D. Frizen for making the required computations on the electronic computer.

2/2

1/2 027 UNCLASSIFIED PROCESSING DATE--090C170
 TITLE--POROUS POLIMERS AS ADSORBENTS AND SUPPORTS IN GAS CHROMATOGRAPHY
 -U-
 AUTHOR--(04)--USTINOVSKAYA, I.A., GAVRILINA, L.YA., MALAKHOV, B.B., YANSHIN,
 YA.I.
 COUNTRY OF INFO--USSR
 SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA
 KHIMICHESKIKH NAUK, 1970, NR 2, PP 18-22
 DATE PUBLISHED--70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--POLYMER, ADSORPTION, GAS CHROMATOGRAPHY, POROSITY/(U)POLYSDRBI
 POLYMER
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1992/1877 STEP NO--UR/0289/70/000/000/0018/0022
 CIRC. ACCESSION NO--AP0112857
 UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112857

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GAS CHROMATOGRAPHIC BEHAVIOR
POLYSORB-1 HAS BEEN INVESTIGATED. IT HAS BEEN SHOWN THAT POLYSORB-1
SHOULD BE CLASSIFIED AS A WEAKLY SPECIFIC SORBENT III TYPE BY KISELEV.
POLYSORB MAY BE USED FOR THE GAS CHROMATOGRAPHIC ANALYSIS OF THE
CATALYTIC OXIDATION PRODUCTS. FACILITY: INSTITUT KATALIZA SO AN
SSSR, NOVOSIBIRSK.

UNCLASSIFIED

Refractory Materials

UDC 666.764.62

USSR

ANTONOV, G. I. and YAN'SHINA, A. P., Ukrainian Scientific Research Institute of Refractories, and ZUBAKOV, S. M., and MENZHULINA, F. M., Institute of Metallurgy and Ore Dressing of the Academy of Sciences Kazakh SSR

"Periclase-Spinel Refractories Made of Natural-Brine Magnesium Oxide and Concentrated Chromite"

Moscow, Ogneupory, No 9, 1971, pp 35-40

Abstract: Periclase-spinel refractories made of pure materials (brine magnesium oxide and kimpersayskiy chromite) are compared with the corresponding refractories made of ordinary-grade magnesium oxide and chromite. Experimental articles fabricated in the test comparison were 230 x 115 x 65 mm in size and were molded on a hydraulic press at a pressure of 1200 kg/cm². For articles made from ordinary grade materials, silicate impurities were found to clearly affect compaction. In contrast, a high temperature for the onset of deformation under load (upwards of 1750°) was found to characterize articles made of brine magnesium oxide and concentrated kimpersayskiy chromite. These articles showed less linear (at a load of 2 kg/cm²) and less additional (10 hr at 1750° exposure) shrinkage. The microstructure of articles made from pure materials showed a sizable fraction of periclase bonds not across silicates, but across secondary spinel. Two illustrations: six tables.

1/1

USSR

UDC 541.121:547.581.9'241.057

RUDZIT, G. P., PASTARE, S. YA., and YANSON, E. VII., Latvian "Order of the Red Banner of Labor" State University imeni P. Stuchka

"Tetraphenylphosphonium Salts of α -Furandithiocarboxylic, Dithiopiperonylic and 2-Hydroxydithiobenzoic Acids"

Riga, Izvestiya Akademii Nauk Latvyskoy SSR, Seriya Khimicheskaya, No 2, 1972, pp 163-166

Abstract: The spectrophotometric method was used to determine the ionization constants of thiolthionic groups in α -furandithiocarboxylic acid ($pK_{CSSH} = 2.04$) and dithiopiperonylic acid ($pK_{CSSH} = 2.29$). Using radioactive isotopes, the authors studied the time dependence of the degree of extraction of zinc, nickel and trivalent iron compounds, with tetraphenylphosphonium salts of α -furandithiocarboxylic acid, dithiopiperonylic acid and 2-hydroxydithiobenzoic acid serving as reactants. It was found in all cases that equilibrium is reached slowly due to the hydrophobic nature of the tetraphenylphosphonium ion.

1/1

USSR

UDC:669-405:[537+535

KULIK, I. O., YANSON, I. K.

"The Josephson Effect in Superconducting Tunnel Structures"

Effekt Dzhozefsona v Sverkhprovodyashchikh Tunnel'nykh Strukturakh
[English Version Above], Moscow, Nauka Press, 1970, 272 pages (Trans-
lated from Referativnyy Zhurnal Fizika, No. 11, 1970; Abstract No. 11 Ye
1185K, Unsigned)

Abstract: Contents of the monograph: Chapter I. Theory of the Joseph-
son Effect. Chapter II. Experimental Study of Stable Josephson Current.
Chapter III. Experimental Study of Unstable Josephson Effect. Extensive
Bibliography.

1/1

1/2 041 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECT OF FLUCTUATIONS ON THE DEPENDENCE OF THE JOSEPHSON CURRENT
ON MAGNETIC FIELD STRENGTH -U-
AUTHOR--YANSON, I.K.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1497-1510
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--MAGNETIC FIELD EFFECT, SEMICONDUCTOR PROPERTY, ELECTRIC
CURRENT, THERMAL EFFECT, STRUCTURE STABILITY, OSCILLATION,
SUPERCONDUCTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0008 STEP NO--UR/0056/70/058/005/1497/1510
CIRC ACCESSION NO--AP0127658
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127658
ABSTRACT/EXTRACT--(U) CP-0-

ABSTRACT. THE ANOMALOUS DEPENDENCES OF THE CRITICAL JOSEPHSON CURRENT ON MAGNETIC FIELD STRENGTH ARE INVESTIGATED FOR SN, SN JUNCTIONS. IT IS SHOWN THAT THE PECULIARITIES OBSERVED ARE DUE TO THERMAL FLUCTUATIONS AND INHOMOGENEITIES OF THE BARRIER LAYER (STRUCTURAL FLUCTUATIONS). THE INFLUENCE OF BINDING ENERGY, JUNCTION TEMPERATURE AND EXTERNAL CIRCUIT RESISTANCE ON SHAPE OF THE I SUBC (H) CHARACTERISTICS IS STUDIED. BOTH THERMAL AND STRUCTURAL FLUCTUATIONS CAN LEAD TO A DECREASE OF THE OSCILLATION AMPLITUDE I SUBC (H) WHICH IS MORE RAPID THAN I-H. HOWEVER IF THERMAL FLUCTUATIONS DESTROY THE SUPERCONDUCTIVITY OF THE JUNCTION, THE STRUCTURAL FLUCTUATIONS WILL LEAD TO THE APPEARANCE OF A (BACKGROUND) SUPERCONDUCTING CURRENT WHICH ONLY WEAKLY DEPENDS ON THE MAGNETIC FIELD STRENGTH.

FACILITY:

FIZIKO-TEKHNICHESKIY INSTITUT NIZKIKH TEMPERATUR, AN UKRAINSKOY SSR.

UNCLASSIFIED

Surgery

USSR

KEMIS, IVAR; PURINYA, BIRUTA; AND YANSON, KHARAL'D

"Bone and Blood Vessel Prosthesis"

Riga, Nauka i Tekhnika, No 8, 1971, pp 25-29

Abstract: Scientists in the field of biomechanics are directing research toward determining the elasticity, deformative properties, and strength of blood vessel walls and bone tissue, and how they change with age and under stress. The possibilities of producing synthetic materials as effective as natural tissue are being investigated, as well as the improvement of prostheses. Blood vessel prostheses are emphasized because of the high incidence of atherosclerosis. Corrugated lavsan prostheses are most widely used in the USSR. Special stretching machines are used to test the ability of reconstructed arteries to withstand arterial pressure; the results are implemented in practice. Experiments are being made to overcome hardening and stoppage in long, narrow prostheses by combined prostheses which reinforce part of the reconstructed artery or vein. A new method of cultivating prostheses in living tissue has been tested on animals, but the practical value of this process is unknown. Experiments are in progress to define the disintegration process of arterial walls in cases of closed trauma. Research on bones is chiefly directed toward studying deformative properties and stability. No adequate substance has yet been found for bone prostheses. Metal or alloys

1/2

USSR

KENTS, IVAR, et al., Nauka i Tekhnika, No 8, 1971, pp 25-29

are unsatisfactory because they do not adapt to the cyclical stress which seems to play a crucial role in bone nourishment.

2/2

USSR

UDC: 621.515.018.001.24

YANSON, R. A.

"On Selecting the Parameters for a Turbine Compressor Stage"

Tr. Mosk. vyssh. tekhn. uch-shcha im. N. E. Baumana (Works of the Moscow Higher Technical Academy imeni N. E. Bauman); 1970, No 134, pp 80-84 (from RZh-Turbostroyeniye, No 8, Aug 70, Abstract No 8.49.99)

Translation: Establishment of the interrelationship between structural and gas-dynamic parameters of a turbine compressor stage over a wide range of variation gave a basis for plotting nomograms which can be used as a guide with optimum angle α_2 and ratio D_1/D_2 for evaluating the basic parameters of the stage for predetermined values of the quantities η_R^* , G_0 , and $L_{h.t}$ and for a given velocity u_2 . A comparison of the data found in testing the turbine compressor stage with those obtained with calculations by the proposed method showed satisfactory agreement. Two illustrations, bibliography of eleven titles.

1/1

USSR

UDC 612.821.3

YANSON, Z. A., Laboratory of the Electrophysiology of Conditioned Reflexes in Animals and Man, Institute of Higher Nervous Activity and Neurophysiology, Academy of Sciences USSR, Moscow

"The Effect of the Mesencephalic Reticular Formation on Spatial Synchronization of Brain Potentials"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, No 1, Jan/Feb 73, pp 159-165

Abstract: In rabbits, electrical stimulation (100-150 c/sec, 3-7 V, 0.5-1 msec impulses) of the mesencephalic reticular formation either reduces (23% of the animals) or enhances (69%) spatial synchronization of brain cortex potentials. In the latter case, two periods of maximum synchronization occur: the first in 1-5 min and the second in 10-15 min. Stimulation of the reticular formation also increases spatial synchronization of the potentials of subcortical structures and of formations located between the subcortical structures and the cortex. During the periods of maximum synchronization in the cortex, the subcortical and cortical potentials become very similar, and this similarity is evidently one factor causing the synchronization peaks.

1/1

USSR

UDC 541.126

GRIGOR'YEV, V. M., and YANTOVSKIY, S. A.

"Stepwise Combustion of the Propane-Air Mixture in a Tube"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 3, Mar 72, pp 762-764 .

Abstract: During the combustion of a propane-air mixture in a vertical hermetically sealed tube, 65 mm in diameter and 4350 mm long, initially a slow increase in pressure was observed until a maximum was reached. Then the pressure dropped, to be followed by a sharp jump. On the basis of the "phased" character of flame expansion in a closed volume, it may be assumed that the mechanism of combustion is a complex thermal chain mechanism, in which concurrently with heat evolution a phase of an elementary act of autocatalysis takes place.

1/1

USSR

UDC: 621.313.522:536.4

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

"An Open-Cycle MID 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 thermodynamic effectiveness η_{st} of an MID electric power plant (MIDEPP)
with a frame channel of the MID generator and a steam turbine and thermochemical
processing of the fuel (water conversion) using natural gas as the fuel. Cal-
culations of the MID power plant are presented for a consumption of combustion
products of 2000 kg/sec using two types of magnetic system (MS): nonsupercon-
ducting and superconducting. For the nonsuperconducting MS, η_{st} of the
MIDEPP 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. Pryanogo Prcobrazovaniya Energii, No 4, 1973, pp 10-19

6.5 T at air temperatures of 1100 and 1500°K respectively. For a superconducting MS with B=6 T with a power plant capacity of 2500 Mw, η_{st} increases by 3.5-6.5% as air temperature is increased from 1100 to 1500°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 η_{st} . Injection of K_2CO_3 with 1 wt. % K decreases η_{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

- 132 -

USSR

UDC 538.4

5

BAKANOV, Yu. A., DRONNIK, L. M., LEVIN, M. N., MAKAREVICH, V. K.,
RESHET'KO, L. M., STRIZHAK, V. Ye., TOLMACH, I. M., TROITSKIY, S. R.,
YANTOVSKIY, Ye. I.

"Experimental Study of Liquid-Metal Induction Machine in Pump Mode"

7-ye Soveshch. po Magnit. Gidrodinamike. T. 1 [Seventh Conference on Magnetic Hydrodynamics, Vol 1], Riga, Zinatnye Press, 1972, pp 20-23, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 B43 by V. V. Blagov).

Translation: The operation of a liquid-metal induction machine in the pump mode was studied in a potassium circuit with a working pressure of up to 60 kg/cm². The working characteristics of the machine are presented for a temperature of 500°.

The experimental results allowed the relationship of the dimensionless criterion $\Pi = \Delta P V_s / \sigma U^2$ to the velocity ratio $V/V_s = 1 - S$ to be established (where V_s is the synchronous speed of the rotating field, V is the velocity of the metal, ΔP is the pressure drop developed, S is the slipping, σ is the conductivity, U is the applied voltage). As the temperature changes from 1/2

USSR

UDC 538.4

5

BAKANOV, Yu. A., DRONNIK, L. M., LEVIN, M. N., MAKAREVICH, V. K.,
RESHET'KO, L. M., STRIZHAK, V. Ye., TOLMACH, I. M., TROITSKIY, S. R.,
YANTOVSKIY, Ye. I., 7-ye Soveshch. po Magnit. Gidrodinamike. T. 1, Riga,
Zinatnye Press, 1972, pp 20-23.

280 to 500° and the voltage varies from 80 to 150 v, the dependence of Π on V/V_s is universal. The maximum head is produced at small flow rates, depends on the applied voltage and where $T = 500^\circ$ and $\Delta U = 150$ v is about 37 kg/cm²; the efficiency of the machine is about 24% under these conditions. Where $T = 300^\circ$, these figures are 42 and 30% respectively. The total operating time of the machine was 120 hours.

2/2

- 192 -

USSR

UDC 621.31.538.4

YANTOVSKIY, YE. I., and TOLMACH, I. M.

Magnitogidrodinamicheskiye Generatory (Magnetohydrodynamic Generators),
Izdatel'stvo Nauka, Moscow, 1972, 424 pp

Translation of Foreword: The MHD power generation problem is one of the leading in power engineering because this method of electrical energy production has many economical and technological advantages. The most detailed studies of MHD have been carried out in the USSR and USA where experimental units operate on combustion products with potassium additives. A powerful MHD generator at the Institute of Power Engineering imeni G. M. Krzhizhanovskiy can be mentioned as an example. Designing and building of this generator, as well as of many others, especially those operating on liquid metals, were preceded by many studies that lasted for many years. The authors of this book contributed substantially to the design of the above MHD generator.

The many technological difficulties encountered in MHD power generation on an industrial level should not weaken the efforts of researchers because MHD generators are the most promising means for energy conversion, and they are capable of producing electrical power comparable to convenient power plants.

1/11

- 43 -

USSR

YANTOVSKIY, YE. I., and TOLMACH, I. M., Magnetohydrodynamic Generators, Izdatel'stvo Nauka, Moscow, 1972, 424 pp

If we trace back the historical development of the gas turbine, which can be roughly compared with the MHD generator, we can distinguish three basic stages: designing the turbine by P. D. Kuz'minskiy in 1892, application of gas turbines in the aviation industry in 1945, and completion of the powerful gas turbine power station at the Krasnodar Thermoelectric Power Plant in 1970.

Analogously with gas turbine development, it can be predicted that a powerful MHD power generating plant will be built not sooner than 15-20 years from now, provided the new energy production method is actively pursued in the future. The design of the U-25 experimental industrial pilot unit by the Institute of High Temperatures of the Academy of Sciences USSR was an important step in the right direction.

It is quite possible that MHD generators will appear much sooner as sources of energy for space research.

This book should occupy an important place among numerous publications devoted to individual aspects, as well as to the general MHD problem, because of a systematic and broad coverage of theoretical problems combined with the design aspects of the MHD generators.

2/11

USSR

YANTOVSKIY, YE. I., and TOLMACH, I. M., Magnetohydrodynamic Generators, Izdatel'stvo Nauka, Moscow, 1972, 424 pp

As a result of long-lasting research on the subject, the authors formed a definite point of view regarding the advantages of MHD generators operating on combustion products (loop-type). Liquid metals will be best suited for alternating current generators. The final selection of the type of generator will be decided by experiments.

This book will be of interest to researchers, engineers, and students because it covers broad aspects of hydrodynamic generators and presents definite conclusions about each topic.

Table of Contents:

	Page
Foreword	5
Authors' note	6
Introduction	7
Chapter 1. Electrical conductivity of ionized gas	
1.1 Types of ionization	13
1.2 Thermal ionization	14
1.3 Nonequilibrium (frozen) ionization	17
1.4 Ionization and electrical conductivity in electric field at high temperature of electrons	18

3/11

USSR

UDC 621.316.546:621.313.29:538.4

BOGUSLAVSKIY, V. A., TOLMACH, I. N., and YANTOVSKIY, YE. I.

"Study of the Commutation of a Strong Direct Current Using a Molten Metal in a Rotating Magnetic Field"

Riga, Magnitnaya Gidrodinamika, No 4, Oct-Dec 72, pp 95-101

Abstract: A unit for studying the commutation of strong currents with the aid of molten metal is described which consists of a non-conducting, hermetically sealed cylinder partially filled with molten metal, electrodes inserted inside the cylinder and an external nonferrous inductor of the rotating field. When the inductor is switched on the molten metal is uncoiled and forms a rotating and conducting cylinder and closes the main circuit. Switching the inductor off leads to the fall of molten metal from the force of gravity and to a break in the circuit. Questions of comparing the linear device with centrifugal devices, determination of the maximum current of short circuiting and calculation of the nonferrous stator field are discussed. Experiments are described on a model of a switch with commutations of direct current up to 1000 a and a voltage of 220 v with forcing of the control voltage

1/2

USSR

BOGUSLAVSKIY, V. A., et al., Magnitnaya Gidrodinamika, No 4, Oct-Dec 72,
pp 95-101

during switch on and counter rotation of the field upon switch off. S. Ye.
Dvorchik and V. N. Firsov assisted in conducting the experiments. 6 figures,
6 bibliographic references.

2/2

- 68 -

USSR

UDC:537.226+537.311.33]:539.16.04

IVANKINA, M. S., YANTSEN, I. V.

"Influence of Gamma-Quantum Bombardment on Temperature Coefficient of Linear Expansion of Solid Solutions in the System KCl-KBr"

Izv. Tomsk. Politekhn. In-t [News of Tomsk Polytechnical Institute], Vol. 184, pp. 40-51, 1970 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1093 by Yu. Nikolayev)

Abstract: The influence of isodose bombardment of gamma-quanta on the temperature coefficient of linear expansion (α) of solid solutions in the KCl-KBr system is studied as a function of composition of the solution, and the influence of a bombardment dose on α of solid solutions of various compositions is also investigated. Measurements were performed using a capacitive dilatometer by the Beat method with an accuracy of $\pm 10^{-7}$ deg $^{-1}$. It is demonstrated that after bombardment α of solid solutions increases less than α of pure crystals. As the bombardment dose increases, the concentration of radiation-induced defects increases more

1/2

USSR

UDC:537.226+537.311.35]:539.16.04

IVANKINA, M. S., YANTSEN, I. V., Izv. Tomsk. Politekhn. In-t [News of Tomsk Polytechnical Institute], Vol. 184, pp. 40-51, 1970, (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1093 by Yu. Nikolayev)

rapidly for the less defective pure crystals than for solid solutions bombarded with equal doses. These effects are explained by the weaker bonding forces between the ions in the solid solution lattice than between the initial components.

2/2

- 36 -

USSR

UDC: 519.2

ALEKSANDROV, Yu. A., YANTSEVICH, A. A.

"Concerning S. N. Bernshteyn's Stochastic Bridges"

Vestn. Khar'kov. un-ta (Khar'kov University Herald), 1972,
No 83, Mathematics and Mechanics, vyp. 37, pp 77-85 (from
RZh-Kibernetika, No 8, Aug 72, Abstract No 8V105)

Translation: In a paper at the International Congress on Relations Between Random Quantities held in Zürich in 1932, S. N. Bernshteyn introduced a new class of random processes -- stochastic bridges (recurrent chains) -- which are a generalization of Markov Processes. In finding the laws of probability distribution for stochastic bridges, it is necessary to set not only the initial distribution, but also the final distribution. In this paper, relations are established between stochastic bridges, stochastic differential equations, and the corresponding equations for probability distribution densities, and several examples are considered. Authors' abstract.

1/1

USSR

UDC: 519.2

ALEKSANDROV, Yu. A., YANTSEVICH, A. A.

"Revisions [in the Paper 'Random Processes With Aftereffect and Some of Their Applications. Optimum Detection, Filtering and Control. II' Printed in 'Khar'kov University Herald. Mathematics and Mechanics', Vyp. 35]"

Vestnik Khar'kov. un-ta (Khar'kov University Herald), 1972, No 83, Mathematics and Mechanics, vyp. 37, p 119 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V118)

Translation: Revisions are made in the above mentioned paper (RZhMat, 1972, 1B390).

1/1

- 9 -

USSR

UDC: 519.2

ALEKSANDROV, Yu. A., YANTSEVICH, A. A.

"On Constructive Methods in the Theory of Quasi-Markov Processes"

Vestn. Khar'kov. un-ta (Khar'kov University Herald), 1972, No 83, Mathematics and Mechanics, vyp. 37, pp 67-77 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V104)

Translation: The method of parabolic equations is frequently used in studying high order stochastic differential equations. However, this method is based on expanding the phase space and reducing the corresponding problem to the Markov case. But such a course is not always advisable if we are interested in the probability distribution densities of solution of the initial stochastic differential equations rather than in the joint probability distribution densities of the solution and its derivatives.

In this paper, the "inverse" problem is considered: relations are postulated between the "probability" flow and the

1/2

USSR

ALEKSANDROV, Yu. A., YANTSEVICH, A. A., Vestn. Khar'kov. un-ta,
1972, No 83, Mathematics and Mechanics, vyp. 37, pp 67-77

probability distribution densities, and the corresponding stochastic differential equation is then already restored in accordance with equations for the one-dimensional probability distribution density using the corresponding model equations. Although the solution of the problem is not unambiguous, it is quite useful in studying dynamic systems described by high order stochastic differential equations. Authors' abstract.

2/2

- 8 -

USSR

UDC: 519.2

KLEBANOVA, G. B., YANTSEVICH, A. A.

"Concerning a Problem of Interpolation of Random Fields"

V sb. Mat. fiz. i funkts. analiz (Mathematical Physics and Functional Analysis--collection of works), vyp. 2, 1971, pp 41-44 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V90)

Translation: A formula is derived for restoring realizations of a homogeneous random field with analytical covariation function with respect to the values at the intersections of a periodic lattice. This formula is used to evaluate the probability of an overswing of the field beyond a certain fixed level in terms of the probabilities of overswing at lattice intersections. Authors' abstract.

1/1

USSR

UDC: 518.9

ALEKSANDROV, Yu. A., YANTSEVICH, A. A.

"On Stochastic Differential Games"

Vestn. Khar'kov. un-ta (Khar'kov University Herald), 1971, No 67, Mathematics and Mechanics, vyp. 36, pp 99-110 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V796)

Translation: The paper deals with multidimensional stochastic game problems. Solutions in the quasinormal approximation are found by means of quasi-Markov processes in dynamic programming. Authors' abstract.

1/1

Refractory Materials

USSR

UDC 666.76:620.1

BLUVSHIEYN, M. N. (deceased), ZYKOVA, Z. K. (All-Union Institute of Refractories), DAUKHIS, V. A., PERAS, A. Ya., YURENAS, V. I., YANULYAVICIYUS, A. I. (Institute for Physical and Technical Problems of Power Engineering, Academy of Sciences Lithuanian SSR), and RABINOVICH, M. A. (Snigirevskiy Plant of Refractory Articles)

"Strength of Ultralight-Weight Refractories"

Moscow, Ogneupory, No 2, June 72, pp 43-47

Abstract: The Institute for Physical and Technical Problems, Academy of Sciences Lithuanian SSR has designed, built, and adapted for practical application an LV-1 set-up for testing the tensile, compressive, and bending strength of ultralight-weight refractories at temperatures up to 1200°C. A BV-662 inductance pickup is used for both measuring and recording the deformation values for the latter two types of stress tests. The test materials were ShLB-0,4 and ShLB-0,6 ultralight-weight refractory bricks. Curves are shown to illustrate the strength values of the bricks as a function of temperature and apparent density. There is only a slight variance in strength values up to 700-800°C. At 900°C there is a marked increase in strength for all types of load tests. At 1000-1100°C and higher

1/2

USSR

BLUVSHTEYN, M. H., et al, Ogneupory, No 2, June 72, pp 43-47

the refractories begin to soften and change to viscoelastic state. The strength drops with an increase in temperature. (7 illustrations, 7 bibliographic references)

2/2

- 40 -

1/2 914 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--THE FIRST RESULTS OF DEEP SEISMIC SOUNDING IN THE BAIKAL RIFT ZONE
-U-
AUTHOR--KRYLOV, S.V., MISHENKIN, B.P., KRUPSKAYA, G.V., PETRIK, G.V.,
YANUSHEVICH, T.A.
COUNTRY OF INFO--USSR
SOURCE--GEOLOGIYA I GEOFIZIKA 1970, NR 1 (121) PP 84-91
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--SEISMIC SOUNDING, EARTH CRUST, SEISMIC WAVE, MOHOROVICIC
DISCONTINUITY, ELASTIC WAVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/1290 STEP NO--UR/0210/70/000/001/0084/0091
CIRC ACCESSION NO--AP0103172
UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0103172

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FIRST RESULTS OF STUDY OF THE EARTH'S CRUST OF BAIKAL RIFT ZONE AND SOUTHERN END OF THE SIBERIAN PLATFORM, CARRIED OUT BY THE PUNCTATE SOUNDING METHOD USING THE WAVES OF DIFFERENT TYPES ARE LISTED IN THE PAPER. THE CHANGES OF SEISMIC DISCONTINUITIES RELIEF, INCLUDING THE MOHO AND ALSO ELASTIC WAVES VELOCITIES ALONG THE ROUTE OF STUDY ARE REPRESENTED IN THE SUMMARY SECTION OF THE EARTH'S CRUST. IT IS ESTABLISHED THAT THE MOHO DISCONTINUITY IN BAIKAL RIFT ZONE IS CHARACTERIZED BY DECREASED VALUES OF ELASTIC WAVES VELOCITIES. "THE ROOT" AND "ANTIROOT" ARE ABSENT IN THE RELIEF OF THE EARTH'S CRUST BASEMENT.

UNCLASSIFIED

USSR

YANUSHKEVICH, E. P.

UDC: 535.417:531.717

"Interference Method for Measuring Hole Diameter Using Certified Internal Gages"
Moscow, Izmeritel'naya Tekhnika, No 9, 1970, pp 33-36

Abstract: A method is described for measuring the diameter of holes in ring gages made from transparent material such as glass or quartz. The method consists of using interference bands for determining an equal thickness of the dimensional difference of the ring gage and the certified internal gage placed within the ring gage. The error of the special internal gage does not exceed 0.07 microns. The measurement error of the method does not exceed 0.1 microns. Original article: four figures, five formulas, and seven bibliographic entries.

1/1

USSR

UDC 531.717

YANUSHKEVICH, E. P.

"Measurement of Openings by the Absolute Interference Method"
Moscow, Izmeritel'naya Tekhnika, No 10, Oct 70, pp 22-25

Abstract: A description is given of a method for measuring openings in ring gages made of transparent material. This method, developed by the KhGNIIM (Khar'kov State Scientific Research Institute of Metrology), consists in determining the diameters of the openings by direct comparison with the length of light waves emitted by monochromatic light sources. Results of theoretical and experimental research on the accuracy of this method show that it is the most accurate of all known methods for measuring diameters of openings, having an error not greater than 0.05 microns. 2 figures, 6 bibliographic entries.

1/1

- 62 -

USSR

UDC 535.211

BONDARENKO, G. G., IVANOV, L. I., and YANUSHKEVICH, V. A., Moscow

"Effect of Gigantic Laser Pulses on the Microstructure of Aluminum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp19-21

Abstract: An electron microscope study was made of defect formation in aluminum under the effect of gigantic laser pulses where the aluminum had a purity of 99.99%. Disk samples, 50 microns thick, were vacuum annealed at 600°C for four hours prior to laser bombardment. After annealing, the samples were placed on a glass plate in distilled water and bombarded with laser pulses at room temperature. Bombardment was done in three modes -- I, II, III, determined by the level of laser pumping, with mode III being the maximum radiation capacity. The study showed that structural damage results from laser exposure where the nature and degree of sample damage depended on the mode of irradiation and the distance of the investigated section from the crater epicenter. High concentrations of dislocation loops were found in samples for all three modes with the densities amounting to $10^{14}/\text{cm}^3$ for mode I, $5 \cdot 10^{12}/\text{cm}^3$ for mode II, and $7 \cdot 10^{13}/\text{cm}^3$ for mode III. Three figures, three bibliographic references.

1/1

YAN USHKEVICH, U. A.

AMU / R-760 / S-1001 / 73 73
Dover 72

Nikiforov, Yu. N., V. A. Yanshevich,
and A. V. Sandulova. Change in electrical
properties of p-ni crystal whiskers from
the action of giant laser pulses. FizKOM,
no. 3, 1972, 132-134.

Laser-induced change in the resistivity ρ of p-Si whiskers is described. The whiskers were grown along the [111] axis, had a hexagonal cross section, and ranged in length from 1 to 7 mm. Specimens were exposed to 50 nsec giant pulses from a ruby laser, with the laser beam normal to the crystal axis. Impact damages were varied over several tens of joules/cm², up to the damage threshold which was in the range of 35 - 45 j/cm². The data are presented as resistivity variation $\Delta R/R_0$ in exposed specimens as functions of whisker geometry, ambient temperature and initial ρ . Typical results at an exposure of 22 j/cm² show a sharp rise in R by about 12-15%, followed by an exponential decay back to about the initial value, at a time constant 220 milliseconds. Of the possible mechanisms considered for the alteration effect (photoeffect, crystal heating, photoeffect, defect formation) it is shown that point defect formation is the most probable factor. Defect levels, estimated to reach $10^{17}/cm^3$, were effectively annealed out in all cases in 30 milliseconds or less.

Boyko, Yu. I., and A. K. Yemeta. Study
of laser self-focusing in alkali-halide single
crystals, according to data on shift of the
damage center. DAN, v. 206, no. 2, 1972,
319-322.

Experimental results are described of laser damage phenomena in KCl and KBr crystals, with the object of determining the

USSR

UDC 621.391.2

KEMESHIS, P. P., ~~YANUSHKEVICHUS, Z. I.~~, YAPERTAS, S. P., YAPERTAS, V. P.

"On an Algorithm for Classifying Electrocardiograms"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 15-18

Abstract: The article deals with algorithmizing the classification of electrocardiograms by the method of statistical verification of hypotheses. Two tables, one illustration, bibliography of four titles.

1/1

USSR

UDC 616.12-073.75

YANUSHKEVICHUS, Z. I., VITENSHTYNAS, G. A., PRANEVICHYUS, A. A., VALUZHIS, K. K.,
and YUKNELIS, L. V., Chair of Hospital Therapy, Kaunas Medical Institute

"A Method for Continuous Recording of an Amplified EKG"

Moscow, Meditsinskaya Tekhnika, No 5, Sep/Oct 70, pp 54-55

Abstract: A description is given of a method for direct recording of an amplified EKG by means of an electrocardiograph designed at the Kaunas Medical Institute. The amplification is effected by application of the feedback principle. The diagnostic advantages of an amplified EKG were established on the basis of an examination of 400 persons, including those in good health as well as those with hypertension, chronic coronary insufficiency resulting from atherosclerosis, and indistinct heart rhythm. Comparative analysis of conventional and amplified electrocardiograms showed that the new method for recording the EKG permits additional information to be obtained in the diagnosis of a number of heart diseases.

1/1

Cardiovascular Diseases

USSR

YANUSHKYAVICHUS, Z., Academician, Academy of Sciences Lithuanian SSR

"The Heart and Its Automatism"

Riga, Nauka i Tekhnika, No 12, 1972, pp 33-38

Abstract: In 1970 an institute for the study of the physiology and pathology of the cardiovascular system was founded at the Kaunas Medical Institute. This institute became one of the leading centers in the world dealing with such problems, and is one of the three in Europe (the other two are located in Zagreb and Rotterdam). Thus far, seven of the staff members have been awarded Republic Prizes, and three staff members have been awarded the USSR State Prize. The studies conducted at the institute deal with the genesis of the innate rhythmicity of the heart, and the various factors -- endocrine and nervous -- that regulate it to satisfy the physiologic needs of the body under different conditions. The heart, which accounts for only 0.4-0.5% of the total body weight, consumes 6-10% of the oxygen taken up by the body, and this is made possible by the fact that the number of capillaries per unit of myocardium are as twice as great as in other muscles. Any factors that decrease the supply of oxygen to the myocardium severely compromise its function, and frequently lead to

1/2

USSR

YANUSHKYAVICHUS, Z., Nauka i Tekhnika, No 12, 1972, pp 33-38

ventricular fibrillation -- a type of contractile activity that does not pump blood throughout the body. One of the methods of restoring normal activity in this case consists of stimulation of the heart with a high voltage current. In 1970, as a result of their work and contribution to this problem two of the members of the staff were among those honored by the USSR State Prize, Professor A. Smaylis and Dr. A. Lukashевичute. A new instrument has been constructed at the institute, the rhythmograph, which can give an accurate recording of the heartrhythm over prolonged periods of time. By means of this instrument, changes in the activity of the heart can be detected which are not apparent by other techniques. Although as yet the mechanism of the innate myogenic rhythmicity of the heart has not been elucidated, the initial steps have been taken and it can be expected that in the not too distant future clinicians will be able to utilize this phenomenon, along with its regulatory factors, in the treatment of heart diseases.

2/2

- 6 -

YANUSHONIS, S.S.

Microelectronics

MICROELECTRONICS

JPRS 57333
25 October 1972

Excerpts from Russian-language book edited by F. V. Lukin; Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House, Moscow. UDC 621.382:621.396.6-181.5.

CONTENTS

PAGE

Annotation.....	1
Obituary of Fedor Viktorovich Lukin.....	2
Foreword.....	3
Abstracts.....	5

- 3 -

(I - USSR - 2)

the dimensions of the active components, the influence of the dimensions being more significant as the required power of the circuit is less. The authors study the influence of the capacitance of the emitter junction of a microemitter transistor on the speed of response of the TTL of the circuit.

The article contains 6 figures, 2 tables, and 4 bibliographic references.

UDC 621.396.6-181.5
Basic Ways of Increasing the Quality of Logic Integrated Microcircuits. Yanushovits, S.S. In the Collection Mikroelektronika, edited by I.V. Lukin, No 5, p 110, Sovetskoye Radio PUBLISHING House, 1972.

This article defines the functional relationship between the product PT and other physical parameters of space, bounded by an arbitrary surface. On the basis of the obtained dependence the article discusses ways of increasing the speed of increased and decreasing the extraneous power of the logic integrated microcircuits.

The article contains 2 bibliographic references.

UDC 621.382.21
Use of Nonlinear Programming for Optimal Computation of the Geometric Dimensions of the Regions of Transistors of the Grated Circuits. Nazemov, G.G., Batalov, R.V., Lebedevskaya, A.V., and Rudenko, A.A. In the Collection Mikroelektronika, edited by I.V. Lukin, No 5, p 118, Sovetskoye Radio PUBLISHING House, 1972.

A method is suggested for solving problems of synthesizing active components based on the use of nonlinear programming equipment. The article gives a block-diagram of the program algorithm and a specific example of the optimal computation of the geometric dimensions of the regions of a transistor for an integrated semiconductor circuit.

The article contains 4 figures, 1 table, and 8 bibliographic references.

UDC 621.396.6-181.5
Structure of Micropower Integrated Internal Memories on Uniform Subsystems on Supplementing MPP Transistors. Gordayev, B.K., et al. In the Collection Mikroelektronika, edited by I.V. Lukin, No 5, p 128, Sovetskoye Radio PUBLISHING House, 1972.

USSR

UDC 621.372.061

KEMESHIS, P. P., YANUSHYAVICHYUS, V. I.

"Equations of a Multichannel Band Filter"

Techn. kibernetika, Tekhn. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 263-269 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A118)

Translation: This article contains an investigation of a system comprising two modulators, low-frequency filters and a summator. The signal multiplied by the time function of the first modulator goes through the low frequency filters to the second modulator. The signals multiplied by the time function of the latter are summed. It is demonstrated that the given system is a band filter with a central frequency equal to the modulation frequency and not depending on the errors and instability of the low-frequency filter parameters and with strictly symmetrical shape of the pass band with respect to the midband frequency. There are four illustrations and a four-entry bibliography.

1/1

- 114 -

USSR

UDC 612.822.3+612.825

KUZ'MINA, T. R., and YANVAREVA, I. N., Chair of Human and Animal Physiology,
Leningrad State University

"Spontaneous Pulsating Activity in the Cat Visual Cortex During Asphyxia"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 11,
1972, pp 1656-1662

Abstract: Action potentials were recorded from the surface of 60 neurons of the visual cortex (trephined occipital bone) in anesthetized and curarized cats. As long as the animals were on artificial respiration, the neurons discharged single or multiple spike potentials at rates of 1-57 impulses/sec. Upon disconnection from the respirator, no changes were observed in the first 5-10 sec. With hypoxia developing, the rate of discharge increased by a factor of 8-10 for a duration of 5-90 sec. Then the rate and amplitude of the spike potential decreased, and all activity ceased in 15-329 sec of asphyxia. Neurons with an initial discharge rate of 11-15 impulses/sec preserved their activity for the longest period, while those with an initial rate of 1-5 were the first to become silent. EEG activity outlasted that of individual visual neurons. It is pointed out that the changes in the discharge rate caused by asphyxia are similar to those caused by cathodic depression: a partial depolarization of the neurilemma by up to 15 mV facilitates generation of action

1/2

USSR

KUZ'MINA, T. R. and YANVAREVA, I. N., *Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov*, Vol 58, No 11, 1972, pp 1655-1662

potentials, and further depolarization inhibits activity which ceases completely at a 50% depolarization.

2/2

- 59 -

USSR

UDC: 621.372.54

~~YANYSHEV, P. K.~~, MEL'NICHUK, A. Ya.

"An Electromechanical Band Filter"

USSR Author's Certificate No 257635, filed 28 Dec 67, published 20 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V437 P)

Translation: An electromechanical band filter is proposed which contains a T-shaped resonator which operates in the flexural vibration mode, one permanent bar magnet and input and output electromagnetic converters, the ends of the resonator fitting in the converter gaps. To simplify manufacture of the filter, the base of the T-shaped resonator is fastened to a support which is not connected to the magnetic circuit of the filter, and the ends of the permanent magnetic are directly connected to the magnetic circuits of the input and output converters.

1/1

- 72 -

USSR

UDC: 621.372.54(088.8)

YANYSHEV, P. K.

"A Method of Determining the Quality of Rod Fastening"

USSR Author's Certificate No 281674, filed 9 Jun 69, published 29 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V440 P)

Translation: A method is proposed for determining the quality of rod fastening, e. g., cantilever fastening of the resonators in electromechanical filters. The procedure is based on setting up mechanical forces in the rod to be tested. To improve the accuracy of measurement precision, a standard specimen made in the form of a two-rod fork with rods having identical resonance frequencies is fastened in a manner analogous to the rod to be tested, mechanical oscillations are excited in one of the rods, the amplitude of the oscillations in the second rod is measured, and the quality of the fastening (compliance of the joint) is determined from the amplitude ratio of the oscillations in the rods.

1/1

USSR

UDC 621.396.69:621.372.54(066.0)

YANYSHEV, P. K., KON'KOV, A. A., YANYSHEVA, K. B.

"A Method of Controlling the Temperature Coefficient of Frequency of Metallic Radio Engineering Articles"

USSR Author's Certificate No 253255, Filed 28 Dec 67, Published 24 Feb 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V386 p)

Translation: This Author's Certificate introduces a method of controlling the temperature coefficient of frequency of metallic electronic parts such as the resonators in electromechanical filters. The procedure is based on controlling the physical parameters of the parts. As a distinguishing feature of the patent, the range of variation in the temperature coefficient of frequency is extended by case hardening the given part to shift the temperature coefficient of frequency toward more positive values. Roller treatment may be used for case hardening. On the other hand, the temperature coefficient of frequency is shifted toward more negative values by softening the surface layer, for instance by electropolishing.

1/3 048 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EARTH COSMOS EARTH -U-
AUTHOR--YANYSHEV, SH.
COUNTRY OF INFO--USSR
SOURCE--TASHKENT, KOSMOLETS UZBEKISTANA, 24 FEB 70, P 3
DATE PUBLISHED--24FEB70
SUBJECT AREAS--SPACE TECHNOLOGY, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--CYBERNETICS, AUTOMATIC SPACE STATION, PROGRAMMED AUTOMATIC
CONTROL, TRAJECTORY OPTIMIZATION, COMPUTER CENTER/(U)ZOND 5 CIRCUMLUNAR
PROBE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/0470 STEP NO--UR/9094/70/000/000/0003/0003
CIRC ACCESSION NO--AN0114730
UNCLASSIFIED

2/3 048

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--ANO114730

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EXCERPTS: "...THE COORDINATING COMPUTER CENTER WILL PROCESS INCOMING INFORMATION". A ROUTINE REPORT ON A NEW INVASION OF MAN INTO SPACE USUALLY CONCLUDES WITH A PHASE LIKE THIS. THE MEANING CONCEALED IN THIS SENTENCE IS NOT ALWAYS COMPLETELY REALIZED. MEANWHILE, SUCCESSFUL SPACE EXPERIMENTS WOULD NOT BE POSSIBLE WITHOUT COMPUTERS. ON 15 SEPTEMBER 1968, THE SOVIET UNION LAUNCHED THE AUTOMATIC STATION "ZOND 5" TOWARDS THE MOON. FOLLOWING ORIENTATION IN SPACE, WHICH WAS CARRIED OUT WITH HIGH PRECISION, THE PROGRAMMED DEVICE GAVE THE COMMAND WHICH SWITCHED ON THE LAST STAGE OF THE CARRIER ROCKETS, PERMITTING THE STATION TO BE SENT OUT IN THE DIRECTION OF THE FLIGHT TO THE MOON. AT A DISTANCE OF APPROXIMATELY 325,000 KILOMETERS FROM THE EARTH, THE ON BOARD AUTOMATIC CONTROL SYSTEM HELPED CARRY OUT THE STATION'S PROGRAMMED TURN INTO THE INITIAL POSITION FOR TRAJECTORY CORRECTION. THE DATA NEEDED TO MAKE THE CORRECTION WAS PREPARED BY THE COMMAND MEASURING COMPLEX AND TRANSMITTED ON BOARD THE STATION. "ZOND 5" WAS TRANSFERRED TO A NEW FLIGHT TRAJECTORY WHICH IMPROVED ITS FLIGHT AROUND THE MOON. THE STATION FLEW AROUND THE MOON AT A DISTANCE OF APPROXIMATELY 2,000 KILOMETERS, CONDUCTING RESEARCH ON THE PHYSICAL CHARACTERISTICS OF THE SPACE NEAR THE MOON DURING THIS TIME. DURING "ZOND 5"'S APPROACH TO THE EARTH, ITS TRAJECTORY WAS SUBJECTED TO A SECOND CORRECTION IN ORDER TO INSURE AN EXACT APPROACH TO THE EARTH'S ATMOSPHERE. THE CALCULATED WIDTH OF THE "ENTRY CORRIDOR" IS 10-13 KILOMETERS, WHEREAS THE AVERAGE DISTANCE TO THE MOON IS EQUAL TO 384,395 KILOMETERS.

UNCLASSIFIED

3/3 048

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AN0114730

ABSTRACT/EXTRACT--THE PERFECTION AND INTRICATE PRECISION OF THE WORK OF THE ORIENTATION AND CONTROL SYSTEMS ALLOWED THE STATION "ZOND 5" TO ENTER THIS EXTREMELY NARROW "CHINK" IN THE EARTH'S ATMOSPHERE AND SPLASH DOWN SUCCESSFULLY IN THE INDIAN OCEAN. THE COORDINATING COMPUTER CENTER CONTINUED TO PROCESS THE UNIQUE SCIENTIFIC INFORMATION OBTAINED DURING THE SEVEN DAY FLIGHT OF THE STATION.

UNCLASSIFIED

USSR

UDC 51.621.391

KORSHIK, V. I., and YANYSHEY, SH. T.

"The Bounds of Error Probability for Analog Decoding in Gaussian Channels"

Tashkent, v sb. Vopr. kibernetiki (Problems in Cybernetics -- collection of works), No 45, 1971, pp 156-180 (from RZh-Matematika, No 6, 1972, Abstract No 6V361)

Translation: Words in a binary code (n,k) with an alphabet $(1,-1)$ and a minimum Hamming distance d_{\min} are transmitted along a semi-continuous channel with additive noise having a Gaussian distribution $(0, \sigma^2)$. The upper bounds of the decoding error probability for optimum reception "as a whole" are determined. A comparison is made of the decoding error probability for the given code in reception "as a whole" and in "element by element" reception.

1/1

USSR

UDC: 51:621.391

KORZHIK, V. I., YANYSHEV, Sh. T.

"Estimates of the Probabilities of Errors in the Case of Analog Decoding in Gaussian Channels"

V sb. Vopr. Kibernetiki (Problems of Cybernetics--collection of works), vyp. 45, Tashkent, 1971, pp 156-180 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V361)

Translation: Code words of binary code (n, k) with alphabet $(1, -1)$ and minimum Hamming distance d_{\min} are transmitted over a semi-continuous channel with additive noise having Gaussian distribution $(0, \sigma^2)$. Estimates from above are determined for the probability of a decoding error for optimum reception "on the whole". A comparison is given of estimates of the probability of a decoding error in the given code for the case of reception "on the whole" and in the case of reception "by elements". V. Yegarmin.

1/1

USSR

UDC 621.396.69:621.372.54(088.8)

YANYSHEV, P. E., KON'KOV, A. A., YANYSHEVA, K. B.

"A Method of Controlling the Temperature Coefficient of Frequency of Metallic Radio Engineering Articles"

USSR Author's Certificate No 253255, Filed 28 Dec 67, Published 24 Feb 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V386 p)

Translation: This Author's Certificate introduces a method of controlling the temperature coefficient of frequency of metallic electronic parts such as the resonators in electromechanical filters. The procedure is based on controlling the physical parameters of the parts. As a distinguishing feature of the patent, the range of variation in the temperature coefficient of frequency is extended by case hardening the given part to shift the temperature coefficient of frequency toward more positive values. Roller treatment may be used for case hardening. On the other hand, the temperature coefficient of frequency is shifted toward more negative values by softening the surface layer, for instance by electropolishing.

1/1

USSR

UDC: 621.317.799;621.382

BLAGOVESHCHENSKIY, V. S., ZYRYANOV, G. Kh., and YANYUSHKIN, V. L.

"Measuring Semiconductor Diode Loss Resistance"

Moscow, Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp 145-147

Abstract: The loss resistance, usually designated r_s , is one of the semiconductor diode parameters determining the frequency range of the diode. This article describes an instrument for measuring this quantity which overcomes the defect of an earlier device for the same purpose by using a peak detector instead of the low-frequency filter used in the earlier system, thus increasing the signal obtained from the diode under test. A block diagram of the new system plus a schematic are given, together with an explanation of its operation. The instrument can be used for measuring the loss resistance in tunnel diodes and in varactors biased in the forward direction. The authors are associated with the Tomsk Polytechnical Institute.

1/1

- 139 -

USSR

UDC 539.3:534.1

FILIPPOV, A. P., YANYUTIN, YE. G., (Kharkov), Khar'kov Branch, Institute of Mechanics, Academy of Sciences, Ukrainian SSR

"Determination of the Initial Reaction of a Conical Shell to a Pulse Load"

Kiev, Prikladnaya Mekhanika, Vol 7, No 8, 1971, pp 111-114

Abstract: A solution describing the initial period of deformation of a shell is constructed on the basis of the equations for a round conical shell within the theory of Timoshenko. Use of expansions of the desired functions in Fourier-Bessel and Dini series provides accurate satisfaction of the boundary conditions. The proposed method may be used for determining the initial reaction of a conical shell to an arbitrary axially symmetric load, ten terms in the series yielding an error of not more than 5%. Three references.

1/1

USSR

UDC 621.391.2

KEMESHIS, P. P., YANUSHKEVICHUS, Z. I., YAPERTAS, S. P., YAPERTAS, V. P.

"On an Algorithm for Classifying Electrocardiograms"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 15-18

Abstract: The article deals with algorithmizing the classification of electrocardiograms by the method of statistical verification of hypotheses. Two tables, one illustration, bibliography of four titles.

1/1

USSR

UDC 621.391.2

KEMESHIS, P. P., YANUSHKEVICHUS, Z. I., YAPERTAS, S. P., YAPERTAS, V. P.

"On an Algorithm for Classifying Electrocardiograms"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 15-18

Abstract: The article deals with algorithmizing the classification of electrocardiograms by the method of statistical verification of hypotheses. Two tables, one illustration, bibliography of four titles.

1/1

- 103 -

USSR

YARAKHMEDOV, G. Ya., ACHELASHVILI, K. V.

"Some Properties of the Solution of Problems of Optimal Territorial Planning"

Metody i Modeli Territor. Planir. [Methods and Models of Territorial Planning
-- Collection of Works], No 1, Novosibirsk, 1971, pp 154-167, (Translated
from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V472).

NO ABSTRACT.

1/1

USSR

UDC 621.391.273.088:519.272

YARALOSHVILI, R. V.

"On Errors in Practical Spectral Analysis Under a Fourier Transformation of the Correlation Function"

Tr. metrol. in-tov SSSR (Works of the Metrology Institutes of the USSR), 1971, No. 126(186), pp 78-82 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.77)

Translation: Errors in the spectral analysis of stochastic processes that are introduced by a Fourier transformation of the correlation function are discussed. It is shown that errors in the correlation function from the aspect of their effect on the result of the spectral analysis should be separated into local and global errors. "Parasite" oscillations appear in the spectral density under a local error in the correlation function. With a global nature of errors in the correlation function, when the error function can be expanded in Fourier series in the interval of definition, local "pips" corresponding to the expansion harmonics occur in the spectral plane. These results make it possible to determine points of the correlation function at which the greatest errors occur. The general expression is also obtained for the error of the spectral density on the assumption of continuity of the error of the correlation function; possible errors in the spectral analysis for known errors in the correlator can thus be evaluated. 3 ref.

1/1

USSR

UIC: 621.317:621.373-029.42

KOLTIK, Ye. D., SVERDLICHENKO, G. D., YARALOSHVILI, R. V.

"A Random Signal Generator"

Tr. metrol. in-tov SSSR (Works of Metrology Institutes of the USSR), 1970, vyp. 117 (177), pp 109-117 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A391)

Translation: The authors describe the functional circuit of a generator of random signals in the 0.01-30 Hz range with a shaper for the form of the correlation function $R(\tau)$. Random signals in the above mentioned frequency range are produced by the method of converting noise to a generalized telegraph signal with subsequent filtration by low-frequency filters. These filters double as the correlation function shaper. The maximum error in shaping $R(\tau)$ is calculated. Four illustrations, bibliography of nine titles. Resumé.

1/1

- 40 -

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--MULTI CHANNEL PHYSIOLOGICAL INDICES RECORDER --U-
AUTHOR--(021)-MILYUKAS, V.YU., YARASHAUSKAYTE, M.A.
COUNTRY OF INFO--USSR
SOURCE--USSR 241609
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NR 14
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PATENT, LABORATORY EQUIPMENT, MULTITRACK RECORDING, BIOLOGIC
LABORATORY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--1998/1390 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0121870
UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AA0121870

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. INCLUDING A CHANNEL FOR RECORDING MOMENTARY VALUES OF SLOWLY CHANGING INDICES, COMMUTATOR AND CONTROL BLOCK IS FITTED WITH CHANNELS FOR AVERAGED OUT PHYSIOLOGICAL INDICES VALUES, FOR INSTANCE A CHANNEL FOR AVERAGE INDEX FREQUENCY WHICH INCLUDES AN AMPLITUDE DISCRIMINATOR, STANDARD IMPULSE GENERATOR, SUMMATOR AND STORAGE ELEMENT, AND AN AVERAGE AMPLITUDE CHANNEL INCLUDING AN INTEGRATOR AND STORAGE ELEMENT. THIS ALLOWS INDICES WITH DIFFERING RATES OF CHANGE TO BE RECORDED ON A SINGLE CARRIER. THERE IS ALSO A CONTROL IMPULSE GENERATOR TO SYNCHRONISE AND RECORD INDICES IN A GIVEN SEQUENCE.

FACILITY: KAUNASSKIY MEDITSINSKIY INSTITUT.

UNCLASSIFIED

USSR

UDC: 8.74

VIDUGIRITE, V. P., PASHKEVICHUTE, N. V., YARASHYUNAYTE, B. Yu.

"Using the Razdan-3 Digital Computer for Programming Analog Procedures"

V sb. Vychisl. tekhn. T. 2 (Computer Technology--collection of works. Vol 2), Kaunas, 1971, pp 584-590 (from RZn-Kibernetika, No 1, Jan 72, Abstract No IV1060)

Translation: The paper describes the basic principles of using the "Razdan 3" digital computer to compile block diagrams of systems of linear algebraic equations solved on the ME-14 analog computer at the Computing Center of Kaunas Polytechnical Institute. Authors' abstract.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT76
TITLE--MECHANISM OF THE PP YIELDS PI PRIME POSITIVE PN REACTION AT 660 MEV
-U-
AUTHOR--(03)-VOVCHENKO, V.G., KOSTANASHVILI, N.I., YARBA, V.A.
COUNTRY OF INFO--USSR
SOURCE--YAD. FIZ. 1970, 11(4), 810=13
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ENERGY SPECTRUM, NUCLEAR REACTION, PI MESON, PION PION
INTERACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1028 STEP NO--UR/0367/70/011/004/0810/0813
CIRC ACCESSION NO--AP0124687
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124687

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. DATA ON THE INTEGRAL ENERGY SPECTRUM AND ON THE ANGULAR DEPENDENCE OF THE SHAPE OF THE PI PRIME POSITIVE MESON SPECTRUM IN THE CENTER OF MASS SYSTEM FOR THE TITLE REACTION AT 660 MEV, ARE COMPARED WITH CALCNS. WHICH ARE BASED ON THE RESONANCE MODEL OF THE PION PRODUCTION, DEVELOPED BY MANDELSTAM WHICH IS USED, IN TURN, PRIMARILY FOR DESCRIBING THE MESON FORMATION PROCESS IN PP INTERACTIONS AT THE GIVEN ENERGY. THE SPECTRUM IS REASONABLY WELL DESCRIBED BY MEANS OF THE RESONANCE MODEL, BY TAKING INTO ACCOUNT THE PRIME3 P SUB0,1,2 PRIME1 D SUB2, AND PRIME2 F SUB2,3 SHAPE IS IN CONTRADICTION TO THE RESONANCE MODEL PREDICTIONS. THE PARTIAL CROSS SECTIONS OF THE PI MESON FORMATIONS FROM THE (J,L) STATE, DEPENDING ON THE MESON ENERGY E SUBP1, ARE GIVEN. FACILITY: OB'EDIN. INST. YAD. ISSLED., MOSCOW, USSR.

UNCLASSIFIED

A1-0040374

US0000

PRIMARY SOURCE: FBIS Daily Report, Soviet Union, 9 March 1970, Vol. III, Nr 46, p D 1

USSR

DISCOVERY OF PI-MESON REPORTED AT DUBNA INSTITUTE

[Editorial Report--L] Moscow SOCIALIST INDUSTRY of 5 March 1970 publishes 3 a report by TASS correspondent A. Vrenyakov entitled "The Discovery of the Secret of Pi-meson." The report describes how, experimenting on a synchrocyclotron at the Dubna Joint Nuclear Research Institute, "Soviet physicists have accomplished the previously unknown transformation of a positive meson into a negative one. The reaction can be reversed from a negative meson to a positive one."

The report continues: "This research by physicists Yu. A. Batunov, S.A. Bunyatov, Y.M. Sadorov, and V.A. Yarba was examined on 3 March and acknowledged as an outstanding scientific discovery at a session of the USSR Council of Ministers Committee for Inventions and Discoveries."

"The Soviet physicists' discovery," the report continues, "is of enormous theoretical importance. Thus, in the opinion of scientists, with the help of the newly discovered reaction of pi-mesons a search for new atomic nuclei can be conducted."

42

19741816

19

AR0040374

Recently, the report says, research scientists have been interested in the possibility of the existence of "multineutron systems" and even of "neutron drops." The Soviet physicists' latest work "has made it possible to investigate this extremely interesting problem under laboratory conditions." The scientists are now investigating the effect of the "double recharging" of pi-mesons. They are being aided in their research by physicists from Bulgaria, Mongolia, and Romania.

2/2
19741817

1/2 028 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--CLINICAL FORMS OF ACUTE HEPATIC INSUFFICIENCY AND MODES OF THEIR
THERAPY -U-
AUTHOR--(05)--GALPERIN, E.I., NEKLYUDOVA, YE.A., IVANOV, P.A., OVNATANOV,
B.S., YAREMA, I.V.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 2, PP 40-48
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER FUNCTION, JAUNDICE, CIRRHOSIS, PROTEIN METABOLISM,
HEMORRHAGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1730

STEP NO--UR/0531/70/000/002/0040/0048

CIRC ACCESSION NO--AP0103494

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0103494

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS COMMIT TO PAPER OBSERVATIONS OVER 158 PATIENTS IN WHOM AFFECTION OF THE LIVER AND BILE DUCTS WAS ACCOMPANIED BY MANIFESTATIONS OF HEPATIC INSUFFICIENCY. THESE PATIENTS WERE DIVIDED INTO TWO GROUPS, VIZ. WITH BILIARY HYPERTENSION (OBSTRUCTIVE JAUNDICE) AND WITH CIRRHOSIS AND TUMORS OF THE LIVER, AS WELL AS DISTURBED PORTAL AND HEPATIC CIRCULATION. COMPLEX TREATMENT IS INDICATED IN HEPATIC INSUFFICIENCY IT BEING AIMED AT IMPROVING HEPATIC FUNCTION, CORRECTION OF THE WATER ELECTROLYTE BALANCE, PROTEIN METABOLISM, REDUCTION OF AMMONIA INTOXICATION, CHECKING HEMORRHAGES IN PATIENTS WITH PORTAL HYPERTENSION AND BLEEDING FROM DILATED ESOPHAGEAL VEINS. WITH THE DEVELOPMENT OF A SEVERE FORM OF INSUFFICIENCY PREMATOUS STATE AND INEFFECTIVENESS OF CONSERVATIVE THERAPY, EXTRACORPOREAL CLEARANCE OF THE BLOOD, WHICH DIMINISHES INTOXICATION, IS INDICATED.

UNCLASSIFIED

USSR

UDC 539.4.012

YAREMA, S. YA., Physicomechanical Institute, Academy of Sciences Ukrainian
SSR, L'vov

"Determination of the Stressed State of a Disk Weakened by a System of Cracks"
L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 4, 1973, pp 75-81

Abstract: A survey of works is given on the plane problem for a disk with a crack. A disk is examined which has N arbitrarily directed straight-line cracks under an arbitrary load (in particular, stresses, applied to the opposite edges of the cracks, are assumed to be unequal). The problem is reduced to a solution of a system of integral equations which, in the case of internal cracks, can be transformed to a system of second-order integral equations. Partial cases and methods of solving the equations are discussed. 20 bibliographic references.

1/1

- 26 -

USSR

UDC 539.4.012

KRESTIN, G. S., LIBATSKIY, L. L., YAREMA, S. YA., Physical Mechanics Institute of the Ukrainian SSR Academy of Sciences, L'vov, L'vov Polytechnic Institute

"Stressed State of a Disc with a Diametral Crack"

Fiziko-Khimicheskaya Mekanika Materialov, Vol 8, No 2, 1972, pp 69-78

Abstract: A solution of the integral equation of the symmetric problem in the form of a series with respect to λ (λ is the crack length reduced to the disc diameter) is found for a disc with a central diametral crack with arbitrary symmetric and antisymmetric loads. Formulas are also found for determining the stress intensity coefficients with accuracy to terms of order $\lambda^{1/2}$. Graphs are presented showing the variation of the critical value of concentrated normal and tangential forces as a function of the crack length and the variation of the corresponding distributed loads.

1/1

USSR

UDC: 620.172.25:669.14

YAREMA, S. YA., MANYUK, Z. M., Physical-Mechanical Institute of the Ukrainian SSR Academy of Sciences, L'vov

"Mechanical Characteristics of Steel 35 as a Function of the Low Temperature Stretching Rate"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 2, 1970, pp 30-37

Abstract: This article contains the results of investigation of medium carbon steel 35 in the temperature range of 77-300°K with variation of the loading rate from static to impact with ($\dot{\sigma} = 6-21 \cdot 10^4$ kilogram-force/cm²·sec). The mechanical properties of metals with body-centered cubic lattices, including the majority of construction materials, are highly sensitive to temperature changes and deformation rates at low homologous temperatures. Investigation of these relations is important not only in determining the workability of the material but also in studying brittle fracture and the mechanism of plastic flow which is not complicated by diffusion and recrystallization processes under these conditions. The stress-strain diagrams constructed on the basis of the oscillograms are presented. The nature of the diagrams changes comparatively little with an increase in the deformation rate. For a small $\dot{\epsilon}$ the rate curves are above the static curve; then with an increase in $\dot{\epsilon}$ the rate curves approach the static curve and at negative temperatures they even intersect it. Intersection takes place faster the lower

1/3

USSR

YAREMA, S. YA., MANYUK, Z. M., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 2, 1970, pp 30-37

the temperature. Reducing the temperature has the sharpest effect on the form of the diagram: the diagrams go up and down especially at temperatures below 170°K. At 77°K and a maximum deformation rate, the nature of the diagram becomes standard for brittle fracture.

Analysis of the set of diagrams shows that the experimental values of all the mechanical characteristics can be plotted well on straight lines (part of the straight lines are presented in Figure 3) corresponding to the linear relations for these values as functions of the logarithm of the elastic or plastic deformation rate. The slope of these lines increases with a decrease in temperature to 150°K, which indicates an increase in sensitivity to the deformation rate.

The data show that the temperature dependence of the mechanical characteristics is appreciably stronger than the rate dependence. The intensity of growth of the yield point and ultimate strength increases as the temperature is lowered. In the temperature range of 140-160°K the following qualitative changes take place: the elongation per unit length and reduction of area are reduced, the true rupture strength reaches a maximum, an inflection is observed on the yield point rate curve, and the conical section disappears in the fracture. The law of variation of the upper yield point is also analyzed. An analytical expression is

2/3

USSR

YAREMA, S. YA., MARIUK, Z. M., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6,
No 2, 1970, pp 30-37

presented for determining the upper yield point based on the described laws.
Results obtained earlier by various authors are discussed in the light of the new
data.

3/3

1/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--COEFFICIENTS OF STRESS INTENSITY FOR CYLINDRICAL SAMPLES WITH AN
EXTERNAL CRACK OF VARIABLE DEPTH -U-
AUTHOR--YAREMA, S.YA.
COUNTRY OF INFO--USSR
SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (11), 87-89
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--METAL CRACKING, STRESS DISTRIBUTION, CHROMIUM MANGANESE STEEL,
CYLINDRIC SHELL STRUCTURE, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1804 STEP NO--UR/0369/70/005/001/0037/0089

CIRC ACCESSION NO--AP0129172

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129172

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROBLEMS ARISING IN THE DETERMINATION OF STRESS DISTRIBUTIONS IN CRACKED CYLINDRICAL STEEL SAMPLES ARE DISCUSSED, WITH SPECIAL REF. TO THE QUESTION OF THE ANALYSIS OF EXPERIMENTAL DATA AND THE REPRESENTATION OF STRESS DISTRIBUTION BY A SERIES OF INTENSITY COEFF. FORMULAE ARE OBTAINED FOR THE INTENSITY COEFF. ON THE BASIS OF THE NEUBERG TYPE OF INTERPOLATION EXPRESSION. THE THEORY AGREES CLOSELY WITH EXPERIMENTS CARRIED OUT ON CR, MN STEEL.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--DEPENDENCE OF THE MECHANICAL CHARACTERISTICS OF CARBON STEEL 35 ON
THE RATE OF TENSILE AT LOW TEMPERATURES -U-
AUTHOR--(02)-YAREMA, S.YA., MANYUK, Z.M.
COUNTRY OF INFO--USSR
SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (2), 30-37
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--TENSILE TEST, CARBON STEEL, CRYOGENIC PROPERTY, DEFORMATION
RATE, YIELD STRESS/(U)35 CARBON STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1678 STEP NO--UR/0369/70/006/002/0030/0037
CIRC ACCESSION NO--AP0129048
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129048

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF TESTING THE MECHANICAL CHARACTERISTICS OF C STEEL SAMPLES AT LOW (LIQUID N) TEMP. AS FUNCTIONS OF THE RATE OF TENSILE STRESS APPLIED IS DESCRIBED AND THE RESULTS OF SOME TYPICAL TESTS ARE PRESENTED. A SEMI EMPIRICAL FORMULA EXPRESSING THE TEMP VELOCITY DEPENDENCE OF THE YS IS DERIVED. THIS FORMULA AND THE RESULTS WHICH IT REPRESENTS ARE COMPATIBLE WITH EXISTING THEORY AND EXPERIMENT.

UNCLASSIFIED

Mechanical Properties

USSR

UDC 620.186.14:669.14:620.173.385

KHARISH, Ye. L., ZLOTNIKOV, S. A., YAFEMA, S. Ya., MUSLITSKIY, A. B., and
MIZETSKIY, V. L., Institute of Physico Mechanics, Academy of Sciences Ukrainian
SSR

"Effect of Nonmetallic Inclusions on the Impact Strength of Low-Carbon Steel"

Moscow, Metallovedeniye, No 5, May 70, pp 58-60

Abstract: Steel 20 was melted so as to produce specific types of inclusions: lamellar (unsaturated) silicates, aluminum oxide, silicon dioxide, and titanium nitrides. The chemical composition of all heats was in the following ranges (%): 0.19-0.21 C, 0.21-0.23 Si, 0.35-0.37 Mn, 0.1 Cr, 0.16 Ni, 0.011-0.012S, 0.010-0.012 P, and less than 0.01 N. Hydrogen and oxygen content varied from 0.00010-0.00034% and 0.0048-0.022% respectively. Mechanical properties were affected only slightly by the inclusions and had the following values: $15446-143$ kg/mm², $15-27-29$ kg/mm², elongation--33-35%, reduction in area--66-68.5%, and impact strength--11-16.5 kg/mm². Standard impact test specimens were used for testing.

It was found that the durability of longitudinal samples was better than for transverse samples and at negative temperatures the fatigue strength is greater than at room temperature. The poorest durability was found in samples which had lamellar silicate inclusions in the grain boundaries. The durability of samples

1/2