KULAKOV, V. N., PANKRATOVA, M. F., PINEGINA, Yu. M.

"Synthesis of Benzothiophene From Styrene or Ethylbenzene"

Translation: Benzothiophene (I), whose derivatives have insecticidal, fungici-
dal and growth-regulating properties, is synthesized from styrene or ethyl-
benzene and H_2S on dehydrating catalysts. The authors investigate the influence
which a change in the conditions of the experiments have on the results of
the process, and make a comparative evaluation of the activity of three
dehydrating catalysts: industrial catalyst K-5, an aluminochromium catalyst
(78% Al_2O_3, 18% Cr_2O_3, 4% K_2O), and the catalyst FeS/Al_2O_3 prepared by the
Hohr-Grinsfelder method. The experiments were done in stainless steel reaction
vessels of the flow-through type with 70 and 200 ml capacities; the duration
of an experiment was 2-2.5 hours. The catalysts were analyzed by the method of
1/2

USSR

KULAKOV, V. N., et al., Chemistry of Organosulfur Compounds Present in Petroleum and Petroleum Products -- collection of works, Vol 9, "Vyssh. shkola" 1972, pp 25-31

gas-liquid chromatography. A good yield of compound I (27% as calculated from the reacted styrene $\lfloor$33.5% of theoretical$\rfloor$) was attained on the Cr_2O_3/Al_2O_3 catalyst at a volumetric rate of 0.5 hr^{-1} and a hydrogen sulfide to styrene ratio of 11 moles/mole. It is shown that for the given process the most active of the catalysts studied were the aluminochromium and FeS/Al_2O_3. With continuous use, the activity of the catalyst falls off fairly rapidly, which means that it must be periodically regenerated. It is shown that under identical conditions the yield of benzothiophene from styrene is practically equal to the yield from ethylbenzene. Benzothiophene of 97-99% purity results after redistillation of the catalyst on a clear rectification column.

2/2

- 42 -

TITLE--DIFFERENT REACTIONS OF ANIMALS TO A SIMILAR PHYSICAL EXERTION -U-

AUTHOR-(02)-PINCHUK, V.M., SUKHININA, L.B.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NUY BIOLOGII I MEDITSINY, 1970, VOL 49,
   NR 6, PP 29-33
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EXERCISE, SWIMMING, ANIMAL PHYSIOLOGY, NERVOUS SYSTEM DISEASE,
   HYPOXIA, GLYCOGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0698   STEP NO--UR/0219/70/049/006/0029/0033

CIRC ACCESSION NO--AP0131297
                              UNCLASSIFIED

2/2   021
CIRC ACCESSION NC--AP0131297
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   IN EXPERIMENTS ON ALBINO MALE RATS
OF THE SAME AGE AND WEIGHT IT IS SHOWN THAT THE EFFECT OF A SIMILAR,
GRADUALLY INCREASING LOADING (SWIMMING) IN ITS MULTIPLE REPETITION MAY
BE ESSENTIALLY DIFFERENT.   ONE HALF OF THE RATS EASILY COPED WITH THE
REFERRED TO LOADING, GAIN WEIGHT JUST AS ANIMALS OF THE CONTROL; IN THE
PROCESS OF ADAPTATION TO MOTOR ACTIVITY THESE RATS EVOLVE A CAPACITY TO
ECONOMIC EXPENDITURE AND RAPID RESTORATION OF THE RESERVES OF GLYCOGEN
IN THE CARDIAC MUSCLE AND HEPATIC CELLS.   FOR THE OTHER HALF OF RATS THE
SAME LOADING PROVES TO BE EXCESSIVE, THE ANIMALS EARLY DEVELOP DISORDERS
OF FUNCTION OF THE CENTRAL NERVOUS SYSTEM, SIGNS OF HYPOXIA, BLOCKING OF
GLYCOGEN RESERVES IN ORGANS DURING WORK AND ITS RAPID UTILIZATION AFTER
CESSATION OF THE LATTER.   ALL THE REFERRED TO MANIFESTATIONS DEVELOP
AGAINST THE BACKGROUND OF SIGNIFICANT RETARDATION OF WEIGHT GAIN AND
MYOCARDIAL HYPERTROPHY.   THE CAUSE OF SUCH DIFFERENT REACTIONS IN
SIMILAR ANIMALS TO ONE AND THE SAME PHYSICAL LOADING MAY BE DUE TO
INDIVIDUAL DIFFERENCES IN THE RHYTHM OF COMPANSATORY RESTORATIVE
PROCESSES.   FACILITY: P. F. LESGAFT INSTITUTE OF PHYSICAL
CULTURE, LENINGRAD.

UDC 669.71.049.6

USSR

PINCHUK, Ya. M., and FIRSANOVA, L. A.

"Mechanism and Thermodynamics of the Removal of Aluminum Oxide Film From an Aluminum Surface During the Distillation of Aluminum in Vacuum Through Subhalides"

Elektron. tekhnika. Nauchno-tekhn. sb, Materialy (Electronic Engineering: Collection of Scientific and Technical Works on Materials), 1970, vyp. 2, pp 16-19 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G232 by authors)

Translation: Thermodynamic calculations of the reactions in the interaction of Al_2O_3 with aluminum, as well as experimental investigations, showed that the removal of Al_2O_3 film from the surface of molten aluminum takes place due to its interaction with aluminum vapor, with the formation of gaseous Al_2O. Two tables. Bibliography of 11 titles.

1/1

UDC 669.189:621.746.75

USSR

VOLCHOK, I. P., SHUL'TE, YU. A., and PINCHUK, YE. I., Zaporozh'ye

"Nonmetallic Inclusions and Failure of Tool Steel"

Moscow, Izvestiya Akademii Nauk SSR, Metally, No 1, Jan-Feb 1970, pp 109-112

Abstract: A description is given of a special attachment for a metallographic microscope designed for the study of the behavior of non-metallic inclusions during stretching of a specimen-microsection. The results of investigations of steel with different types of non-metallic inclusions showed that the form of the inclusions has a significant effect on the origin and propagation of microcracks. Eutectic sulfides of the second type contributed most to the formation and propagation of microcracks, while globular inclusions of the first type contributed the least. A correlation dependence was established between the extent of non-metallic inclusions in steel and the magnitude of effective surface energy.

1/1

1/2   010   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--PRODUCTION OF FILTER GAUZES FROM POLYPROPYLENE AND POLYETHYLENE
   MONOFILAMENTS -U-
AUTHOR-(03)-BUTYLO, K.P., PINCHUKOVA, YE.F., RUDUKHA, B.N.

COUNTRY OF INFO--USSR

SOURCE--LEGKA PROM. 1970, (1), 31-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--FILTRATION, POLYPROPYLENE, POLYETHYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0878   STEP NO--UR/0518/70/000/001/0031/0033

CIRC ACCESSION NO--AP0124541
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0124541
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITHOUT REFS. ON
PROPERTIES, USE, AND PRODUCTION OF THE TITLE FILTER GAUZE. THE
REQUIREMENTS FOR APPLICATION IN THE CHEMICAL AND COAL INDUSTRY (E.G.,
THE STABILITY TO HCL, H SUB2 SO SUB4 AND TEMPS. LESS THAN OR EQUAL TO
80DEGREES, ETC.), AND THE PHYS. AND CHEM. PROPERTIES OF THE FILTER
GAUZES WERE DISCUSSED.

UNCLASSIFIED

Acc. Nr.: **AP0029818**   P   Ref. Code: UR 0475 /

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp *119-122*

ON EXPEDIENT TERMS OF HEALTH-RESORT TREATMENT
OF BOTKIN'S DISEASE RECONVALESCENTS

Vishnevskiy, A.S.; Khodykin, A.V.; Vishnevskaya, Yu. S.;
Kazachok, G.I.; Pinchukova, Ye.F. (Yessentuki)

A Study of 286 Botkin's disease reconvalescents made in 1958—1968 indicates that complex health-resort treatment of this category of patients showed best immediate and long-term results in those reconvalescents who were sent to health-resorts at early terms following discharge from the hospital (from 1 to 6 months).

MK

REEL/FRAME

19681504

1/2   018   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--SCIENTIFIC PROBLEMS OF STRENGTH AND WEAR RESISTANCE IN MACHINE
BUILDING -U-
AUTHOR--PINEGIN, S.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VESTNIK MASHINOSTROYENIYA, NO 3, 1970, PP 15-19

DATE PUBLISHED-------70

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

TOPIC TAGS--MECHANICAL STRENGTH, MACHINE INDUSTRY, WEAR RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1978   STEP NO--UR/0122/70/000/003/0015/0019

CIRC ACCESSION NO--AP0130753
                              UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0130753
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. PROBLEMS ASSOCIATED WITH
   INCREASING THE STRENGTH OF CONSTRUCTIONS AND WEAR RESISTANCE OF MACHINES
   ARE DISCUSSED.

UNCLASSIFIED

USSR   UDC: 621.791:549.21:669.24

LAZARSON, E. V. (Engineer), KUZ'MIN, G. S. (Candidate of Technical Sciences)
and PINEGIN, YE. G. (Engineer), Perm' Polytechnic Institute

"Carbon Behavior in Welding Nickel and Nickel-Carbon Alloys"

Moscow, Svarochnoye proizvodstvo, No 1, Jan 72, pp 10-12

Abstract: This study concerns the interaction of carbon of the parent metal
with the oxygen of the gas phase in welding nickel and nickel-carbon alloys
containing 0.3 to 0.84% C. Included in the study was also the relation of
the carbon content in the metal with the latter's tendency to porosity.
The specimen plates were welded by the nonconsumable electrode method without
alloying additions. The protective atmosphere was a mixture of argon with
oxygen. The latter was added to study the burn-out of carbon. In inert-gas
shielded welding an increase in carbon concentration in the base metal
raises the coefficient of carbon transfer to the weld metal along an
exponential curve. In oxygen-shielded welding the minimum coefficient of
carbon transfer is observed at a specific ratio of carbon concentration in
the base metal to the oxygen content in the gas phase. With an increase of

1/2

USSR

LAZARSON, E. V. (Engineer), et al, Svarochnoye proizvodstvo, No 1, Jan 72, pp 10-12

the carbon content in the metal, the process of decarburization takes on a surface nature. Oxygen transport through the gas phase layer adjoining the weld pool surface becomes the limiting component of interaction. An increase of carbon concentration in the weld pool at first raises the porosity and then leads to its reduction. It is suggested that high-carbon metals be used for obtaining nonporous welds. (7 illustrations, 1 table, 7 bibliographic references).

2/2

USSR

PINEGIN, Ye. G.

UDC 621.791.008.1

"Conference-Seminar of Welders From the Urals"

Kiev, Avtomaticheskaya Svarka, No 7, Jul 70, pp 76-77

Abstract: The Ninth Conference-Seminar of Welders From the Urals took place in Kungur in March 1970. It was attended by specialists from 33 cities of the Soviet Union. Forty reports by 70 authors were presented. Among the topics discussed were: strain distribution over the weld on crystallization and the criterion of technology of strength of the weld metal (Ye. A. Skvortsov); effects of welding conditions on deformation and technological strength in the process of crystallization (D. M. Chernavskiy); cold brittleness of welded beam-type structures (V. P. Vakhranev); increasing the stability of contact-point welding (A. M. Polnareva); new facilities of nondestructive control and the quality of roll welding (K. K. Bilev); metallurgical and technological features of arc welding of nickel and its formulations with other metals (C. S. Kaz'min); parameters of the structural system source—automatic device—arc—weld and selection of parameters of the slave mechanism for the ABND-type automatic welder (V. V. Lavrent'yev); the three-phase arc as a controlled system (V. I. Medvedev); development of equipment for welding heat-resistant and titanium

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USSR

PINEGIN, Ye. G., Avtomaticheskaya Svarka, No 7, Jul 70, pp 76-77

alloys (G. P. Salamatov); development of equipment for plasma welding and spray-
coating (V. V. Stepanov); effects of certain factors on the ultrasonic welding
of plastic materials (I. V. Mozgovaya); study of the mechanism of cavitation
erosion, development of materials, and the technology of wear resistance of
surfaced parts for hydraulic machinery (V. V. Kuratov); wear resistance of
surfaced metal (V. L. Lunyak); production of cast iron by electroslag welding
(A. Ye. Goncharov); studying the kinetics of the electroslag process by elec-
trochemical methods (G. I. Solov'yev); automatic monitoring of the use of
welding equipment (R. A. Raksha); advanced methods of arc welding of ship
structures (V. N. Sherstyuk); corrosion resistance of welds on two-layer steel
(A. V. Andreyev); gas saturation and porosity of welds in propane-butane flame
welding (S. A. Chemezova); effect of the external magnetic field on the strength
of welds (N. M. Chelnokov); controlling the crystallization in welding (A. M.
Dorofeyev); oscillatory electron beam as an effective tool for metal machining.
The sponsors of the conference arranged an exhibit of work by TSNIITMASH in
welding production. In conclusion, the conference made a number of recommen-
dations for the further advancement of welding production at the enterprises
of the Urals.

2/2

USSR   UDC 539.2:539.376+620.172.251.2

PINES, B. YA., KUZNETSOVA, R. I., and GORBENKO, V. N., Khar'kov
State University imeni A. M. For'kiy

"High-Temperature Deformation of Copper and Nickel Films One
Crystal in Thickness During Creep"

Abstract: Measurements of various types of deformation develop-
ing in copper and nickel films one crystal thick during high-
temperature creep in the low stress area were performed. It
was established that under these conditions, slipping deformations
along grain boundaries are very significant, reaching 60-80% of
the total deformation. The non-monotonic dependence of grain-
boundary deformation on stress is compared to the presence of a
linear creep limit and the change in the mechanism of internal
grain deformation of the metals in this stress area.

1/1

Aluminum and Its Alloys

USSR

PINES, B. Ya. (deceased) and KARMAZIN, A. A.

"Internal Friction in Aluminum with Various Iron Contents"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 129-131

Abstract: The effect of small iron impurities on the internal friction of aluminum is investigated. The effect of grain size and impurity content on the magnitude of observed internal friction peaks is considered. The relaxation along the grain boundaries is responsible for a low-temperature maximum. The high-temperature maximum is related to isolation of the $FeAl_3$ phase along the aluminum grain boundaries. 1 figure, 7 references.

1/1

PINES, B. YA., KUZNETSOVA, R. I., and GORBENKO, V. N., Khar'kov
State University imeni A. M. For'kiy

"High-Temperature Deformation of Copper and Nickel Films One
Crystal in Thickness During Creep"

Abstract: Measurements of various types of deformation develop-
ing in copper and nickel films one crystal thick during high-
temperature creep in the low stress area were performed. It
was established that under these conditions, slipping deformations
along grain boundaries are very significant, reaching 60-80% of
the total deformation. The non-monotonic dependence of grain-
boundary deformation on stress is compared to the presence of a
linear creep limit and the change in the mechanism of internal
grain deformation of the metals in this stress area.

1/1

UDC 669.22:539.216.2:548.526

USSR

PINES, B. Ya., GREBENNIK, I. P., and GEKTINA, I. V., Khar'kov State University imeni A. M. Gor'kiy

"Surface Diffusion on Silver and Nickel Thin Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1320-1322

Abstract: Samples were prepared for investigating surface diffusion by means of vacuum condensation on a metallic substrate B (layer thickness = 100-200 A) onto which was sprayed a layer of the diffusing substance A of the same thickness but with a smaller area having a sharp boundary. Both diffusion of Ag in Ni and Ni in Ag were studied electronographically with diffusion of Ag in nickel done at 400-750° C and Ni in silver at 500-850° C. From this the minimum electronographically fixed thickness of the "filled" component was determined. Here double-layer films of Ag+Ni were studied by changing the ratio of component thicknesses. As one would expect, the diffraction lines from the thin film of an impurity, modeling the diffusing component in tests on surface diffusion, are observed in a limited concentration interval, which was associated with the sensitivity of the electronographic phase analysis.

1/2

USSR

PINES, B. Ya. et al, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1320-1322

It turned out that the impurity was electronographically and reliably fixed in the amount of 4% (by wt) Ni in Ag and 3% (by wt) Ag in Ni. Recalculation of concentrations leads to values of a_{Ni} 8Å and a_{Ag} 5Å. A comparison of the intensity of diffraction lines of the component diffused into the surface with the intensity of the same lines from the impurity in the double-layer tests showed that, in view of their coincidence, the surface diffusion is accomplished in the layer, comparable in thickness, with an effective thickness of the impurity in the double-layer film. This does not exclude, with consideration of the sensitivity limitation of the electronographical method, that diffusion actually occurs in the layer of single-atom thickness.

2/2

1/2   032   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--DIFFUSION CREEP AND SUBSTRUCTURE OF ALUMINUM SAMPLES OF VARIOUS
   PURITIES -U-
AUTHOR-(02)-PINES, B.YA., BADIYAN, YE.YE.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, APR. 1970, 29, (4), 847-856

DATE PUBLISHED----APR70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--CREEP MECHANISM, ALUMINUM ALLOY, MELTING POINT, METAL
   DIFFUSION, IMPURITY LEVEL, CRYSTAL DISLOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0447   STEP NO--UR/0126/70/029/004/0847/0856

CIRC ACCESSION NO--AP0129672
                          UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129672
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF DIFFUSION CREEP AT
TEMP. JUST BELOW THE M.P. WERE STUDIED IN THREE AL ALLOYS CONTG. BETWEEN
10 PRIME NEGATIVE5 AND 10 PRIME NEGATIVE2 PERCENT OF IMPURITIES.   WHEN
THE DISLOCATION DENSITY AND LINEAR BLOCK SIZE WERE CONTROLLED BY THE
IMPURITIES, THE NABARRO HERRING RELATIONSHIP WAS NO LONGER SATISFIED;
THE CREEP RATE FELL WITH INCREASING BLOCK SIZE. POSSIBLE REASONS FOR
THIS EFFECT ARE DISCUSSED. IN THIS RESPECT A MAJOR INFLUENCE IS
APPARENTLY EXERTED BY AN EXCESS OF INSOLUBLE FE ATOMS APPEARING ALONG
THE BLOCK BOUNDARIES.

UNCLASSIFIED

1/2   043   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--THE STRESS-STRAIN DIAGRAM AND INTERNAL FRICTION OF COPPER WHISKERS
  UNDER UNIAXIAL EXTENSION AND A NEW METHOD OF STUDY -U-
AUTHOR-(03)-RABUKHIN, V.B., PINES, B.YA., ANDRONOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 436-439

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--STRESS ANALYSIS, YIELD STRESS, HARMONIC OSCILLATION, TENSILE
  STRESS, INTERNAL FRICTION, CRYSTAL DISLOCATION, COPPER WHISKER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0343   STEP NO--UR/0126/70/029/002/0436/0439

CIRC ACCESSION NO--AP0129975
                        UNCLASSIFIED

2/2   043
CIRC ACCESSION NO--AP0129575
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW EXPERIMENTAL METHOD OF
STUDYING THE STRESS-STRAIN DIAGRAM OF CU WHISKERS AND DETERMINING THEIR
YIELD CHARACTERISTICS IS DESCRIBED.   IN THIS METHOD THE ELASTIC
STRESSES IN THE MATERIAL ARE DETERMINED BY ANALYSING THE RESONANCE
FREQUENCY OF TRANSVERSE OSCILLATIONS SET UP IN THE STRETCHED SAMPLE.
ONE NOTEWORTHY FEATURE IS THAT AT THE INITIAL STAGE OF EASY SLIP THE
INTERNAL FRICTION REMAINS APPROX. CONSTANT, INDICATING THAT AT THIS
STAGE A LARGE PROPORTION OF THE DISLOCATIONS FORMED PASS OUT OF THE
CRYSTALS.

UNCLASSIFIED   PROCESSING DATE--09OCT70

TITLE--X RAY DIFFRACTION DETERMINATION OF THE ORIENTATION OF GALLIUM SINGLE CRYSTALS -U-

AUTHOR-(03)-PINES, B.YA., SIRENKO, A.F., VLASOVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 142-4

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--X RAY DIFFRACTION ANALYSIS, CRYSTAL LATTICE STRUCTURE, GALLIUM, SINGLE CRYSTAL, STEREO CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/1915

STEP NO--UR/0139/70/013/002/0142/0144

CIRC ACCESSION NO--AT0114355

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0114355
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR THE EASY INDEXING OF
REFLECTIONS AND FOR THE DETN. OF THE GA SINGLE CRYSTAL ORIENTATION,
AUXILIARY GRAPHS OF THE STD. STEREOGRAPHIC PROJECTION FOR DIFFERENT
ORIENTATIONS OF THE CRYSTAL RELATIVE TO THE PRIMARY BEAM ARE GIVEN. A
REF. TABLE RELATING THE ANGLES BETWEEN DIFFERENT REFLECTION PLANES IN
THE LAUE DIAGRAM TO THE POSSIBLE HKL INDEXES IS ALSO PRESENTED.
FACILITY: KHAR'KOV, GOSUNIV. IM. GOR'KOGO, KHARKOV, USSR.

UNCLASSIFIED

1/2   028   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--TEMPERATURE DEPENDENCE OF THE INTERNAL FRICTION OF ALUMINUM
   CONTAINING AN IRON IMPURITY -U-
AUTHOR-(02)-PINES, B.YA., KARMAZIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(1) 197-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL INTERNAL FRICTION, ALUMINUM ALLOY, IRON CONTAINING
   ALLOY, METAL IMPURITY, TORSION STRESS, GRAIN BOUNDARY, THERMAL EFFECT,
   ALLOY DESIGNATION/(U)A00 ALUMINUM ALLOY, (U)A81 ALUMINUM ALLOY, (U)A2
   ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0698   STEP NO--UR/0126/70/029/001/0197/0199

CIRC ACCESSION NO--AP0105674
                            UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE---13NOV70

CIRC ACCESSION NO--AP0105674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE WAS STUDIED
OF INTERNAL FRICTION OF AL (OF TRADEMARKS AB1, A00, AND A2) WITH FE
IMPURITY CONTENT OF 0.06, 0.16, AND 0.5 WT. PERCENT. THE INTERNAL
FRICTION WAS MEASURED BY A LOW FREQUENCY VACUUM TORSIONAL PENDULUM. ONE
PEAK AT 270-90DEGREES WAS OBSD. ON THE CURVES FOR THE AB1 SAMPLES, AND 2
PEAKS AT 310-60DEGREES AND 440-80DEGREES WERE OBSD. FOR SAMPLES OF
TRADEMARKS A00 AND A2. THE LOW TEMP. INTERNAL FRICTION PEAK OBSD. IN
THE PRESENT WORK ON AL SAMPLES OF VARYING PURITY AT 270-360DEGREES IS A
GRAIN BOUNDARY PEAK, SUCH AS HAS BEEN PREVIOUSLY OBSD. AND REPORTED.
WITH INCREASING GRAIN SIZE THE HEIGHT OF THIS PEAK DECREASES AND THE
PEAK SHIFTS TOWARDS THE HIGHER TEMPS. REGION. WITH INCREASING IMPURITY
CONTENT (BUT EQUAL GRAIN SIZES) THE HEIGHT OF THE PEAK DECREASES AND THE
PEAK SHIFTS TOWARDS THE HIGHER TEMP. REGION. THE ACTIVATION ENERGY OF
THE GRAIN BOUNDARY PEAK, AS CALCD. FROM THE FREQUENCY DISPLACEMENT, WAS
33-6 KCAL-MOLD.   THE 2ND, HIGH TEMP., PEAK IS OBSD. ONLY IN CASE OF
SAMPLES CONTG. GREATER THAN 0.06PERCENT FE. THE HEIGHT OF THE 2ND PEAK
INCREASES WITH INCREASING AMT. OF IMPURITY. THE APPEARANCE OF THE 2ND
RELAXATION PEAK IS ASSOCD. WITH THE RELAXATION OF THE STRESSES AT THE AL
GRAIN BOUNDARIES.

UNCLASSIFIED

PROCESSING DATE--30OCT70

1/2   029

TITLE--DEFORMATION STACKING FALTS IN NICKEL GERMANIUM ALLOYS -U-

AUTHOR-(02)-PINES, B.YA., ZARUBINA, S.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(3), 660-70

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--NICKEL ALLOY, GERMANIUM ALLOY, X RAY ANALYSIS, CRYSTAL DISLOCATION, METAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0943   STEP NO--UR/0126/70/029/003/0669/0670

CIRC ACCESSION NO--AP0121545

2/2   029
CIRC ACCESSION NO--AP0121545
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBABILITY OF FORMATION AND THE ENERGY OF DEFORMATION STACKING FALTS IN NI,GE ALLOYS WERE DETD. BY THE X RAY METHOD OF APPLYING HARMONIC ANAL. TO THE SHAPE OF THE LINES. THE ALLOYS WERE PREPD. FROM ELECTROLYTIC NI AND GE IN THE FOLLOWING CONCNS.: 1.5, 3.7, 6.5, AND 9 AT.PERCENT GE. A CHANGE IN THE ANGULAR DISTANCE BETWEEN THE (111) AND (200) PEAKS WAS OBSD. FOR ALL THE FILED ALLOYS STUDIED (AS COMPARED TO THE SAME ANNEALED ALLOYS), WHICH IN TURN MADE IT POSSIBLE TO DET. THE PROBABILITY OF FORMATION OF DEFORMATION STACKING FAULTS. THE THERMAL EXPANSION COEFF. INCREASES WITH INCREASING GE CONCN., AND IT INCREASES SHARPLY AFTER DEFORMATION OF THE ALLOY AT LIQ. N TEMP. THE STACKING FAULT ENERGY WAS DETD. FROM THE DISLOCATION D.   FACILITY: KHAR'KOV. GOSUNIV. IM. GOR'KOGO, KHARKOV, USSR.

USSR   UDC 669.71:539

PINES, B. YA., and KARMAZIN, A. A., Khar'kov State University imeni A. M. Gor'kiy

"Amplitude-Dependent Internal Friction of Aluminum Containing Iron Impurities"

Abstract: Results are presented of an investigation of the amplitude dependence
of internal friction in A99, A85, A7, and AO aluminum with iron contents ranging
from 0.003 to 0.5%. The internal friction was measured by means of a low-frequency
torsion pedulum. The amplitude of deformation varied from $8 \cdot 10^{-6}$ to $5 \cdot 10^{-4}$. The
specimens were cylinders 100 mm long and 1 mm in diameter. The annealing was done
at high temperatures, after which the average linear size of the aluminum grains
was 2-3 mm. The method of internal friction is used to estimate the parameters of
the dislocation structure, condensation temperatures, bonding energy of disloca-
tions with impurity atoms, and the concentration of impurity atoms in the solid
solution and along the boundaries of grains for the aluminum-iron system. The
authors thank V. N. Startsev for his interest in the work and useful discussion.

1/1

USSR   UDC 669.71:669.3:539.376

PINES, B. YA., BADIYAN, YE. YE.,and SIRENKO, A. F., Khar'kov State University
imeni A. M. Gor'kiy

"Changes in the Substructure of Copper and Aluminum at High Temperature Creep"

Abstract: Results are presented of an investigation of the substructure of single
and polycrystalline specimens of copper and aluminum and its changes in the process
of high temperature creep. X-ray and chemical pickling methods were used. It is
shown that the change in substructure characteristics (average size of blocks and
disorientation) takes place mainly at the unsteady creep stage. The possible
atomic mechanism of the formation of the substructure under conditions of diffusion
creep is considered.

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USSR

UDC 669.71:539.376

PINES, B. YA. and BADIYAN, YE. YE., Kharkov State University imeni A. A. Gor'kiy

"Diffusion Creep and Substructure of Aluminum"

Abstract: The kinetics of diffusion creep was studied on A995, A99, A85, and A0 aluminum alloys at 440, 500, 600, and 650°C. Samples were annealed for 20 hours at 650°C, and a constant heating and cooling rate of 600°/hour was employed. Sample dimensions were 50 x 6 x 4 mm. Cell size and dislocation density were measured prior to the creep study.

The high-temperature creep of aluminum samples containing a low impurity content (from 10^{-5} to $10^{-2}\%$) increases the same as for single-component (pure) metals. In all cases the stress p was lower than the linear creep limit po and the rate of creep $\mathcal{E}$ was proportional to the magnitude of the applied stress. Quantitative relationships between $\mathcal{E}$ and p for samples with impurities does not satisfy the Navarro-Herring function and $\mathcal{E}$ is not proportional to 1/L, but on the other hand, there is indicated a good relationship with L for those samples where the change in L was caused by a change in impurity content. For samples of the same composition, in which dislocation density ρ and cell dimensions L were altered by varying the heating rate, the magnitude of $\mathcal{E}$ diminished with ρ (upon increasing L), which agrees with the Navarro-Herring function. Two reasons can be given which cause a
1/2

USSR

PINES, B. YA., and BADIYAN, YE. YE., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 847-856

deviation from the Navarro-Herring function. The creep rate of an alloy should be less on the strength of a nonuniform partial diffusion component, attracting the advent of a concentration discontinuity, which leads to the appearance of a vacancy concentration gradient of the opposite sign in comparison with the responding directed self-diffusion from the action of applied stresses.

Moreover, insoluble impurities enter primarily into the cell and grain boundaries and if they increase the resistance to slip into the boundaries, then the advancing alignment of stresses lowers normal stresses in the grain body (cells), which also causes a lowering of creep rate. Quantitative evaluations showed that for aluminum with impurities (especially with Fe impurities) the latter effect had special significance.

2/2

USSR :   UDC 619:616.981.45:591.613

PETUKHOVA. O. S., PINIGIN, A. F., ZABRODIN, V. A., VAGINA, L. A., and
ZABRODINA, YE. F., Scientific Research Institute of Agriculture of the Far
North :.

"Isolation of Brucella From Wild Animals"

Abstract: In 1968-1970 in the Taymyr National District of Krasnoyarskiy
Kray (Central Siberia), 41 Brucella cultures were isolated from indigenous
wild animals: 15 from wild reindeer, 15 from wolves, 10 from polar foxes,
and 1 from a wolverine. All these strains grew under aerobic conditions and
in most cultural and morphological properties were identical to those isolated
from domestic animals, reindeer in particular. While the former tended to
be more resistant to penicillin than the latter, they were generally less
virulent. In Siberian foci of brucellosis, wild reindeer are in frequent
contact with domestic animals and apparently become readily infected by them.

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USSR

UDC 616.981.42

PINIGIN, A. F., Professor, ZABRODIN, V. A., Candidate of Veterinary Sciences, Scientific Research Institute of Agriculture of the Far North

"Natural Foci of Brucellosis"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 7, Jul 70, pp 96-99

Abstract: Some 61 wildlife species have been found to be susceptible to brucellosis. Of these 27 were infected in the natural state and 34 were sensitive to experimental infection. About 20 species of blood-sucking arthropods which were infected with brucellosis under natural conditions have been recorded. To determine the spread of brucellosis among wild animals in Eastern Siberia and the Far East, a bacteriological study was made of about 1,500 mammals, 100 birds, and more than 6,250 Ixodes ticks. Long-tailed susliks were studied by serological methods. The animals were divided into two groups, those from brucellosis foci in cattle, sheep and pigs and those from foci of brucellosis in reindeer. It was found that, in natural foci of brucellosis north of Krasnoyarskiy Kray, the wild northern reindeer which are carriers of this infection transmit it to wolves, polar foxes, and wolverines.

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USSR   UDC 577.1:615.7/9

PINIGIN, M. A., MARKARYAN, A. S., SHURUPOVA, V. S.

"Adaptation to Different Types of Exposure to Chemical Substances (Constant, Intermittent)"

V sb. Farmakol. Khimoterapevt. Sredstva. Toksikol. Probl. toksikol. (Pharmacology. Chemotherapeutic Agents. Toxicology. Problems of Toxicology--Collection of Works), Vol 5 (Advances in Sciences and Technology. All-Union Institute of Scientific and Technical Information, USSR Academy of Sciences, Moscow, 1973, pp 120-128 (from RZh-Biologicheskaya Khimiya, No 17, Sep 73, Abstract No 17 F1898 by the author)

Translation: A graphic method is proposed for evaluating the process of adaptation to continuous and intermittent inhalation of aniline (Mt-Hb-forming substance).

1/1

PINIGIN, M. A.

SOME NEW APPROACHES TO PRESSING THEORETICAL AND PRACTICAL PROBLEMS DEALING
WITH SETTING HYGIENIC STANDARDS FOR TOXIC SUBSTANCES

The rapid strides of scientific and technological progress in our
country result in rapid elevation of the material and cultural standard of
living, in better health, and longevity.

The broad state measures conducted in our country for the prevention
of environmental pollution and for amelioration of the environment are based
on hygienic criteria of its quality. With reference to chemical pollution,
maximum permissible concentrations of toxic substances are such criteria.

To date the maximum permissible concentrations have been established
for more than 600 substances in the air of industrial buildings, for more
than 350 substances in water of reservoirs, for more than 100 substances in
atmospheric air, etc.

In view of the enormous scales of development of the national economy
in the 9th five-year period, as defined in the Directives of the 24th Congress
of the CPSU, the importance of setting hygienic norms for environmental
chemical factors will grow even more. There is also an increasing need to
resolve some problems pertaining to setting hygienic standards. They include:
1) development of approaches and method of standard hygienic norm setting
when a substance has different routes of access into the organism; 2) develop-
ment of rapid methods of substantiating maximum permissible levels of toxic
substances in diverse environmental objects; 3) hygienic evaluation of the
intermittent effect of chemical compounds in the environment.

The urgency of the first problem is related to the fact that under
modern conditions man may be exposed to the deleterious effect of chemicals
both in industry and in populated areas due to atmospheric air, water, and
food contamination. The existing practice of setting hygienic standards for
a given substance separately for atmospheric air, air in industrial buildings,

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USSR   UDC 621.791.927:669.15-194

MILICHENKO, S. L., ALEKSANDROV, A. G., PIN'KOVSKIY, I. V., Zaporozh'ye
Machine Building Institute

"Erosion Resistance of Surfaced Steels in the Nickel-Titanium-Aluminum
System with Ageing Martensite"

Abstract: The hydraulic erosion wear resistance of metal surfaced with
electrode materials based on alloys such as 18 Ni-Co-Mo-Ti with low cobalt
content, as well as high-strength cobalt-free alloys in this system was
studied. The erosion resistance of the surfaced metal was estimated on the
basis of the weight loss of specimens tested on an impact erosion test stand.
The erosion resistance of surfaced metal with ageing martensite was found
to be determined by the quantity of martensite in the structure and its
hardening during ageing. Cobalt-free surfaced metal with ageing martensite
structure had high hardness and erosion resistance following ageing, equal
to the erosion resistance of aged nickel-cobalt-molybdenum surfaced metal
with high cobalt content.

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USSR   UDC 533.92:621.039.61

VOYTSENYA, V. S., ZISER, V. Ye., DIKIY, A. G., ZHDANOV, A. I.,
PINOS, I. B., YAROKER, Ya. N.

"Calculation and Modeling of Helical Windings of Various Types on Toroidal
Surfaces"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb.
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion.
Republic Interdepartmental Collection), 1972, No. 3, pp 137-141 (from
RZh-Fizika, No 11, Nov 72, Abstract No 11G276)

Translation: The problem of the possibility of using various winding patents
for helical conductors on toroidal surfaces is investigated: geodesic lines,
lines of constant inclination to the generatrix of the torus, and lines of a
cylindrical and toroidal spiral. It is shown that a tight elastic grid can
be a fairly good approximation for geodesic lines on a torus. Data are given
for constructing a geodesic line on a toroidal surface with an arbitrary
aspect ratio. The calculations were made on the "Ural-4" and "Mir" computers.

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AA0040739￣

PINOUSKIY, M.L.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, /-70

242372   TYRE, MANUFACTURE This invention relates
to equipment for rolling the folded
layers of a tyre carcasse, and consists of a centre
shaft (I) with longitudinal grooves in which the
diaphragm (2) is mounted in conjunction with the
ring-and-bearing assemblies (3). Each of these
rings is fitted with a spring-loaded support (4).
The centre ring (5) is fastened rigidly on the
centre shaft so that the centre section of the
article being made can be rolled under pressure.
The friction roller (6) is the power drive. This
design is an improvement on previous rolling
equipment, in that the friction between the rolling
rings and the surface of the article being rolled
is almost eliminated, and permits articles having
different profiles to be treated.

19750403

AA0040739

4.2.63, аа 818235/23-26 PINOVSKII, M.L. and others
Tyre Ind. Res. Inst. (8.9.69) Bul. 15/25.4.69.
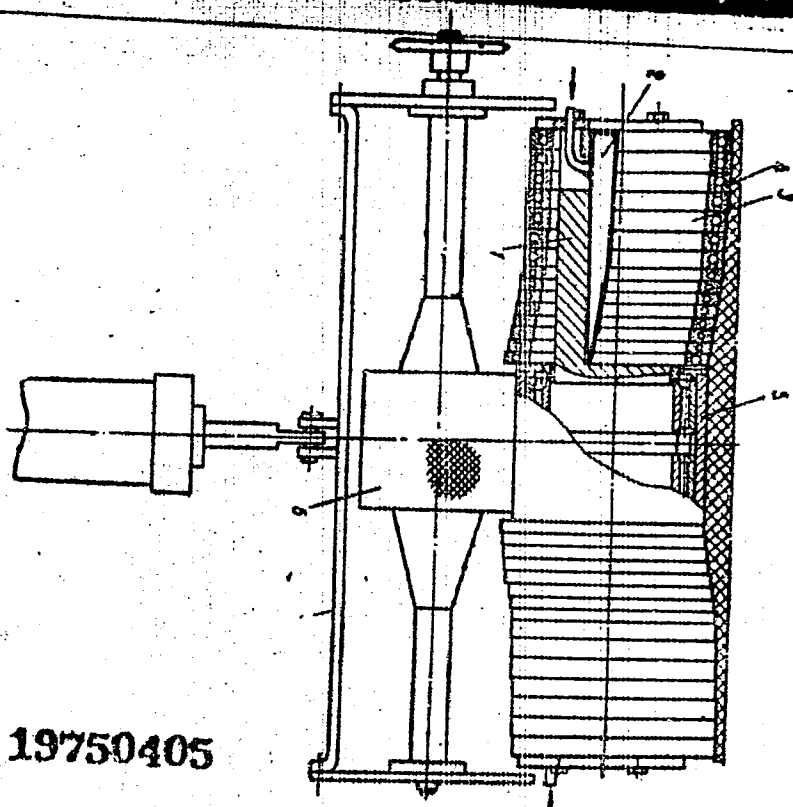Class 39a^6 Int. Cl. B 29h.

AUTHORS: Pinovskiy, M. L.; Rozov, K. V.; Vil'k, V. S.; and
Karmatskiy, Yu. I.

Nauchno - Issledovatel'skiy Konstruktorsko -
Tekhnologicheskiy Institut Shinnoy Promyshlennosti

$\frac{2}{3}$ 19750404

AA0040739

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19750405

USSR

PINSKER, I. Sh., TRUNOV, V. G., SHAKIN, V. V.

"Recognition of Manuscript Characters which can be Parametrized"

Translation: An approach is suggested and described for recognition of
manuscript characters (numerals) which are studied as lines on a plane,
represented in parametric form with a natural parameter. This represen-
tation allows the problem of synthesis of spatial standards for manu-
script characters to be solved. A simple generator is suggested, the use
of which allows significant reduction in the preparatory portion of the
experiment, related to coding and input of information to a computer.

1/1

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USSR

PINSKER, I. Sh., TSUKERMAN, B. M., SHAKIN, V. V.

"Diagnostic Classification of Electrocardiograms as Vector Functions"

Opoznavaniye i Opisaniye Liniy [Recognition and Description of Lines --
Collection of Works], Moscow, Nauka Press, 1972, pp 47-57 (Translated
from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract
No 3 V712 by the authors).

Translation: The expediency is demonstrated of recognizing electro-
cardiograms as vector functions using the method developed, and experi-
mental results of EKG diagnosis of myocardial infarct are presented.

1/1

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USSR

PINSKER, I. Sh., and ShAKIN, V. V.

"Total Superimposition as a Method of Pattern Recognition"

Abstract: The most common approach to pattern recognition involves partitioning the image space by the use of various descriptors until a pattern can be recognized by assigning it to a unique cell in the partitioned space. The process of developing descriptors is largely intuitive or heuristic. An alternative approach involves superimposing the pattern to be recognized over various standard patterns in an attempt to develop an identical match. This approach encounters complexities in allowing for distortions. Rozenblat suggested the use of perceptrons to overcome this difficulty, but the limited capacities of the perceptron make this unsatisfactory. V. S. Fine has used a computational system starting from the coincidence of singular points, but only linear (affine) transformations are considered, limiting the possibilities.

The method described in this article involves extending the continuous group of affine transformations of the plane to a semigroup of linear transformations of multi-dimensional space and abandoning the limitation to singular

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USSR

points only and finding parameters of transformation. Images are superimposed and their similarity evaluated using an integral functional which determines the distance between them.

The method is applied to 1-dimensional geometric variations such as oscilloscope traces, hand-writing, electrocardiograph recordings, etc. In analysis of electrocardiograms for myocardial infarct the method proved superior to the use of discriminant functions and gaussian approximation of distribution into classes and as good as the method of potential functions. In recognizing hand-written numerals input to a computer, an algorithmic method has been devised for synthesizing standards by representing the X-Y coordinates as parameters of time and projecting them on the plane until the best fit has been obtained with the number to be recognized.

2/2

USSR

PINSKER, I. Sh., SHAKIN, V. V.

"Method of Local Expansions"

Opoznavaniye i Opisaniye Liniy [Recognition and Description of Lines --
Collection of Works], Moscow, Nauka Press, 1972, pp 30-39 (Translated
from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract
No 3 V709).

Translation: Certain facts are presented, related to the formal appara-
tus of the method of local expansions, which utilizes and generalizes
certain properties of the Taylor expansion at a point and linear approxi-
mation in a sector. The method is used in the practice of recognition
of objects described using vector functions of a scalar argument.
11 Biblio. Refs.

1/1

USSR

MALINOVSKIY, L. G., PINSKER, I. Sh., TSUKERMAN, B. M.

"Coding of Electrocardiograms in Automatic Diagnosis Systems"

Opoznavaniye i Opisaniye Liniy [Recognition and Description of Lines --
Collection of Works], Moscow, Nauka Press, 1972, pp 86-95 (Translated
from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract
No 3 V708 by the authors).

Translation: A digital computer is used to compare various methods of
coding of electrocardiograms. Based on the results produced, a device
was suggested and manufactured for coding of EKG's. 14 Biblio. Refs.

1/1

USSR

PINSKER, L. Sh.

"Recognition of Vector Functions and Lines"

Opoznavaniye i Opisaniye Liniy [Recognition and Description of Lines --
Collection of Works], Moscow, Nauka Press, 1972, pp 7-29 (Translated
from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract
No 3 V713 by the author).

Translation: The problem of recognition of objects represented by
vector functions in a multidimensional space is studied. All objects,
the vector functions of which are projections of a certain standard
are suggested to belong to a single class. A method is suggested for
construction of a standard for vector functions, concerning which it
is known in advance that they relate to one class. This approach is
extended also to the case when a change in parametrization is added
to the linear conversion of the standard. The influence of the initial
selection of a parameter is either weakened or the parameter is com-
pletely excluded, going over to a hodograph of the vector function.
An estimate of convergence is given for the algorithms suggested.

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E.   Mathematical Modeling of Thought Processes

USSR

PINSKER, I. Sh., SHAKIN, V. V.

"Integral Superimposition of Figures as a Method of Pattern Recognition"

Probl. Peredachi Inform. [Problems on Information Transmission], 1972, Vol 8, No 4, pp 82-87 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V699, by the authors).

Translation: An approach is developed to pattern recognition, based on the idea of superimposition of entire images being compared. The presentation is performed for the case when the images (absolute descriptions) of the objects analyzed are lines (or vector functions of a scalar argument) in a finite-dimensional space.

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1/2   022
UNCLASSIFIED
TITLE--ON THE POTENTIAL INFORMATIVENESS OF ELECTROCARDIOGRAMS -U-
PROCESSING DATE--09OCT70

AUTHOR-(03)-PINSKER, I.SH., SHAKIN, V.V., GUREVICH, L.S.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 2, PP 12-18

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROCARDIOGRAPHY, HEART DISEASE, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0641

STEP NO--UR/0481/70/000/002/0012/0018

CIRC ACCESSION NO--AP0108852

UNCLASSIFIED

CIRC ACCESSION NO--AP0108852   UNCLASSIFIED   PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE TASK OF PRELIMINARY ANALYSIS
OF THE DIAGNOSTIC VALUE OF ELECTROCARDIOGRAMS IS DISCUSSED.   A METHOD OF
SINGLING OUT FROM ANY NEW (ADDITIONAL) ELECTROCARDIOGRAM OF ALL THE
PARAMETERS, WHICH MAY CONTAIN DIAGNOSTIC INFORMATION, HAS BEEN
ELABORATED.   THE AUTHORS PROPOSE AN OPTIMAL, ECONOMIC AND PHYSICALLY
SUBSTANTIATED SYSTEM OF REGISTRATION AND TREATMENT OF
ELECTROCARDIOGRAMS.   FACILITY: INSTITUT PROBLEM PEREDACHI
INFORMATSII AN SSSR, MOSCOW.

UNCLASSIFIED

AA0043334

PINSKER M.M.

Soviet Inventions Illustrated, Section II Electrical, Derwent.

UR 0482

2/70

243051 ELECTRICAL MOTOR SPEED REGULATOR is
simplified and made more reliable. The
rotor windings of an a.c. motor (1) are terminated
by a network of diodes (2-4) and thyristors (5-7).
The phase currents are controlled by triggering the
thyristors via a phase-shifting network which
includes photo-resistor (8) and capacitor (9)
coupled to the power network by transformer (10).
The output of the phase shifting network is fed in
one half-cycle to a pulse shaping network which
consists of transistor (15), differentiating net-
work (17,18) and output transistor (23) connected

4

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4

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AA0043334

to the gate of thyristor (6). In the other half-cycle transistors (16,24) and associated network are active in conjunction with thyristor (7). The whole control network is mounted on the shaft of the machine. A light source is fixed perpendicularly to the plane of rotation of the photo-resistors. As the light of the lamp changes, the phase angle of the gating pulses will change also due to the
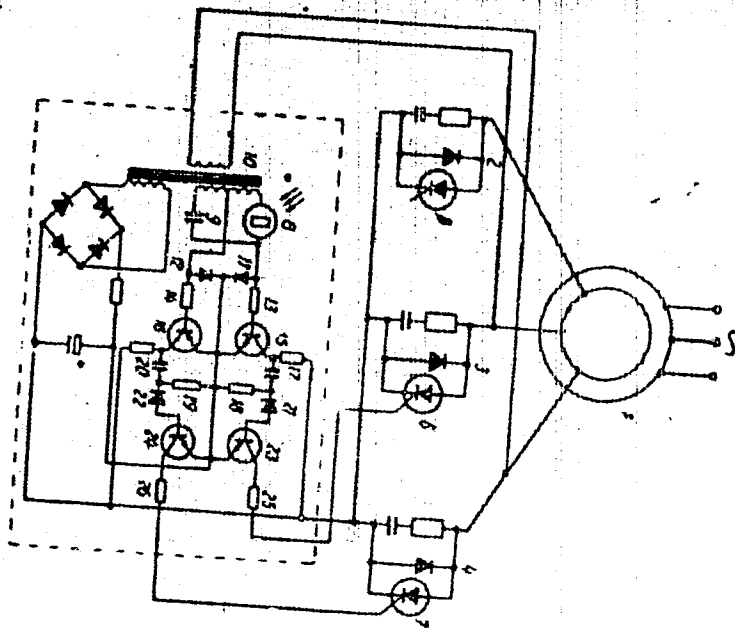
effect of the photo-resistor; consequently the average value of current and thereby the motor torque will also change.
8.8.66 as 1096113/24-7.M.M.PINSKER (25.9.69.)Bul 16/
5.5.69. Class 21d. Int.Cl.H 02p.

2/3

19761559

AA0043334

3/3

19761560

B. Information Theory

USSR

GORBUNOV, A. K., PINSKER, M. S.

UDC: 51.621.391

"Epsilon Entropy Without Anticipation and With Prognosis"

Vladivostok, Inform. metody v sistemakh upr., izmereniy i kontrolya--sbornik (Information Methods in Systems of Control, Measurement and Monitoring--collection of works), T. 1, 1972, pp 5-14 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V453 [from the authors' introduction])

Translation: The paper takes up the concepts of epsilon-entropy, and also the rates of creation of messages by a source without anticipation and with prognosis. In introducing these concepts, it is taken into consideration that in recovering a message after transmission through a channel at some instant the initial message is known either by the instant coinciding with that to be determined, or prior to it.

It is pointed out that for stationary sources the rate of creation of messages is always defined and in a broad class of cases is realized with respect to stationary pairs of input and output messages; for Gaussian messages epsilon-entropy is realized with respect to Gaussian pairs of input and output messages. For a Markov Gaussian message and

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USSR

GORBUNOV, A. K., PINSKER, M. S., Inform. metody v sistemakh upr., iz-
mereniy i kontrolya, T. 1, 1972, pp 5-14

source the paper gives representations of the output messages which
realize epsilon-entropy, and the rate of creation of messages by the
source; expressions are also written out for the epsilon-entropy and
rate of creation of messages.

2/2

USSR

GORBUNOV, A. K. and PINSKER, M. S.

"Epsilon Entropy and the Speed of Generating Messages Without Anticipation and With Prognosis"

Abstract: This article is based on and uses the notation of an earlier article written by the second of the authors named above for the same journal (Istochniki soobshcheniy -- Communication Sources -- vol 14, 1903, pp 5-20). The present article introduces the concepts of communication epsilon entropy and the speed of generating messages by a source without anticipation and with prognosis. These concepts arise when, at the time the message is reproduced after its transmission, the original message is known either before a particular moment or before a time preceding that moment. It is shown that except for pathological cases, the speed of message generation for stationary sources is always determined and is realized, in a number of cases, by stationary pairs of input and output messages. The problems examined in this paper are solved for sources with discrete as well as continuous time and with any abstract sets of states.

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USSR

GORBUNOV, A. K. and PINSKER, M. S.

UDC: 51.621.391

"Epsilon Entropy With Prognosis and Without Anticipation"

Vladivostok, V sb. Inform. metody v sistemakh upr. izmereniy i kontrolya. T. 1 (Information Methods in Systems for Regulation of Measurements and Control, Volume 1--collection of works) 1972, pp 5-14 (from RZh--Matematika, No 7, 1973, Abstract No 7V453)

Translation: Concepts of epsilon entropy as well of speeds of generating messages by a source with prognosis and without antici-pation are considered. In the adoption of these concepts it is understood that with the restoration of the communication after its transmission over the channel at some moment of time, the original communication will be known either before the moment coinciding with a definite moment in time or preceding it.

It is indicated that for stationary sources the speed of generating the message is always defined and is realized in a broad class of cases by stationary pairs of input and output messages. For a Markov Gaussian message and the source, representations are given of the outgoing message realizing

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USSR

GORBUNOV, A. K. and PINSKER, M. S., Inform metody v sistemakh upr. izmereniy i kontrolya. T. 1, 1972, pp 5-14

epsilon entropy and of the speed of generation of the messages by the source, and an expression is written for the epsilon entropy and the speed of message gener- ation. From the authors' introduction.

2/2

USSR

UDC 621.395.34

BASSALYGO, L. A., PINSKER, M. S.

"Concerning the Complexity of an Optimum, Nonblocking Switching Network Without Reorganization"

Abstract: Assume that there are two nonintersecting groups of n subscribers in each and that it is required to construct an economic switching network which permits connecting any two free subscribers from different groups regardless of paired connections already existing in the system. This article deals with the problem of constructing switching circuits which satisfy the given condition and contain the least possible number of elements. Exact formulation of the problem is based on the ideas of graph theory with certain preconditions.

1/1

USSR

PINSKER, M. S., SAGALOVICH, Yu. L.

"Lower Bound of the Capacity of a Code of the States of an Automaton"

Moscow, Problemy Peredachi Informatsii; July-September, 1972; pp 58-66

ABSTRACT: The lower bound is obtained for the number of states M of an automaton
which are stable for conflicts and malfunctions of any t or less of the total
number n of its internal elements. The bound is obtained by a method of random
coding of the states of the automaton by code words of length n. The total number
of code words ensuring that the automaton will have the above-mentioned property
is called the code of the states of the automaton. A problem is solved in the gen-
eral case of q-positioned internal elements, in connection with which two models of
the states are suggested. The upper bound is found for the correcting capability t
of a code of the states of an automaton in which its capacity M retains an exponen-
tial increase. In particular, for q = 2 this is true for every case in which
t < n/16. One theorem is presented.

The article includes 21 equations. There are three references.

1/1

USSR

UDC: 621.391.1:519.25

PINSKER, M. S.

"Information Contained in Observations, and Asymptotically Suf-
ficient Statistics"

Moscow, Problemy Peredachi Informatsii, vol 8, No 1, 1972, pp 45-61

Abstract: The purpose of this article is to obtain an expression for the
quantity of information in a set of observations and also to obtain the value
of the parameter $\hat{\theta} = \hat{\theta}_n(\zeta_1, \ldots, \zeta_n)$ such that $I(\theta, (\zeta_1, \ldots, \zeta_n)) - I(\theta, \hat{\theta}) =$
$o(1)$, with $n \to \infty$. In this expression, θ is a random quantity, θ is its
value, and the ζ_i are another set of random quantities, the I representing the
information. The value $\hat{\theta}$ is defined as the asymptotically sufficient statistic
and satisfies the equation above. When the right-hand member of the equation
$o(1) \to 0$ uniformly throughout the distribution of θ, the value $\hat{\theta}$ is said to be
a fully asymptotically sufficient statistic. In this article, the author limits
himself to the case in which θ, $\hat{\theta}$, and the ζ_i are unidimensional random
quantities and $p(z/u)$, where z is the observation and u is the unknown
parameter, is absolutely continuous.
1/1

USSR

D'YACHKOV, A. G., PINSKER, M. S.

UDC 621.391.1:51

"Optimal Linear Method of Transmission Through Gaussian Stable Channel Without Memory with Full Feedback"

Moscow, Problemy Peredachi Informatsii, Vol 7, No 2, 1971, pp 38-46.

Abstract: A linear method of transmission of discrete messages through a Gaussian stable channel without memory with full feedback is described, when the energy of the input signal is assumed limited. It is demonstrated that for both discrete and continuous time, the exponent of the probability of error (reliability) of the linear method constructed at all transmission rates less than the throughput capacity of the channel corresponds to the exponent of the boundary of dense packing.

1/1

USSR

UDC 621.391.13

PINSKER, M. S. and SHEVERDYAYEV, A. Yu.

"Throughput Capacity With Zero Error and Erasure"

Abstract: This article introduces a concept of throughput capacity with zero error and erasure and shows that for a rather broad class of channels (including, for example, a fully unbalanced binary channel) this throughput capacity coincides with ordinary throughput capacity. The throughput capacity of a channel with zero error and erasure is defined as the upper bound of the transmission rates of codes for which the probability of error is equal to zero while the probability of an erasure by the decoding device can be arbitrarily small.

1/1

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USSR

VOLKOV, V. A., and PINSKER, T. N. (Institute of Radio Engineering and Electronics of the USSR Academy of Sciences, Moscow)

"Quantum Size Effect in Films of Variable Thickness"

Abstract: Certain aspects of the quantum size effect in films of variable thickness were studied. The distribution of the concentration of the current carriers in a wedge-shaped film along the radius of the wedge was calculated. It was shown that the carriers cannot penetrate the edge of the wedge farther than the point at which the thickness of the wedge becomes comparable with the de Broglie wavelength. Peculiarities of the volt-ampere characteristic of a contact, a metal wedge-shaped film, and the effect of the anti-Stokes emission from a wedge-shaped film were studied. It was shown that dimensionally a quantized film with periodic variation of the thickness along one of its dimensions is a superlattice.

1/1

USSR

GENKIN, V. N., PISKAREV, V. I., TRIFONOV, B. A., Scientific Research Radio Physics Institute

UDC 621.376.234

"Detector Based on n-Type InSb at 77°K"

Abstract: A study was made of the detecting properties of n-InSb at a temperature of 77° K. A sample of n-type InSb 0.25 × 0.21 × 0.05 mm^3 (n = 9.1·10^{13}, μ = 7.5·10^5 cm^2/volt-second, T = 77° K) was used as the detector element. The volt-watt sensitivity K = U/P$_c$ (the ratio of the voltage at the modulation frequency to the signal power absorbed in the detector) was investigated by measurements on a frequency of 3 and 150 gigahertz with a modulation frequency of 1,000 hertz. Two characteristic regions are isolated on the curve obtained for the volt-watt sensitivity as a function of the bias. One corresponds to an increase in the resistance with an increase in the field (E < 160 volts/cm), and the other, a drop in the resistance (E > 160 volts/cm). The boundary of value of the field E = 160 volts/cm is the characteristic field for which a significant change in concentration begins in the n-InSb at 77° K [O. Madelung, Fizika poluprovodnikovykh soyedineniy elementov III i V grupp , Mir, Moscow,
1/2

USSR

GENKIN, V. N., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 9, 1972, pp 1417-1419

1967]. In the first region the detection effect is caused by the dependence of the electron mobility on the field. The maximum volt-watt sensitivity in this region $k \sim 10$ volts/watt. For the $E > 160$ volts/cm fields, the detection effect is connected with the dependence of the concentration on the field. The volt-watt sensitivity of the detector does not in practice depend on the signal power or $P_c < P_0$. The limiting sensitivity P_{limit} is estimated at $P_{limit} = 3 \cdot 10^{-11}$ watts in the pre-breakdown region and $P_{limit} = 4 \cdot 10^{-12}$ watts in the post-breakdown region. Thus, the detector is inferior with respect to limiting sensitivity to the detector introduced by A. N. ystavkin, et al. [FTP, Vol 1, No 6, 844, 1967] which operates at a temperature of 4.2° K, but its advantages are the possibility of operating at 77° K and its low inertia.

2/2

1/2   019

UNCLASSIFIED

TITLE--CRYSTAL CHEMISTRY OF SEMICONDUCTORS WITH OCTAHEDRAL AND MIXED
COORDINATION OF ATOMS -U-

PROCESSING DATE--16OCT70

AUTHOR-(03)-IMAMOV, R.M., SEMILETOV, S.A., PINSKER, Z.G.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 287-93

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--CRYSTAL, SEMICONDUCTOR MATERIAL, GERMANIUM, TIN COMPOUND, LEAD
COMPOUND, BISMUTH COMPOUND, SELENIUM COMPOUND, TELLURIUM COMPOUND,
TELLURIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0903

STEP NO--UR/0070/70/015/002/0287/0293

CIRC ACCESSION NO--AP0116418

UNCLASSIFIED

CIRC ACCESSION NO--AP0116418
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRYSTAL STRUCTURES WERE
ANALYZED FOR A NO. OF TERNARY SEMICONDUCTING COMPDS. FORMED IN THE
PSEUDOBINARY SYSTEMS MA PRIMEVI X PRIMEVI NB SUB2 X SUB3 PRIMEVI (A
EQUALS GE, SN, AND PB; B EQUALS SB AND BI; X EQUALS SE AND TE). IN ALL
OF THESE COMPDS. OCTAHEDRAL COORDINATION WAS FOUND FOR THE ATOMS, AND
THEIR STRUCTURES ARE INTERMEDIATE BETWEEN BI SUB2 TE SUB3 AND PBTE
(NACL). THE CUBIC PACKING OF THE DIFFERENT TYPES OF ATOMS IS
CHARACTERISTIC FOR THE STRUCTURE OF THE STARTING BINARY COMPDS. AND IT
IS RETAINED IN THE TERNARY PHASES ALSO. THE LATTICE PARAMETERS FOR THE
TERNARY COMPDS. ARE RELATED TO THE PARAMETERS OF THE BINARY COMPDS. BY
SIMPLE EXPRESSIONS. ANALOGOUS RELATIONS WERE ALSO OBSD. FOR TERNARY
PHASES WITH A MIXED COORDINATION FOR THE ATOMS. THESE FORMULAS CAN BE
USED TO DET. THE PERIODS FOR ANY OF THE INTERMEDIATE STRUCTURES. THE
TOTAL NO. OF LAYERS IS DETD. BY THE EXPRESSION N EQUALS Z(2M PLUS 5N),
WHERE Z IS THE NO. OF FORMULA UNITS PER UNIT CELL OF THE TERNARY SYSTEM.
        FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

1/2   024   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--NEW EXPERIMENTAL DATA ON THE PROCESSES OF ORDERING IN COMPLEX
  STRUCTURES -U-
AUTHOR--PINSKER, Z.G., IMAMOV, R.M., KHITROVA, V.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 124-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ORDERED ALLOY, TRANSITION METAL, TRANSITION METAL OXIDE,
  THERMAL DIFFUSION, SEMICONDUCTOR ALLOY, ELECTRON DIFFRACTION ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1342   STEP NO--UR/0185/70/015/001/0124/0126

CIRC ACCESSION NO--AP0107815

CIRC ACCESSION NO--AP0107815
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ORDERING PROCESS IN BINARY AND
 TERNARY TRANSITION METAL SYSTEMS WERE STUDIED BY USE OF ELECTRON
 DIFFRACTION. TRANSITION METAL OXIDES UNDERGO CONCN. ORDERING, WHICH
 OCCURS SEP. FOR METAL AND O SUBLATTICES. TEMP. ORDERING OCCURS IN
 BINARY AND TERNARY SEMICONDUCTOR SYSTEMS (LIKE AG OR CU CHALCOGENIDES OR
 CUASSE SUB2).

USSR

UDC 621.313.322-82.002(47+57)

DEGUSAROV, YU. A., PINSKIY, G. B.

"New Hydrogenerators"

Elektrosila -- V sb. (Electric Power -- Collection of Works), No 28, Leningrad, Energiya Press, 1970, pp 32 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D114)

Translation: A review of achievements in the field of hydrogenerator construction in the USSR in the last 10 years is presented. The latest hydrogenerators and more effective designs of assemblies are described. The basic problems with respect to further improvement of hydrogenerators are formulated. There are 2 tables.

1/1

USSR

UDC 621.313.322-82:621.311.2(497.1+498)

PINSKIY, G. V., SHKOL'NIK, E. V.

"Largest Hydrogenerators on the Danube"

Elektrosila -- V sb. (Electric Power -- Collection of Works), No 28, Leningrad, Energiya Press, 1970, pp 24-29 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D115)

Translation: Basic parameters and characteristic features of the structural assemblies of hydrogenerators which are manufactured for the Dzherdap and Zheleznyye Vorota Hydroelectric Power Plants being built with Soviet aid in Romania and Yugoslavia are presented. With respect to technical and economic indexes, these generators are greatly superior to all earlier constructed low-speed hydrogenerators. A new theoretical approach to the selection of the calculated version of the machine considering the requirements with respect to values of the transition reactivity, moment of inertia and efficiency, and considering the characteristics of the insulation of the stator winding used, is proposed. There are 4 illustrations and 1 table.

1/1

USSR

UDC: 8.74

KRASNER, N. Ya. and PINSKIY, M. M.

"Permutation Numbering"

Moscow, Tr. 4-y Zimn. shkoly po mat. programmir. i smezh. voprosam (Transactions of the Fourth Winter School on Mathematical Programming and Allied Problems) No 2, 1971, pp 71-78 (from RZh-- Matematika, No 7, 1972, Abstract No 7V638)

Translation: The authors consider the construction of an algorithm for the numeration for permutations of n different elements for the purpose of getting from an electronic computer the required permutation without repetition of all the others. A permutation of the first n natural numbers, 1,2,..,n is examined. It is shown that all the other cases of permutation of n different elements can easily be reduced to the case considered. V. Mikheyev

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USSR

UDC 8.74

KRASNER, N. YA., PINSKIY, M. M.

"Regenerating Numbering of Permutations"

Tr. 4-y Zimn. shkoly po mat. programmir. i smezh. voprosam, 1971, Vyp. 2 (Works of the Fourth Winter School on Mathematical Programming and Adjacent Problems, 1971, Vyp. 2), Moscow, 1971, pp 71-78 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V638)

Translation: A study was made of the structure of a numbering algorithm for permutations of indifferent elements for calling the required permutation from the computer without sorting all the rest. A study was made of permutations of the first n natural numbers 1, 2, ..., n. It was demonstrated that all the remaining cases of permutation of indifferent elements can easily be reduced to the investigated one.

1/1

USSR

PEREL', V. I., PINSKIY, YA. M.

"Direct Current in a Conducting Medium Induced by a High-Frequency Electromag-
netic Field"

Abstract: A general expression is obtained for the direct current J consider-
ing both dynamic and statistical factors valid for arbitrary dependence of the
collision frequency on the velocity. The expression for the photoelectric
(radioelectric) field E_0 can be obtained from the condition that $\sigma_0 E_0 + J = 0$,
where σ_0 is the static conductivity. Under defined conditions, the main cause
of occurrence of the current is not the high-frequency Hall effect, but non-
uniform heating of the carriers by the electromagnetic wave field. A calcula-
tion is performed under the assumption that the current carriers are not de-
generate and have a quadratic and isotropic dispersion law. The basic assump-
tions under which the investigated method of calculating the direct current is
applicable are as follows: a) the field varies slowly in space; b) the field
is small; c) it is assumed that $h\omega \ll T$. The quantum limit was investigated by
A. A. Grinberg [ZhETF, No 58, 989, 1970].

1/1

Epidemiology

USSR

UDC 616.921.5-07

OBREKHT, S. D., KOVDYSHEV, B. V., PINSKIY, Z. A., and KARAULOV, V. S.

"Clinical and Epidemiological Characteristics of Influenza During the 1972-1973 Epidemic"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 11, 1973, pp 44-46

Abstract: Late in December 1972 an influenza A_2 epidemic broke out among soldiers in coastal units and garrisons who had come from such large cities as Leningrad where an influenza epidemic among the civilian population had already reached substantial proportions. The sick rate peaked during the first 10 days of January and then declined sharply. Most of the personnel were not vaccinated until shortly before the outbreak because the incidence of influenza and other acute respiratory diseases remained low as late as November. The sick rate was highest among the young draftees. In general, the course was mild or moderately severe but complicated by pneumonia (much more frequently than in epidemics of previous years) in about 20% of the cases. The average number of bed-days in uncomplicated cases was 7.5. Treatment with antigrippine proved to be efficacious and the pneumonias yielded quickly to antibiotics. The authors conclude that such prophylactic
1/2

USSR

OBREKHT, S. D., et al., Voyenno-Meditsinskiy Zhurnal, No 11, 1973, pp 44-46

measures as anti-influenza serum, sulfanilamides, and oxolin ointment are much less useful than vaccinations if given well in advance of a predicted epidemic.

2/2

USSR   UDC   621.382.2/3.012

TYUTIN, A. A., PINSON, A. M.

"Calculating the Conditions and Parameters of Transistors and Diodes in Circuits With a Distinct Linear Section"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 29-34

Abstract: The authors consider algorithms for computing the conditions and differential parameters of transistors and diodes in circuits with a distinct linear section. A very simple example is presented. Two tables, five illustrations, bibliography of three titles.

1/1

12 -

TITLE--A STUDY OF POSTRADIATION DAMAGE IN SUBMOLECULAR STRUCTURE OF DNA
  UNDER DIFFERENT RADIATION CONDITIONS -U-
AUTHOR-(03)-PINTO, R.I., BARENFELD, L.S., GUNCHEV, KH.Z.

COUNTRY OF INFO--USSR

SOURCE---TSITOLOGIYA: 12: 343-51 MAR 1970

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DNA, RADIATION DAMAGE, FLUORESCENCE, THYMUS GLAND, HYDROGEN
  BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/2022   STEP NO--UR/9053/70/012/000/0343/0351

CIRC ACCESSION NO--AP0120665
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0120665

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES IN THE VISCOSITY AND
   INTENSITY OF A SECONDARY FLUORESCENCE OF PREPARATIONS OF DNA
   SUBMOLECULAR STRUCTURES ISOLATED FROM THE RAT THYMUS AFTER IRRADIATION
   IN VIVO WERE INVESTIGATED USING DIFFERENT DOSES AND RADIATION REGIMES.
   THE INTENSITY OF THE SECONDARY FLUORESCENCE WAS MEASURED THROUGHOUT A
   GRADUAL INCREASE OF THE PREPARATION TEMPERATURE FROM 20 TO 60DEGREESC.
   THE RESULTS SUGGEST THAT DAMAGES TO DNA OBSERVED DURING IRRADIATION ARE
   CAUSED BY DESTRUCTION OF SUBMOLECULAR STRUCTURES AND LOCAL DAMAGES IN
   THE SYSTEM OF HYDROGEN BONDS. THE TESTED PROPERTIES OF DNA DEPENDED
   ESSENTIALLY ON THE EVENTS OCCURRING IN THE CELLS IMMEDIATELY AFTER
   IRRADIATION. THEREFORE, A SECONDARY IRRADIATION WITH 5 TO 15 MINUTE
   INTERVALS ALTERED THE PATTERN OF RADIATION DAMAGE, WHEREAS AN
   IRRADIATION WITH 30 MINUTE INTERVALS RESULTED IN THE ACCUMULATION OF
   DAMAGE.   FACILITY: INST. OF CYTOLOGY, LENINGRAD.

UNCLASSIFIED

TITLE--PROTECTIVE COATINGS FOR CONCRETE SURFACES -U-

AUTHOR-(05)-ROSHCHUPKIN, V.I., FAYNTSIMER, R., YAKOVLEV, D.A., PINUS,
   E.R., LISIENKO, S.K.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260,877
REFERENCE--UTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PROTECTIVE COATING, CONCRETE, COUMARIN INDENE RESIN, BUTYL
   RUBBER, FILLER, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1094   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0116560
                    UNCLASSIFIED

CIRC ACCESSION NO--AA0116560
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROTECTIVE COATINGS BASED ON ORG.
  COMPDS. ARE USED SHIEFLY FOR CONCRETE SURFACES. THEY HAVE GOOD
  PHYSICOMECH. PROPERTIES, DESIRED ROUGHNESS, AND A RAPID RATE OF COATING.
    THEY CONSISTED OF: COUMARONE-INDENE RESIN 1-50, PETROLATUM 5-30,
  PARAFFIN 0.5-5, BUTYL RUBBER 0.05-2, FILLER 1.0-30, AND AN ORG. SOLVENT
  10-200 PARTS-WT. A MIXT. OF ZR WITH AL POWDER IN A 1:10 WT. RATIO IS
  USED AS THE FILLER.   FACILITY: STATE SCIENTIFIC RESEARCH AND
  PLANNING INSTITUTE OF PETROLEUM MACHINE CONSTRUCTION.   FACILITY:
  STATE ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF HIGHWAYS.

UNCLASSIFIED

USSR   UDC: 51:330.115

PINUS, L. A.

"On the Problem of Controlling the Production Process of the DSK [expansion unknown] System"

V sb. Sistemotekhnika. Vyp. 4 (Systems Analysis--collection of works), No 4, Kiev, 1970, pp 87-98 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V669)

[No abstract]

1/2   026   UNCLASSIFIED   PROCESSING DATE--27NOV70

TITLE--NONSCALE ANNEALING OF BRASS -U-

AUTHOR-(02)-CHUDAREV, L.F., PINUS, L.N.

COUNTRY OF INFO--USSR

SOURCE--TR. GOS. T.-T. I PROYEKTN. IN-TA SPLAVOV I OBRABOTKI TSVETN. MET.
REFERENCE--REF. ZH., METALURGIYA, NO 4, 1970, ABSTRACT NO 40233E OF ALLOYS
DATE PUBLISHED-------70

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

TOPIC TAGS--THERMAL EFFECT, METAL HEAT TREATMENT, BRASS, METAL ROLLING,
ALLOY, ENGINE RADIATOR/(U)L68 ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0776   STEP NO--UR/0000/70/000/031/0050/0053

CIRC ACCESSION NO--AR0128288
                        UNCLASSIFIED

2/2   026   UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AR0128288
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE PRESENTED OF THE
ANNEALING OF BRASS RADIATOR STRIP MADE OF L-68 ALLOY IN A PULL THROUGH
FURNACE. IT WAS SHOWN THAT HIGH SPEED STRIP ANNEALING IN A STEAM
ATMOSPHERE PRODUCES UNIFORMITY OF MECHANICAL PROPERTIES AND GRAIN SIZE
ALONG THE LENGTH OF THE ROLL; THE STRIP SURFACE STATE PERMITS
ELIMINATION OF THE ETCHING OPERATION FROM THE TECHNOLOGICAL CYCLE. THE
EFFECT OF TEMPERATURE AND ANNEALING TIME ON THE VALUE OF THE REFLECTION
COEFFICIENT WAS LEARNED.

UNCLASSIFIED

1/2   014   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--STATISTICAL PROPERTIES OF THE THERMAL STRATIFICATION OF THE
   TROPOSPHERE AND LOWER STRATOSPHERE -U-
AUTHOR-(02)-PINUS, N.Z., SHUMANSKAYA, YE.F.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 5, PP 3-13

DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--TROPOSHERE, STRATOSPHERE, ATMOSPHERIC STRATIFICATION,
   AUTOCORRELATION FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0081   STEP NO--UR/0050/70/000/005/0003/0013

CIRC ACCESSION NO--AP0132374
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0132374
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EMPIRICAL AUTOCORRELATION
FUNCTIONS OBTAINED BY THE AUTHORS FOR PULSATIONS OF THE TEMPERATURE
LAPSE RATE IN THE ATMOSPHERIC LAYER TAKEN FROM THE EARTH'S SURFACE UP TO
18 KM ARE GIVEN IN THE ARTICLE. PECULIARITIES OF THESE FUNCTIONS AT THE
BACKGROUND OF VERTICAL PROFILES OF THE MEAN TEMPERATURES LAPSE RATE ARE
ANALYSED, CONTRIBUTION TO THE DISPERSION OF LAPSE RATE FLUCTUATIONS OF
DIFFERENT TIME SCALES IS ESTIMATED.   FACILITY: TSENTRAL'NAYA
AEROLOGICHESKAYA OBSERVATORIYA.

UNCLASSIFIED

USSR

ARIYEVICH, A. M., Professor, MINSKER, O. B., Candidate of Medical Sciences, and PINZUR, G. S., Department of Systemic Mycoses, Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Moscow

"Clinical Aspects of Coccidioidomycosis in the USSR"

Abstract: Since 1951 more than 120 cases of coccidioidomycosis have been recorded in the USSR. Some of them originated in northern regions. During 1966-70, 61 patients with coccidioidomycosis were observed at the authors' institute, among them 44 men and 17 women. The duration of the infection with Coccidioides immitis was 5-25 yrs or longer. Constant contact with the soil was established in only 36 cases, but occasional contact that resulted in infection could be assumed in the remaining cases. There were two cases of residual pulmonary coccidioidomycosis and 59 cases of the disseminated (systemic) form of the disease. In 48 cases the subcutaneous cellular tissue and the skin were predominantly affected, while 12 patients coccidioidomycosis of the lungs. X-ray examinations disclosed remainders of the primary pulmonary infection in 28 of the group of 48 patients. In 23 cases coccidioidomycosis was combined with actinomycosis. In the treatment of the patients an anti-
1/2

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USSR

ARIYEVICH, A. M., et al., Sovetskaya Meditsina, Vol 34, No 6, Jun 71, pp 24-29

bacterial antibiotic was applied for 7-10 days, which was selected depending on the bacterial flora presnet. This was followed by alternating administration of sulfadimezin and nystatin. In cases in which actinomycosis was present, injections of actinolysate were carried out. Vitamins were administered and, if necessary, drugs with antihistamine activity. In severe cases blood transfusions were carried cut. During the past two years, surgery was applied to an increasing extent. Intravenous drop-bydrop infusions of the antifungus antibiotic amphoterecin B proved to be of advantage.

2/2

LUMINESCENCE SPECTROSCOPY IN THE STUDY OF ADSORPTION

PIONTKOVSKAYA M.A.

One of the principal contemporary directions both of theoretical and of experimental investigations of adsorption on the surface of solids is study of the nature of the elementary act and the chemistry of the surface. Electronic spectra are a sensitive characteristic of change of the electronic state of adsorbed molecules, and also of the nature of the active centers causing that change.

In the Institute of Physical Chemistry imeni L. V. Pisarzhevskiy of the AS Ukrainian SSR an installation has been installed for the investigation of adsorption interactions, one which permits obtaining the luminescence spectra of adsorbed molecules. The method of luminescence analysis has been used for the first time to study the nature of the active centers and the mechanism of the adsorptive interaction of molecules of different electronic structure with the surface of mineral sorbents. The process of adsorption and the taking of low-temperature luminescence spectra have been studied which were obtained for by a procedure developed in the Institute. The low-temperature luminescence spectra have been taken place on samples in sealed tubes. Some aromatic molecules adsorbed on the surface of various cation-substituted forms of faujasites, amorphous aluminosilicates, silica gel and activated alumina.

Investigation of the luminescence spectra of adsorbed naphthalene has shown that its adsorption on the surface of cationized zeolites, amorphous aluminosilicates, silica gel and activated alumina occurs both by a van der Waals mechanism and by donor-acceptor reaction. Spectral data have permitted establishing the nature of the donor-acceptor reaction realized in the adsorbed system, consisting in transfer of an electron
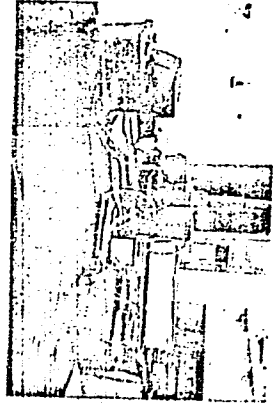
- 121 -

Installation for the low-temperature luminescence spectra of adsorbed molecules.

from the donor molecule of naphthalene to the acceptor center of the surface to form surface complexes with charge transfer.

The results of study of the low-temperature luminescence spectra of alpha-naphthylamine, quinoline and 8-hydroxyquinoline adsorbed on decationized and various cation-substituted forms of type-U faujasite have confirmed the opinion of the presence of acid centers on the surface of aluminosilicate sorbents. Study of the luminescence spectra of adsorbed hydroxyquinoline led to the conclusion that the exchange cations of faujasites, together with some other fragments of the structure of zeolites, appear as electron-acceptor centers of absorption.

Investigation of low-temperature radiation spectra appear to be fruitful also for learning about surface processes accompanying adsorption. Thus the reactions of oxidation of naphthalene and anthracene were registered and the nature of the oxidative properties of faujasites have been explained.

The method of luminescence spectroscopy has also been successfully used to determine the places of localization of compensating cations in the crystalline structure of faujasites. The luminescence spectra of various Mn-containing cation-substituted forms of type-U faujasite have been studied. It has been established that in most of the investigated zeolites the ions of bivalent manganese are disposed in crystallographic positions characterized by symmetry of the octahedron and tetrahedron. The luminescence spectra of quinoline adsorbed on containing faujasites permitted identifying rather reliable locations of manganese cations in the crystal lattice of the investigated faujasites.

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1/2   011   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--ESR OF ENERGETICALLY NONEQUIVALENT TETRAGONAL CU PRIME2POSITIVE
   IONS IN HYDRATED CUNAA ZEOLITE -U-
AUTHOR-(04)-SILCHENKO, V.A., PAFOMOV, N.N., MATYASH, I.V., PIONTKOVSKAYA,
   M.A.
CCUNTRY OF INFO--USSR

SOURCE--DOPOV. AKAD. NAUK UKR. RSR, SER. A 1970, 32(3), 235-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON SPIN RESONANCE, COPPER, ION, ZEOLITE, EPR SPECTRUM

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1298   STEP NO--UR/0441/70/032/003/0235/0237

CIRC ACCESSION NO--AT0128712
                     UNCLASSIFIED

CIRC ACCESSION NO--AT0128712
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANAL. OF THE MEASURED EPR SPECTRA
  OF CU PRIME2POSITIVE IONS IN A HYDRATED A TYPE ZEOLITE IN WHICH SIMILAR
  TO 20PERCENT OF NA PRIME POSITIVE IONS WAS REPLACED (BY USUAL ION
  EXCHANGE PROCEDURE) REVEALED THAT THE CU PRIME2POSITIVE IONS IN THE
  ZEOLITE ARE IN 2 ENERGETICALLY NONEQUIV. STATES MAGNITUDE OF X PRIME2-Y
  PRIME2 GREATER THAN AND MAGNITUDE OF 3Z PRIME2-R PRIME2 GREATER THAN.
  THE SPECTRUM OF THE HYDRATED ZEOLITE CONTG. SIMILAR TO 20PERCENT CU
  PRIME2POSITIVE IONS IS CONSIDERED AS A SUPERPOSITION OF 2 COMPONENTS:
  THAT OF LOW CU CONTENT ZEOLITE (UP TO SIMILAR TO 8PERCENT) AND OF A
  DEHYDRATE (AT 500DEGREES AND 10 PRIME NEGATIVE6 MM HG) ZEOLITE.   THE
  EXPTL. EPR SPECTRUM SPECTRUM OF CU PRIME2POSITIVE IONS IN THE GROUND
  STATE MAGNITUDE OF 3Z PRIME2-R PRIME2 GREATER THAN IS DESCRIBED FOR THE
  1ST TIME.   FACILITY: DONETS. FIZ.-TEKH. INST., DONETSK, USSR.

UNCLASSIFIED

1/2   023   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--EMBRYOLOGIC AND GENETIC EFFECTS OF ELECTROMAGNETIC OSCILLATIONS OF
ULTRA HIGH FREQUENCY (MICROWAVES) -U-
AUTHOR-(03)-PIONTKOVSKIY, I.A., KRUGLIKOV, R.I., YEFREMOVA, T.A.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FEMALE RATS WITH 1 TO 20 DAY
  GESTATION PERIOD WERE SUBJECTED TO IRRADIATION WITH MICROWAVES 10 AND
  50-55 MW-CM PRIME2 IN INTENSITY, FOR 20 AND 15 MINUTES, RESPECTIVELY;
  AFTER IRRADIAITON WITH MICROWAVES, 50-55 MW-CM PRIME2 IN INTENSITY FOR
  15 MINUTES, MALE RATS WERE COUPLED WITH NONIRRADIATED FEMAL ANIMALS.
  THE PROGENY OF IRRADIATED ANIMALS DISPLAYED REDUCED VIABILITY,
  MALDEVELOPMENT AND ANOMALIES, AS WELL AS CHANGES IN THE RATE OF
  POSTNATAL DEVELOPMENT. THERE WERE ALSO VARIOUS DISTURBANCES OF THE
  HIGHER NERVOUS ACTIVITY.   UNDER DEFINITE CONDITIONS MICROWAVES PROVED
  TO PRODUCE BOTH GENETIC AND EMBRYOLOGIC EFFECTS.   FACILITY:
  LABORATORIYA NEYRORADIOLOGII INSTITUTA VYSSHEY NERVNOY DEYATEL'NOSTI I
  NEYROFIZIOLOGII AN SSSR, MOSKVA.

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Abstract: In considering the permanent rotations of a solid body attached at one
point to a base, it is not possible to construct a Lyapunov function as a group
of primary integrals of the equation of movement if the attachment point is some-
what moveable, because of the lack of an energy integral. This article considers
another possible technique for constructing the Lyapunov function in the form of
a quadratic with coefficients representing functions of time. The first step
in the demonstration is the development of a single parametric family of cycles
and the demonstration that if the quadratic form with constant coefficients is
positive definite the family of cycles is between two constant cycles. It is
then shown that if the derivative of this family is negative or identically zero
the unperturbed motion is Lyapunov stable. The method is applied to the rotary
motion of a LaGrange top.

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Radiobiology

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"Embryological and Genetic Effects of Ultrahigh-Frequency Electro-
magnetic Oscillations"

Abstract: Somatic development and CNS function were studied in the
offspring of rats born of mothers exposed to microwaves (2 12.6
cm at 10 and 50-55 mw/cm^2 for 20 and 15 min, respectively) during
gravidity (embryological effect), and in the offspring of nonirradia-
ted mothers mated with males exposed to microwaves (50-55 mw/cm^2
for 15 min) (the genetic effect). Both groups of offspring exhibited
the types of malformations and developmental anomalies produced by
ionizing radiation - decreased viability, slow rate of growth, and
CNS abnormalities notably, lags in the formation and stabilization
of conditioned reflexes.
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