USSR                                      UDC 539.376:620.171

MILOSERDIN, Yu. V., NABOYCHENKO, K. V., CHEBURKOV, V. I., NAUMOV, S. G.,
LAVEYKIN, L. I., BORTSOV, A. G., Mosocw

"High Temperature Creep of Zirconium Carbide"

Problemy Prochnosti, No 3, 1972, pp 50-53.

Abstract:  Results are presented from creep and long-term strength tests
of specimens of zirconium carbide in the 2,450-2,810°K temperature range.
The nature of behavior of the zirconium carbide in various stages of creep
and the relationship between parameters characterizing creep and the test
conditions of the material are studied.  It is demonstrated that in the
2,450-2,810°K temperature interval with stresses of $0.3-1.0$ kg/mm$^2$, the
stable stage of creep of zirconium carbide is determined by a diffusion
process with an activation energy of $116 \pm 18$ kcal/mol.

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USSR

UDC 629.78.015.4

NABULLIN, E. N.

"Evaluation of the Effect of Nonsteady-State Conditions in a Calculation for the Flutter of Aircraft With a Wing of Low Aspect Ratic in an Incompressible Flow"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1972, Vol. 3, No. 4, pp 145-148 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.138)

Translation: Aerodynamic effects determining the "aerodynamic rigidity" of an aircraft are considered as the sum of the actions of aerodynamic forces existing at a Strouhal number equal to zero and forces proportional to the square of the Strouhal number added to the inertial forces. The dependence of aerodynamic rigidity and aerodynamic damping on the Strouhal number is considered for triangular wings under certain types of deformations and also considered as the dependence on the lengthening of the wing. The contribution made to inertial forces by increment in the aerodynamic loads proportional to the squares of the Strouhal numbers is evaluated for typical types of

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USSR

NABULLIN, E. N., Uch. zap. Tsentr. aerogidrodinam. in-ta, 1972, Vol. 3,
No. 4, pp 145-148

aircraft vibrations in a vacuum.  It is shown that this contribution is
small as compared with inertial forces and that aerodynamic damping changes
only slightly in the range of Strouhal numbers common for modern aircraft
with a wing of low aspect ratio.  4 ill., 3 ref.  Resume.

2/2

USSR

UDC: 621.787

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BURNAKOV, K. K., SMIRNOV, M. A., BRAZGIN, I. A., BYPRYAZHKIN, V. P., NABIULLIN, N. M., TOLSTOV, A. M., Kurgan

"High Temperature Thermomechanical Treatment of EI 811 Stainless Steel"

Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 73, pp 129-131.

Abstract:  This work studied the possibility of increasing the strength of EI 811 steel by high temperature heat and mechanical treatment.  The studies were performed using a steel of the following composition: 0.13% C, 0.33% Mn, 0.37% Si, 0.023% P, 0.077% S, 5.7% Ni, 21.1% Cr, 0.43% Ti, Fe -- remainder. The material was plastically deformed by rolling at 1100-900° C, 50% compression, velocity 4.3 m/min.  Specimens 20 mm in diameter and 150 mm long were heated to 1000 or 1100° C, held 30 minutes, then deformed at these temperatures with subsequent immediate quenching in water.  Specimens heated to 1000° C were allowed to cool in air to 900° C, then rolled at that temperature and held 5 minutes at that temperature before quenching.  It was found that the selection of the temperature mode for plastic deformation must be based on consideration of the different tendencies of the ferritic and austenitic components toward softening.  The strength characteristics of this steel were increased significantly only after deformation at 900° C, which causes

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hardening of both the $\gamma$ and $\alpha$ phases. The $\gamma \to \alpha$ conversion occurring during
aging at 650-700° C has no significant influence on the hardening effect
achieved by high temperature heat and mechanical treatment.

TITLE--SCATTERING OF X RAYS NEAR THE MAGNETIC ORDERING POINT -U-

AUTHOR-(02)-NABUTOVSKIY, V.M., KHOLOPOV, YE.V.

CCUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 619-21

DATE PUBLISHED------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--X RAY SCATTERING, CRYSTAL LATTICE STRUCTURE, MAGNETIC
MATERIAL, SPIN LATTICE RELAXATION, CURIE POINT, MAGNETIC TRANSFORMATION,
TEMPERATURE DEPENDENCE

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1971          STEP NO--UR/0181/70/012/002/0619/0621

CIRC ACCESSICN NO--AP0105045
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0105045

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE SCATTERING OF X RAYS ON
FLUCTUATIONS OF D. IN MAGNETS WAS CONSIDERED.   UNDER THE EFFECT OF
EXCHANGE INTERACTION OF SPINS, THE LATTICE IS DEFORMED RANDOMLY, LEADING
TO ADDNL. BACKGROUND.   ON THE OTHER HAND, ANOMALIES ARE PRODUCED IN THE
PHONON SPECTRUM.   BY STUDYING THE TEMP. AND ANGULAR DEPENDENCES OF THE
BACKGROUND AND INTENSITIES OF BRAGG PEAKS, IT IS POSSIBLE TO DET. THE
TYPE OF THE CORRELATOR ENERGY AND THE DEPENDENCE OF THE RELAXATION TIME
OF THE SPIN SYSTEM ON TEMP. CLOSE TO THE CURIE TEMP.   A CUBIC LATTICE
WAS CONSIDERED WITH 1 ATOM IN THE UNIT CELL.   THE FORCES ACTING AT THE
LATTICE POINTS ARE ASSUMED TO BE CENTRAL, AND THE APPROXN. OF NEAREST
NEIGHBORS ONLY IS CONSIDERED.   THERMAL AND EXCHANGE FLUCTUATIONS ARE
CONSIDERED AS STATISTICALLY INDEPENDENT.   FOR DIFFERENT MAGNETS,
DIFFERENT MACHANISMS OF ANOMALIES CAN PREVAIL.          FACILITY:   INST.
NEORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

SOLYAKOV, S. P., BELKIN, G. I., TATAKIN, A. N., NACHAYEV, V. M., ZOBNIN, S, I., ZYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SVALOV, G. N., DEVYATKIN, V. N., ALEKSANDROV, V. A., GRIBOV, V. I.

"Method of Processing Slimes from Electrolytic Production of Magnesium"

Translation: In order to use the slime for production of Mg, it is fed from the electrolyzers to chlorinators together with the depleted MgCl$_2$ electrolyte in the form of a pulp containing 1-10% MgO and 5-25% MgCl$_2$. The chlorinators also receive the Cl-Mg raw material and Cl$_2$, after which the electrolyte, enriched with MgCl$_2$, is fed to the electrolyzers.

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TITLE--HIGH CHROMIUM DIFFUSION COATING ON CHROMIUM NICKEL AUSTENITIC
   STEELS -U-

AUTHOR-(03)-SMIRNOV, A.V., CHERNUKOVA, E.N., NACHINKOV, A.D.

COUNTRY OF INFO--USSR

SOURCE--FIZIKO-KHIMICHESKAIA MEKHANIKA MATERIALOV, VOL. 6, NO. 2, 1970, P.
   14-18

DATE PUBLISHED-------70

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

TOPIC TAGS--CHROMIUM NICKEL STEEL, ALLOY DESIGNATION, METAL DIFFUSION,
   METAL COATING, CHROMIZING, METAL POWDER, STAINLESS STEEL, AUSTENITIC
   STEEL, ALUMINA, IRON ALLOY/(U)E1612 STAINLESS STEEL, (U)1KH18N9
   STAINLESS STEEL, (U)1KH18N9T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1574          STEP NO--UR/0369/70/006/002/0014/0018

CIRC ACCESSION NO--AP0125200
                         UNCLASSIFIED

2/2    032
CIRC ACCESSION NO--AP0125200

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.   STUDY OF THE FORMATION OF A HARD
COATING DURING CONTACT CHROMIZING OF AUSTENITIC STEELS 1KH18N9,
1KH18N9T, AND EI-612 IN A MIXTURE OF POWDERS CONSISTING OF 40PERCENT CR,
30PERCENT FECR, 28PERCENT ALUMINA, AND 2PERCENT NH4L.  IT IS SHOWN THAT
THE TOTAL DEPTH OF DIFFUSION OF CR INTO THE 1KH18N9 STEEL IS TWICE THAT
OF THE EI-612 STEEL.  IT IS FOUND THAT THE COATING CONSISTS OF AN
OVERGROWN AND A PROPER DIFFUSION LAYER.   THE STRUCTURE AND CHEMICAL
COMPOSITION OF THE COATING ARE EXAMINED.       FACILITY:
LENINGRADSKII INSTITUT AVIATSIONNOGO PRIBOROSTROENIIA, LENINGRAD, USSR.

USSR

UDC 621.373.531

TUDOROVSKIY, A. A., NACHKEBIYA, B. G.

"Some Problems of Analyzing Transient Processes in a Thyristor Pulse Shaping Circuit"

Tr. Leningr. in-ta tochnoy mekh. i optiki (Works of Leningrad Institute of Precision Mechanics and Optics), 1970, vyp. 69, pp 72-76 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G205)

Translation: The transient processes on pulse fronts and in the apex shaping section are investigated. The results obtained can be used to calculate the shaping circuit.

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USSR                                          UDC 619:576.909.55:576.851.55

NACHKEBIYA, D. V., All-Union Institute of Experimental Veterinary Science

"A Study of the Transformation of Microorganisms"

Moscow, Veterinariya, No 6, Jun 73, pp 46-47

Abstract:  In a study conducted on five strains of Cl. perfringens (two of type V and three of type D), variants of one strain (D-213) could be select- ed on cultivation at gradually increasing concentrations of streptomycin in the medium that exhibited a raised resistance to this antibiotic.  The streptomycin concentration at which the transformed D-213 strain (D-213 M) could be cultivated after 3-4 selections of mutants that withstood increas- ing concentrations of the antibiotic reached 10,000-12,000 units/ml vs. a maximum concentration of 500 units/ml and 400 units/ml for the initial D and V strains, respectively.  DNA isolated from the modified strain D-213 M was found to transform the initial, unmodified strain D-213 into one with a heightened resistance to streptomycin.  The work was conducted under the direction of Prof. M. D. Polykovskiy.

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TITLE--CURRENT VOLTAGE CHARACTERISTIC OF AN IRRADIATED SUPERCONDUCTING
 POINT CONTACT -U-
AUTHOR-(02)-VOLKOV, A.F., NAD, F.YA.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 2, P. 92-7 (JAN. 1970)

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, IRRADIATION EFFECT, MODEL,
 SUPERCONDUCTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1092           STEP NO--US/0000/70/011/002/0092/0097

CIRC ACCESSION NO--AP0136512
                    UNCLASSIFIED

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CIRC ACCESSION NO--AP0136512
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.   THE AUTHORS CALCULATE ON THE BASIS
OF THE MODEL PROPOSED BY ASLAMAZOV AND LARKIN (IBID., 9, 87 (1969) THE
I(V) CHARACTERISTIC UNDER IRRADIATION, PARTICULARLY NEAR THE VERTICAL
STEP AT V EQUALS HW-ZE, AND COMPARE THE RESULT WITH EXPERIMENT.   THEY
HAVE FOUND THAT V(I) IS A SINGLE VALUED FUNCTION AND THEREFORE THE FORM
OF THE OBSERVED CURRENT VOLTAGE CHARACTERISTIC IS INDEPENDENT OF THE
MEASUREMENT CONDITIONS.          FACILITY:  USSR ACAD. SCIS.

TITLE--TUNABLE RECEIVER OF LONG WAVE INFRARED RADIATION -U-

AUTHOR-(03)-NAD, F.YA., PANKOV, V.G., RULEV, K.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, VOL 15, NO 2, 1970, PP
371-375

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--IR RADIATION, PHYSICS LABORATORY INSTRUMENT, RECEIVER
CHARACTERISTIC, IR RECEIVER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1153          STEP NO--UR/0109/70/015/002/0371/0375

CIRC ACCESSION NO--AP0112255
                        UNCLASSIFIED

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CIRC ACCESSION NO---AP0112255
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  AN APPARATUS IS DESCRIBED, WHICH
OPERATES AS A SELECTIVE NARROW BAND TUNABLE DETECTOR OF INFRARED
RADIATION IN THE 25-300 MICROMETER RANGE AND ALSO, AS A WIDE BAND
"ELECTRON BOLOMETER" IN THE 300-2000 MICROMETER RANGE.  IT CONSISTS OF
THREE BLOC UNITS:  1) THE HELLIUM CRYOSTAT WITH A LIGHT GUIDE, A
SUPERCONDUCTING SOLENOID, AND A PHOTOSENSITIVE ELEMENT; 2) A STAND FOR
ELECTRON INSTRUMENTS; AND 3) A MODULATOR.    ITS SENSITIVITY IS
RELATIVELY INDEPENDENT OF THE WAVE LENGTH FROM SEVERAL MILLIMETERS DOWN
TO 600 MICROMETERS.  THE SENSITIVITY SPECTRAL CHARACTERISTICS OF THE
APPARATUS AT A MAGNETIC FIELD VALUE OF SIMILAR TO 22.5 KOE (AS RECORDED
BY A VACUUM MONOCHROMATOR WITH CHANGEABLE ECHELETTE GRATINGS WHICH
OPERATES IN THE 20-2000 MICROMETER RANGE) IS PRESENTED.  IT HAS A
DEFINITE RESONANCE FORM WITH A RELATIVE 5 PERCENT HALF WIDTH.  IT IS
CONCLUDED THE DESCRIBED RECEIVER IS HIGHLY SENSITIVE AND HAS A SMALL
INERTIA.   IN THE 25-300 MICROMETER RANGE THE APPARATUS HAS NARROW BAND
SENSITIVITY WITH A POSSIBILITY OF TUNING THE ENTIRE WAVE RANGE BY A
SIMPLE VARIATION OF CURRENT, AND CONSEQUENTLY MAGNETIC FIELD, IN A
SUPERCONDUCTING SOLENOID.  WHEN SWITCHING IT ON A WEAK MAGNETIC FIELD (H
SMALLER THAN OR EQUAL TO 5 KOE) OR CUTTING OFF THE SOLENOID, IT OPERATES
AS A NONSELECTIVE DETECTOR SENSITIVE TO RADIATION WITH LAMBDA LARGER
THAN OR EQUAL TO 300 MUM WAVE LENGTH.  A COMPARATIVELY SMALL RESISTANCE
OF THE RECEIVER ELEMENT (5-10 KOHM) MAKES IT POSSIBLE TO OBTAIN A SMALL
TIME CONSTANT, WHICH DETERMINES THE SPEED OF PHYSICAL PROCESSES IN A
CRYSTAL.

USSR                                                          UDC 621.384.3

NAD', F. Ya., PANKOV, V. G., RULEV, K. A.

"Tunable Receiver of Long Wave Infrared Radiation"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 2, 1970, pp 371-375

Abstract: An apparatus is described, which operates as a selective narrow band tunable detector of infrared radiation in the 25-300 micrometer range and also, as a wide band "electron-bolometer" in the 300-2000 micrometer range. It consists of three bloc units: 1) the helium cryostat with a light guide, a superconducting solenoid, and a photosensitive element; 2) a stand for electron instruments; and 3) a modulator.

Its sensitivity is relatively independent of the wave length from several millimeters down to 600 micrometers. The sensitivity spectral characteristic of the apparatus at a magnetic field value of ∿ 22.5 koe (as recorded by a vacuum monochromator with changeable echelette gratings which operates in the 20-2000 micrometer range) is presented. It has a definite resonance form with a relative 5 percent half-width. It is concluded the the described receiver is highly sensitive and has a small inertia.
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USSR

In the 25-300 micrometer range the apparatus has narrow-band sensitivity with a possibility of tuning the entire wave range by a simple variation of current, and consequently magnetic field, in a superconducting solenoid. When switching it on a weak magnetic field ($H \leqslant 5$ koe) or cutting-off the solenoid, it operates as a nonselective detector sensitive to radiation with $\lambda \gtrsim 300 \mu m$ wave length. A comparatively small resistance of the receiver element (5-10 kohm) makes it possible to obtain a small time constant, which determines the speed of physical processes in a crystal. Orig. art. has: 3 figures.

1/2    034

TITLE--VOLT AMPERE CHARACTERISTICS OF A SUPERCONDUCTING POINT CONTACT
DURING IRRADIATION -U-

AUTHOR-(02)-VOLKOV, A.F., NAD, F.YA.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(2), 92-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERCONDUCTOR, VOLT AMPERE CHARACTERISTIC, IRRADIATION EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0957           STEP NO--UR/0386/70/011/002/0092/0097

CIRC ACCESSION NO--AP0104293

CIRC ACCESSION NO--AP0104293

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  A PREVIOUSLY REPORTED MODEL AND
THEORETICAL APPROACH (ASLAMAZOV, 1969) TO A SUPERCONDUCTING POINT
CONTACT WERE APPLIED FOR THE EVALUATION OF THE V-A CHARACTERISTICS OF A
POINT CONTACT SUBJECTED TO IRRADN., AND RESULTS COMPARED WITH EXPTL.
DATA.   THE RESP. MATH. EQUATIONS WERE ANALYZED, AND AFTER SUBSTITUTIONS
AND TRANSFORMATION, 2 EXPRESSIONS DEFINING THE V-A RELATION WERE
OBTAINED.  THE V-A RELATION OF NB-NB POINT CONTACTS UNDER IRRADN. WAS
DETD. EXPTL. UNDER GALVANOSTATIC OR POTENTIOSTATIC CONDITIONS.  THE
PRESSURE AT THE POINT WAS ADJUSTABLE.  EXPTS. WERE CARRIED OUT AT A
CONTACT RESISTANCE OF SIMILAR TO 1 OHM AND A PRESUMED POINT RADIUS OF 3
TIMES 10 PRIME NEGATIVE6 CM.  THE CONTACTS WERE IRRADIATED AT
4.2DEGREESK WITH A 10 PRIME NEGATIVE5-10 PRIME NEGATIVE8-W SOURCE AT
WAVELENGTHS OF 2 AND 4 MM.  THE CONTACT WAS SWITCHED TO THE LOW OHMIC
(10 PRIME NEGATIVE2 OHM) OUTPUT STAGE OF THE GENERATOR WITH A 10 PRIME
NEGATIVE1 OHM RESISTOR IN SERIES TO CHECK THE CURRENT.   THE V-A CURVES
WERE TRACED OSCILLOGRAPHICALLY IN THE PRESENCE OR ABSENCE OF IRRADN. AND
COMPARED.  DURING IRRADN., A KINK APPEARED IN THE CURVES.  QUAL., THE
SHAPE OF THE CURVES WAS NOT AFFECTED BY IRRADN. BUT A SHIFT WAS OBSD. IN
THE STUDIED WAVE BAND.   IF IRRADN. WAS CARRIED OUT AT A HIGHER POWER,
THE V-A CURVES SIMULATED A PURELY OHMIC DEPENDENCE AND NO KINKS WERE
OBSD.   EXPTL. RESULTS AGREE WELL WITH THEORY.  THE PROPOSED MODEL IS
APPLICABLE TO THE NB-NB POINT CONTACT.

USSR

NADARAYA, E. A.

"The Construction of Confidence Areas for a Distribution Density"

Seminar In-ta Prikl. Mat. Tbilis. Un-t. Annotatsii Dokl. [Seminar of Institute of Applied Mathematics, Tbilisi University, Abstracts of Reports], 1972, No 6, pp 27-32 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V235 by V. Konakov).

Translation: Let $X_1, \ldots, X_n$ be independent, identically distributed quantities, having probability density function $f(x)$. As an estimate of $f(x)$, the statistics

$$f_n(x) = h_n^{-1} \int_{-\infty}^{\infty} K\left(\frac{x-u}{h_n}\right) dF_n(u),$$

is studied, where $F_n(x)$ is the empirical distribution function, $K(x)$ is a function measurable according to Borel, belonging to $L_1(-\infty, \infty)$ and satisfying certain conditions of regularity $\{h_n\}$ is a sequence of numbers such that $\lim_{n \to \infty} h_n = 0$ and $\lim_{n \to \infty} nh_n = \infty$. It is assumed that $f(x)$

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USSR

NADARAYA, E. A., Seminar In-ta Prikl. Mat. Tbilis. Un-t. Annotatsii Dokl. 1972, No 6, pp 27-32.

is limited over the entire axis, continuous in the interval

$$-\infty < a \leqslant x \leqslant b < \infty \quad \text{и} \quad \min_{a \leqslant x \leqslant b} f(x) = \mu > 0.$$

Under certain additional conditions of regularity, limiting distributions of certain statistics are concluded in $f(x)$, allowing construction of asymptotic confidence areas for $f(x)$, $a \leq x \leq b$, with fixed confidence factor. The results of the author generalize certain results of N. V. Smirnov.

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USSR                                                    UDC 519.2

NADARAYA, E. A.

"Mean Square Error of Some NonParametric Estimates of the Distribution Density"

Translation: Let $X = (X^{(1)}, \ldots, X^{(p)})$ be a random variable with values in the
euclidian p-dimensional space $R_p$. Let the function $f(x), x \in R_p$, be the desired
distribution density X. Then let $X_1, X_2, \ldots, X_n, X_l = (X_j^{(1)}, \ldots, X_j^{(p)})$ be a sample of
observations of the random variable X. As an approximation with respect to
empirical data of the unknown density $f(x)$ a study is made of the statistics of
the type

$$f_n(x, \tau_n) = n^{-1} \sum_{j=1}^{n} \prod_{l=1}^{p} \tau_i(n) K_i(\tau_i(n) (x_i - X_j^{(l)})). \tag{1}$$

where $K_j(u)$, $u \in R_1$, $j = 1, \ldots, p$ functions which are Borel measurable belonging to
$L_1(R_1)$ and satisfying the following regularity conditions:

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USSR

NADARAYA, E. A., Soobshch. AN GruzSSR, 1972, Vol 67, No 2, pp 289-292

$$\int_{R_1} K(x)\,dx = 1,\ \sup_{x \in R_1} |K_j(x)| < \infty,$$

$$\int_{R_1} x^i K_j(x)\,dx = 0,\ i = 1, \ldots, s-1,$$

$$\int_{R_1} x^s K_j(x)\,dx \neq 0,\ \int_{R_1} x^s |K_j(x)|\,dx < \infty,\ j = 1, \ldots, p,$$

where s is an even nonnegative number, $\{\tau_i(n)\}_{n=1}^{\infty},\ i = 1, \ldots, p,$ are sequences of positive numbers such that

$$\lim_{n \to \infty} \tau_i(n) = \infty \quad \text{and} \quad \lim_{n \to \infty} n^{-1} \prod_{i=1}^{p} \tau_i(n) = 0.$$

In this paper some results of Kakulos (RZh-Matematika, 1967, 8V75) and Vudruf (RZh-Matematika, 1971, 12V282) are generalized.

2/2

Radiobiology

DZHANDZHGAVA, M. M., NADAREYSHVILI, K. SH., and SHARASHENIDZE, N. B.,
Institute of Physiology, Academy of Sciences Georgian SSR

"Changes in the Phase Structure of the Cardiac Cycle During Continuous Whole-
-Body Irradiation of Rabbits"

Abstract: The first signs of approaching radiation shock appeared in rabbits
within 30 to 35 minutes of continuous whole-body irradiation at 10 to 16 krad,
although blood pressure remained fairly high. The period of contraction
increased while the duration of ejection decreased. Blumberger's mechanical
coefficient also decreased and Hegglin's interval became sharply negative.
Thus, despite the fact that blood pressure, pulse, and respiratory rate at
this time had not changed significantly, there were clear indications of the
phase syndrome of hypodynamia of the left ventricle. After exposure to doses
ranging from 18 to 25 krad, the animals' blood pressure began to fall quickly,
the pulse and respiration slowed, and the symptoms characteristic of radiation
shock appeared. The animals died within 20 to 30 minutes in a state of deep
shock. The phase structure of the cardial cycle was severely disrupted.
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UNCLASSIFIED                PROCESSING DATE--23OCT70

1/2    020
TITLE--DETERMINATION OF THE EQUIVALENT PARAMETERS OF DEFORMED MIRROR
  ANTENNAS -U-
AUTHOR-(02)-NADENENKO, B.S., FROLOV, O.P.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROSVIAZ', VOL. 24, FEB. 1970, P. 20-24

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--ELECTRON MIRROR, PAROBOLIC ANTENNA, ANTENNA PARAMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1174          STEP NO--UR/0106/70/024/000/0020/0024

CIRC ACCESSION NO--AP0120021
                        UNCLASSIFIED

UNCLASSIFIED          PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120021
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  DESCRIPTION OF A METHOD FOR
DETERMINING THE EQUIVALENT GEOMETRICAL PARAMETERS OF A DEFORMED
PARABOLIC MIRROR ANTENNA ON THE BASIS OF KNOWN COORDINATES FOR SEVERAL
POINTS ON THE REAL PROFILE OF THE REFLECTOR.  THE CRITERION FOR
DETERMINING THE EQUIVALENT PARABOLIC SURFACE IS THE ATTAINMENT OF A
MAXIMUM SIGNAL AT THE POINT OF RECEPTION WHEN THE RADIATOR IS PLACED AT
THE FOCUS OF THIS SURFACE.  THE USE OF THE METHOD IS ILLUSTRATED BY
NUMERICAL RESULTS OBTAINED FOR A REFLECTOR WITH 30 BY 30 M APERTURE
DIMENSIONS.

UNCLASSIFIED

UDC 681.142.37:61

USSR

ANTONOVA, N. G., IVANOVSKAYA, G. A., NAIDENENKO, V. K., SEL'DIMIROVA, Ye. M. and CHERNYAVSKIY, V. S. Fourth Clinical Hospital

"Processing Medical Information With the "Minsk-22M" Computer and "Blank-P" Automatic Counting System"

Minsk, Zdravookhraneniye Belorussii, No 6, 1970, pp 62-66

Abstract: Machine storage of medical information and the use of a ready retrieval system were discussed. In addition, a form No 266-M, divided into 60 zones and 490 cells, capable of deciphering 999 pertinent medical problems was added. After detailed presentation of the workings of the "Minsk-22M" computer in conjunction with these blanks, it was concluded that: Machine processing of medical information with the aid of formal documents improves the quality of book-keeping, insures veracity of the data, improves accountability by compiling additional summaries and indicators, and standardizes the discrepancies in diagnoses and thereapeutic processes for all medical personnel. In addition, computer processing improves the organization of the initial documentation, perfects the organization of work for accounting personnel and other institutional personnel by freeing them from search and grouping operations, substantially increases the productivity of statisticians, and increases the quality and efficiency of management of a medical establishment.

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USSR                                                    UDC 681.327

ZHIGALOV, A. P., NADENKO, D. M.

"Current Pulse Shaper"

USSR Author's Certificate No. 275119, Filed 31/03/69, Published 15/10/70   (Trans-
lated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya
Tekhnika, No. 4, 1971, Abstract No. 4B298P).

Translation:  The pulse shaper suggested is designed for operation in magnetic
memories and can be used in the address or storage portion of the memory.  Current
pulse shapers containing diode-transformer tubes  and transistor switches are well
known.  The device suggested differs from known devices in that the collector of
the transistor is connected through a series-connected secondary transformer
winding, diode, and resistor to the emitter of an emitter repeater.  This increases
the reliability of the device.  1 fig.

1/1

USSR $\mathsf{N}$ UDC 628.31:669.018.2

NADEYENKO, V. G., KHARKOVER, S. V., and PETROVA, N. N., Sverdlovsk Institute of Labor Hygiene and Occupational Diseases

"The Effect of Effluents From a Hard Alloy Plant on the Groundwater"

Abstract: The discharge of untreated effluents from an unspecified hard alloy plant into a lake resulted in pollution of the groundwater in the vicinity, both through direct percolation of water from the lake, and through the washing out by rain of salts from the soils adjacent to the lake. Analysis of well water at several points located 3-7 km from the lake revealed the presence of tungsten in all the water-supply sources. Concentrations were highest in the wells of inhabited localities closest to the lake. The amount of the element in many wells was somewhat greater during the flood season that in the low-water period. The tungsten content was 2-5 times above the permissible concentration in well water (0.1 mg/liter). Tungsten was also present in concentrations of 0.02-0.06 mg/liter in bodies of open water free from industrial effluents.

1/1

USSR                              UDC: 551.511

NADEZHINA, Ye. D.

"On the Problem of the Effect Which a Sudden Change in the Roughness of
the Underlying Surface Has on Turbulent Boundary Layer Conditions"

Tr. Gl. geofiz. observ. (Works of the Main Geophysical Observatory), 1970,
vyp. 257, pp 109-116 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B889)

Translation:  The paper presents the results of a numerical experiment on
calculating the flow conditions in a turbulent boundary layer deformed
under the effect of an abrupt change in the roughness of the underlying
surface.  In contrast to previous theoretical studies of the problem, the
coefficient of turbulence is included among the internal parameters of the
scheme, and is sought during the process of solution along with the other
flow characteristics.  Profiles of the average wind speed, kinetic energy
of turbulence and friction stress at the surface are calculated and pre-
sented.  Some results of the calculations are compared with full-scale
experimental data.  Bibliography of 14 titles.  Author's abstract.

1/1

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UNCLASSIFIED

PROCESSING DATE--16OCT70

1/2     017

TITLE--NEW MEASUREMENTS OF ANGULAR DEPENDENCE OF DEPOLARIZATION PARAMETER
IN PP SCATTERING AT 635 MEV -U-

AUTHOR-(03)-ZULKARNEYEV, R.YA., NADEZHDIN, V.S., SATAROV, V.I.

COUNTRY OF INFO--USSR

SOURCE--YADERN. FIZ. 11: 178-83, 1970

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PROTON SCATTERING, PROTON INTERACTION, DEPOLARIZATION, PHASE
SHIFT ANALYSIS, PARTICLE SYMMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0670          STEP NO--UR/0367/70/011/000/0178/0183

CIRC ACCESSION NO--AP0105646

UNCLASSIFIED

CIRC ACCESSION NO--AP0105646
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  NEW MEASUREMENTS OF THE
DEPOLARIZATION PARAMETER IN PP SCATTERING AT 635 MEV IN A WIDE ANGLE
INTERVAL AND WITH HIGHER STATISTICAL ACCURACY, ARE MADE. THE RESULTS
OBTAINED ARE COMPARED WITH THE EXPERIMENTAL RESULTS OF OTHERS, WITH
PREDICTIONS OF THE PHASE SHIFT ANALYSIS, AND WITH THE THEORY BASED ON
H(12) AND SU(12)SUBL TIMES SYMMETRIES.

UNCLASSIFIED

UNCLASSIFIED          PROCESSING DATE--30OCT70

1/2    027
TITLE--ANTICOAGULANT ACTIVITY OF RARE EARTH SALTS -U-

AUTHOR-(05)-LAKIN, K.M., ZIMAKOV, YU.A., PLYUSHCHEV, V.YE., NADEZHDINA,
G.V., LOSEVA, G.S.
COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 205-10

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTICOAGULANT DRUG, RAT, RABBIT, BLOOD CHEMISTRY, HEPARIN,
RESPIRATION, RARE EARTH COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0367          STEP NO--UR/0390/70/033/002/0205/0210

CIRC ACCESSION NO--AP0127948
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0127948

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. I.V. ADMINISTRATION TO RATS AND RABBITS OF PROPIONATES OF DY, LA, TB, Y, HO, ER, ND, GD, YB, CE, PR, LU, AND SM AT 0.5 ML 2PERCENT AQ. SOLN.-KG INCREASED FREE HEPARIN CONTENT IN BLOOD BY DEGRADATION OF MAST CELLS, THUS LESSENING COAGULABILITY. THERE WAS NO APPRECIABLE EFFECT ON ARTERIAL TENSION OR RESPIRATION. FACILITY: II. MOSK. MED. INST. IM. PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

1/2    022
TITLE--DIFFERENTIAL PHOTOMETRIC METHOD OF DETERMINING TANTALUM IN
CONCENTRATES -U-
AUTHOR-(03)-KUCHMISTAYA, S.I., NADEZHDINA, G.V., DOBKINA, B.M.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (3), 275-276

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--TANTALUM, PHOTOMETRIC ANALYSIS, QUANTITATIVE ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0917          STEP NO--UR/0032/70/036/003/0275/0276

CIRC ACCESSION NO--AP0131503
UNCLASSIFIED

CIRC ACCESSION NO--AP0131503

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  A DIFFERENTIAL PHOTOCOLORIMETRIC
METHOD ORIGINALLY USED FOR DETERMINING 5PERCENT OF TA IN HYDROXIDES IS
ADAPTED TO DETERMINING MUCH LARGER QUANTITIES IN INDUSTRIAL
CONCENTRATES.  THE BASIS OF THE METHOD IS THE EXTRACTION OF A
FLUOROTANTALATE METHYL VIOLET COMPLEX WITH BENZENE, MEASURING THE
OPTICAL DENSITY OF THE EXTRACTS BY A DIFFERENTIAL PROCEDURE RELATIVE TO
A STANDARD SOLUTION.  THE EXPECTED ERROR IS 0.5-1PERCENT.

UNCLASSIFIED

1/2    028                    UNCLASSIFIED           PROCESSING DATE--27NOV70
TITLE--FRACTIONATION DURING THE SUBLIMATION OF MIXTURES OF AN ANTIMONY
   SESQUISULFIDE ANTIMONY SESQUIOXIDE SYSTEM -U-
AUTHOR-(03)-NADEZHINA, C.S., GRINZAYD, YE.L., BESPALENKOVA, YE.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 874-6

DATE PUBLISHED-------70


SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SUBLIMATION, ANTIMONY COMPOUND, METAL OXIDE, SULFIDE, SURFACE
   FILM, CHEMICAL DEPOSITION, METAL VAPOR DEPOSITION, COMPLEX COMPOUND



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0427         STEP NO--UR/0080/70/043/004/0874/0876

CIRC ACCESSION NO--AP0126180
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0126180
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE COMPN. AND STRUCTURE OF THIN
VACUUM DEPOSITED SB SUB2 S SUB3 FILMS WERE STUDIED.   THE VOLATILIZATION
OF SB SUB2 S SUB3 FROM THE SOLID SB SUB2 S SUB3 SB SUB2 O SUB3 MIXT.
OCCURS AS PARTICLES OF COMPLEX COMPN.  PARTIAL VAPORIZATION RATE VS.
COMPN. DIAGRAMS WERE USED TO EST. THE DEGREE OF SB SUB2 O SUB3
ENRICHMENT OF THE SUBLIMATE.  THE SUBLIMATE IS ENRICHED IN O FOR ALL
COMPNS. OF THIS SYSTEM.          FACILITY:  LENINGRAD. POLITEKH. INST.
IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

1/2    010                  UNCLASSIFIED           PROCESSING DATE--30OCT70
TITLE--VAPOR PRESSURE OVER ANTIMONY SESQUISULFIDE ANTIMONY SESQUIOXIDE
MIXTURES -U-
AUTHOR-(03)-GRINZAYD, YE.L., NADEZHINA, L.S., BESPALENKOVA, E.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 317-18

DATE PUBLISHED--------70


SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ANTIMONY COMPOUND, SULFIDE, OXIDE, VAPOR PRESSURE


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1954        STEP NO--UR/0078/70/015/002/0317/0318

CIRC ACCESSION NO--AP0118916
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0118916
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE RATE OF EVAPN. IN A SB SUB2 O
SUB3-SB SUB2 S SUB3 SYSTEM WAS DETD. GRAVIMETRICALLY AND A DIAGRAM OF
TOTAL AND PARTIAL EVAPN. OF THE SYSTEM IS PRESENTED GRAPHICALLY.  SB
SUB2 S SUB3 HAS AN ABNORMAL CURVE OF PARTIAL VAPOR PRESSURE FOR A WIDE
RANGE OF CONCN.  THE PARTIAL VAPOR PRESSURE OF SB SUB2 O SUB3 SHOWS A
POS. DEVIATION FROM RAOULT'S LAW.  THE DATA IMPLY FORMATION OF AN
UNIDENTIFIED OXYSULFIDE IN THE VAPOR PHASE.         FACILITY:
LENINGRAD. POLITEKH. INST., LENINGRAD, USSR.

1/2    016                    UNCLASSIFIED              PROCESSING DATE--27NOV70
TITLE--USE OF THE LUBRICANT TI DURING THE ROLLING UF COPPER BASED ALLOYS
  -U-
AUTHOR--NADEZHKIN, M.P.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL, 1970, 43(3), 65

DATE PUBLISHED-------70


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

TOPIC TAGS--METALWORKING LUBRICANT, COPPER ALLOY, METAL ROLLING/(U)T1
  METALWORKING LUBRICANT



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1406        STEP NO--UR/0136/70/043/003/0065/0065

CIRC ACCESSION NO--AP0126944
                              UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0126944                    PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE KEROSINE T1 HAVING ACIDITY
SMALLER THAN OR EQUAL TO 0.7 MG KOH-100 ML, GUM CONTENT SMALLER THAN OR
EQUAL TO 6 MG-100 ML, ASH CONTENT SMALLER THAN ORE EQUAL TO
0.003PERCENT, AND SMALLER THAN OR EQUAL TO 0.1PERCENT S IS USEFUL AS A
LUBRICANT FOR THE ROLLING OF CU ALLOYS.

UNCLASSIFIED

NIKOLAYEV, V. K., KHIMICHEV, Yu. V., VALITOV, R. A., NADEZHKIN, Yu. M.

"A Device for Measuring High Levels of Laser Pulse Emission Energy With Large Beam Diameters"

Translation:  The paper describes the characteristics and design of a pondermotive device for measuring the pulse energy of high-level transmitted emission.  Problems of calibrating the meter are considered.  Some components of measurement errors are evaluated.  Bibliography of 10 titles.

1/1

USSR                                              UDC:  621.375.82

STARODUBTSEV, G. P., NADEZHKIN, Yu. M., VALITOV, R. A.

"Heat Effects in Unevacuated Ponderomotive Laser Emission Meters"

Translation:  The thermal effects caused by convection of the air contained
in a ponderomotive meter are considered.  The effects which contribute most
to the error in measuring the mechanical action of emission are singled out
and investigated.  Heat effects are studied over a broad dynamic range and
as a function of the angle between the receiving element and the vertical,
the location of the receiving element between the input windows, and the
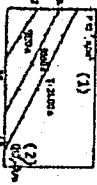volume of the reception chamber of the meter.

1/1

NADEZHNIKOV, N. M.
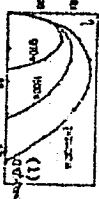
# EXPERIMENTAL STUDY OF AN AC CONDUCTION PUMP USING A LIQUID-METAL SODIUM LOOP

[Abstract of a paper by Yu. A. Birzvalk, Yu. V. Srivecka, N. M. Nadezhnikov.
Given at the Magnetohydrodynamic Conference, p 14]

An experimental study was made of a laboratory model of a single-phase ac conduction pump with the following parameters:

| | |
|---|---|
| Rated head | $P_n = 0.4 \cdot 10^5$ n/m² |
| Rated output capacity | $Q_n = 3 \cdot 10^{-3}$ m³/sec |
| Metal — liquid sodium for $T^0$ | $= 400°C$ |
| Dimensions of the channel core | $10 \times 50 \times 60$ mm³ |

The experiment was performed on a liquid-metal Cu-60 circuit of the Physics Institute of the Latvian SSR Academy of Sciences.

The external characteristics $P - P(Q)$, the volt-ampere characteristics $U = U(I)$ under the condition of $p/Q^2 = const$ and the characteristics $\eta = \eta(Q)$ were determined. A study was also made of the distribution of the electric and magnetic fields.

The basic experimental results are depicted in Figures 1 and 2.

Figure 1.
Key: 1. n/m²
     2. m³/sec

Figure 2.
Key: 1. m³/sec

- 60 -

10,845
CSO: 8044/0653-H

Polymers and Polymerization

NADEZHNITSKIY, I. P., Gusev Glass-Fiber Plant

"Automation and Mechanization of Glass-Fiber Production"

Abstract:  Various innovations and new mechanisms have enabled the Gusev
Glass-Fiber Plant to advance output during the Eighth Five-Year Plan.
Transport of raw glass to the electric furnaces is now mechanized, as is
transport of lubricant to the glass-spinning section; the RTS-5 electronic
temperature regulator is used in the smeltery.  All basic processing and
transport has been at least partly mechanized, in order to free specialized
workers (furnace operators, shapers, etc.).  New mechanisms and procedures
have been worked out by the All-Union Scientific Research Institute of Glass
Plastics and Glass Fiber, in collaboration with plant employees.
     The machine shop of the Gusev plant now turns out more than 40,000
plastic parts a year, thus saving several tons of ferrous and other metals.

1/1

USSR

RAYEVSKIY, A. V., MANELIS, G. B., NADGORNYY, E. M., and IVANOV, A. P., Institute of Chemical Physics, Academy of Sciences USSR, Moscow, and Institute of Solid State Physics, Academy of Sciences USSR, Chernogolovka, Moscow Oblast

"Whisker Crystals of Ammonium Perchlorate. Their Mechanical Properties"

Abstract: In earlier work by Rayevskiy, Manelis, etal (DAN SSSR, 151, No 4, 886, 1963; 160, No 5, 1136, 1965) the assumption was made that dislocations play a significant role in the thermal decomposition of orthorhombic crystals of $NH_4ClO_4$. In the present work, whisker crystals of $NH_4ClO_4$ were grown by utilizing the capacity of moist $NH_4ClO_4$ to creep during crystallization. Into a layer of moist crystals of $NH_4ClO_4$ placed in a beaker the open end of a glass cylinder closed on top was inserted. On the outer surface of the cylinder lengthwise rough strips with a width of 5 mm were ground to facilitate creeping. Outside of the beaker an open glass cylinder was placed to produce a humidity gradient. The arrangement was kept for several days at room temperature in a chamber with a constant humidity. Whisker crystals grew on the outer surface of the closed cylinder. The whiskers had a circular cross section, a tubular
1/2

USSR

RAYEVSKIY, A. V., et al., Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 157-159

shape, a wall thickness of 1.5-10 $\mu$, and an outer radius up to several tens of microns. The length of the whiskers was $\approx$ 50 mm. The whisker crystals had a tensile strength up to a level above 13 $kg/mm^2$ vs. $\sim$ 0.5 $kg/mm^2$ for ordinary $NH_4ClO_4$ crystals and a higher elastic deformation up to the fracture point ( $\sim$ 0.2-1%) than that of the latter. The tensile strength decreased with an increasing wall thickness, but did not depend on the outer radius. X-Ray diffraction measurements carried out by Yu. A. Sokolov showed that the whiskers grew in the direction of the $z$ axis. Whisker crystals with similar properties were grown from $NH_4ClO_4$ containing $\sim$ 1 mole % $KMnO_4$. The mechanical properties of the whisker crystals indicated that they were practically free of dislocations. (Submitted by Academician N. N. Semenov, 31 Jul 72).

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USSR                                                UDC 548.4:548.74

YERMAKOV, G. A., NADGORNYY, E. M.

"The Effect of Light on Dislocation Mobility in Gamma-Irradiated
Alkali Halide Crystals"

Abstract:  The subsonic mobility of dislocations in alkali halide
crystals is highly sensitive to crystal structure and highly
dependent on the state and distribution of point defects.  Study
of mobility processes thus yields information on the states and
the distribution of defects after irradiation and explains certain
light and heat-induced changes related to the centers.

The effect of light on the rate of individual screw dislocations
is studied in gamma-irradiated KCl and NaCl crystals.  The effect
of light on the motion of dislocations is called dislocation of
photomobility.  The ratio of dark mobility to light mobility for
both crystals depends exponentially on shear stress (the ratio
decreases as stress increases).
1/2

USSR

YERMAKOV, G. A. et al, Izvestiya Akademii Nauk SSSR, Seriya
Fizicheskaya, Vol 35, No 7, 1971, pp 1422-1424

The effect is observed only in colored crystals and depends on
temperature and the intensity and spectral composition of the
incident light, reaching maximum under monochromatic light in the
F-band.  Irradiation seems to change the F-centers into stronger
retarding centers in the immediate vicinity of dislocations.  The
authors speculate on the nature of these centers.

Orig. art. has 2 figs. and 7 refs.

2/2

USSR

YERMAKOV, G. A.; NADGORNYY, E. M. (Institute of the Physics of Solids of the USSR Academy of Sciences, Chernogolovka)

"Dislocation Mobility in Gamma-Irradiated Crystals of Sodium Chloride. High-Rate Region"

Leningrad, Fizika Tverdogo Tela; February, 1971; pp 513-9

ABSTRACT: A study was made of the dependence of the rate of screw dislocation on the shear stress $t$ and the temperature in the interval $T = 77°-300°K$ in the high-rate region $v > 10^3$ cm/sec in gamma-irradiated crystals of sodium chloride, for which $v(t)$ was studied earlier in the low-rate region. It was shown that movement in high- and low-rate regions is substantially different in alkali-haloid crystals (different form of $v(t)$, different with respect to the sign of the function $v(T)$, a different character of the effect of the radiation point defects). The conclusion is drawn that the movement of the

1/2

USSR

YERMAKOV, G. A., et al., Fizika Tverdogo Tela, Feb 71, pp 513-
519

dislocations for $v > 10^3$ cm/sec in these crystals is quasi-viscous. The value
of the effective viscosity B depends on the radiation dose and the temperature
($B = 0.15-0.50$ millipieze [1 pieze is equal to a pressure of 1 cN on an area
of 1 m$^2$ ]). The temperature function B(T) indicates a possible role of phonon
processes in dislocation retardation in the range of rates studied. The occur-
rence of a delay in the movement of dislocations having a thermoactivation
character and connected with the diffusion strengthening of dislocations in
this range of v, t, and T was investigated.

2/2

- 40 -

1/2    012                UNCLASSIFIED           PROCESSING DATE--04DEC70
TITLE--MULTIPLICATION OF DISLOCATIONS BY THE MULTIPLE TRANSVERSE SLIP
  MECHANISM -U-
AUTHOR-(02)-GUTMANAS, E.YU., NADGORNYY, E.M.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA TVERDOGO TELA, MAR. 1970, 12, (3), 939-941

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL LATTICE STRUCTURE, CRYSTAL LATTICE DISLOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0155      STEP NO--UR/0181/70/012/003/0939/0941

CIRC ACCESSION NO--AP0129411
                       UNCLASSIFIED

2/2    012
CIRC ACCESSION NO--AP0129411

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE THEORY OF THE MULTIPLE
TRANSVERSE SLIP MECHANISM AND THE PART WHICH IT PLAYS IN THE CREATION,
MULTIPLICATION, AND PROGRESSIVE MOVEMENT OF DISLOCATIONS, SINGLY AND AS
GROUPS, IS PRESENTED AND DISCUSSED; IT IS ALSO CONTRASTED WITH EXISTING
THEORIES OF YIELD, IN WHICH RATHER LIMITING ASSUMPTIONS ARE MADE AS TO
THE RELATION BETWEEN THE MOTION OF DISLOCATIONS AND RUPTURE OF A SOLID.
TYPES OF CRYSTAL TO WHICH THE NEW THEORY IS SPECIALLY APPLICABLE ARE
CONSIDERED.

UNCLASSIFIED

AN0 012133

AUTHOR--    NADIRASHVILI, A., GEORGIAN YOUNG COMMUNIST LEAGUE

TITLE--     THE TITLE "STUDENT" IS A DEGREE

NEWSPAPER-- KOMSOMOL,SKAYA PRAVDA, JANUARY 20, 1970, P 2, COLS 1-2

ABSTRACT--   IN DISCUSSING POSSIBLE WAYS OF CHANNELING STUDENT,S EFFORTS
INTO RESEARCH WORK, THE AUTHOR MENTIONS THE TBILISI UNIVERSITY. THERE
SECOND AND THIRD YEAR STUDENTS OF THE SCHOOL OF PHYSICS ARE ATTACHED
TO THE LABORATORIES OF THE INSTITUTE OF PHYSICS OF THE GEORGIAN ACADEMY
OF SCIENCES.

A DIFFERENT APPROACH IS PRACTICED IN NOVOSIBIRSK, RIGA AND LENINGRAD,
THERE THE STUDENTS ARE PARTICIPATING IN THE ACTIVITIES OF RESEARCH-
PRODUCTION CORPORATIONS - "FAKEL" IN NOVOSIBIRSK, "STARS" IN RIGA,
AND "POLITEKHNIK" IN LENINGRAD /AT THE POLYTECHNIC INSTITUTE IMENI
KALININ/.

19570961

1/2    033                    UNCLASSIFIED          PROCESSING DATE--27NOV70
TITLE--EPR SPECTRA OF SILICA GEL IRRADIATED IN A REACTOR AT LOW
    TEMPERATURES -U-

AUTHOR-(03)-BERULAVA, B.G., NADIRASHVILI, L.SH., TSETSKHLADZE, T.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(2), 369-71

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SILICA GEL, RADIATION EFFECT, ELECTRON PARAMAGNETIC RESONANCE,
    ETHYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1401          STEP NO--UR/0020/70/190/002/0369/0371

CIRC ACCESSION NO--AT0128800
                          UNCLASSIFIED

CIRC ACCESSION NO--AT0128800
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  SILICA GEL (I) WAS IRRADIATED WITH
  GAMMA RADIATION FROM A NUCLEAR REACTOR AT 120DEGREESK WITH DOSES FROM 3
  TO 60 MEGARADS.  EPR SPECTRA WERE MEASURED AT 77DEGREESK AT X BAND.  I
  HAD A SPECIFIC AREA OF 600 M PRIME2-G.  SAMPLES WERE EVACUATED 10 HR AT
  300DEGREESK.  SOME WERE THEN FILLED WITH C SUB2 H SUB6 AT 300 TORR.
  SPECTRA WERE RECORDED IMMEDIATELY AFTER IRRADN. AND SEVERAL DAYS LATER
  (STORED AT 77DEGREESK).  WITH A 40 MEGARADS DOSE, THE SIGNALS FROM BOTH
  THE VACUUM TREATED AND THE C SUB2 H SUB6 FILLED SAMPLES WERE
  INHOMOGENEOUSLY BROADENED.  THE SPECTRUM OF THE VACUUM TREATED SAMPLE
  HAD 3 COMPOENTS (POORLY RESOLVED) WITH G VALUES 2.0080, 2.0045, AND
  2.0017, AND WITH CENTER LINE WIDTH 11.5 G.  RESOLN. IMPROVES WITH A
  LOWER DOSE.  THE C SUB2 H SUB6 CONTACTED SAMPLE HAS A SINGLE LINE, G
  EQUALS 2.0015, LINEWIDTH EQUALS 2.3.   THE H DOUBLET IS OBSD. WITH A
  EQUALS 504 G, LINEWIDTH 3 G.  AT 10 MEGARADS THE RADICAL YIELD FROM THE
  C SUB2 H SUB6 CONTACTED SAMPLE IS 0.05 THAT OF THE VACUUM TREATED.  FOR
  THE C SUB2 H SUB6 CONTACTED SAMPLE, THE G EQUALS 2.0017 SIGNAL IS DUE TO
  AN ELECTRON IN AN O VACANCY, THAT AT 2.0080 TO A POS. HOLE.  THE H ATOM
  SIGNAL IS SIMILAR TO 6PERCENT OF THE TOTAL RADICAL YIELD.  THE G EQUALS
  2.0080 AND 2.0045 LINES DISAPPEAR IN THE VACUUM TREATED SAMPLES, BUT NOT
  THE G EQUALS 2.0015 LINE.          FACILITY:  INST. FIZ., TBILISI, USSR.

NADIRASHVILI, N.I.

# ON THE THEORY OF SUPERPLASTICITY

UDC 539.214

K. P. Gurov, M. Kh. Shorshorov, A. S. Tikhonov, and N. I. Nadirashvili,
Institute of Metallurgy imeni A. A. Baykov of the USSR Academy of
Sciences, submitted to press 5 January 1977

Pages 145-140

A theoretical model is proposed in which the optimum
conditions of superplasticity are connected with the maximum
developed interphase surface of the fluctuation nuclei of the
new phase. An estimate of the distribution of these nuclei
according to dimensions, as a function of temperature, is
performed from the standpoint of the theory of pre-transi-
tional phenomena of Ya. I. Frenkel'. A comparison of the
calculation data with the experimental results for a number
of systems demonstrated the validity of such a model.

At the present time we may consider the concept that in the
phenomenon of superplasticity of metallic materials the surface effects
play the determining role (the effects at the inter-phase and inter-grain
boundaries) may be considered as generally accepted. In connection with
this, the use of the idea of Ya. I. Frenkel' [1] for estimation of the optimum
conditions of superplasticity appears feasible.

The fact that the temperature corresponding to the optimum conditions
of superplasticity lies close (but is not equal!) to the temperature of the
phase transition (the polymorphic transformation or melting) calls attention
to itself. According to the considerations of Ya. I. Frenkel', the given
temperature region should be considered as a "pre-transition" state of a
system having its own specific features, caused by the presence of fluctua-
tion nuclei of the new phase in the aggregate at the temperatures indicated.
These nuclei appear all the time and disappear, or change their dimensions,
but there is a dynamic equilibrium between them, that is, in the given case,
we may speak of an entirely stable distribution of the nuclei according to

- 1 -

dimensions (at a constant temperature). According to Frenkel', this distribution is characterized by the ratio

$$n_i = N \exp\left[-\frac{\Delta\Phi_i}{kT}\right]$$  (1)

Here $n_i$ is the number of nuclei containing $x$ atoms; N is a standardizing multiplier, k is the Boltzmann constant; $\Delta\Phi_i$ is the variation of the thermodynamic potential of the system in the formation of a nucleus of the new phase in it. We may assume that $\Delta\Phi_i$ consists of two items, considering the volumetric thermal effect of the transition and appearance of surface tension in the nuclei of the new phase. Generally speaking, there is still a third item, connected with the appearance of the microstresses because of local deformation (strain) in the vicinity of the nucleus. However, we ignore this effect; we will speak further of the permissibility of ignoring the effect at the end of the article.

According to Frenkel', for an estimate of $\Delta\Phi_i$, we may use the formula

$$\Delta\Phi_i = Q\frac{(T - T_i)}{T} x + \beta x^{2/3}.$$  (2)

where Q is the latent heat of the phase transition (referred to one atom) at the true temperature $T_0$ of the phase transition (Q < 0 at T < T0), and $\beta x^{2/3}$ is the variation of $\Delta\Phi_i$ because of the appearance of surface tension ($\beta < 0$).

Thus, according to this model, in the region of a pre-transition state at the approximation of the temperature to the true temperature of transition, both the number of nuclei and their distribution with respect to dimensions varies, and, consequently, the total area of the inter-phase boundaries varies. In this case, far from the temperature T0 the number of nuclei and the total area of their surfaces are negligible, but as T approaches T0 the total area increases. At T=T0 all the nuclei join into one common phase and the area of the internal inter-phase surfaces tend toward zero. Therefore, the total area of the surfaces of the nuclei as a function of the temperature must pass through an extreme (a maximum).

We assume that between the temperature corresponding to such an extreme and the optimum temperature of superplasticity there must be a definite correlation. In this work an attempt is made to establish such a correlation by means of approximate estimation of the temperature corresponding to the maximum total area of the surfaces of the nuclei. We must emphasize that if we succeed in confirming the presence of such a

- 2 -

1/2    008            UNCLASSIFIED         PROCESSING DATE--27NOV70
TITLE--HYDROGENATION OF SOYBEAN OIL ON PALLADIUM CATALYSTS ON CLAY
   CARRIERS -U-
AUTHOR-(02)-SHLOTGAUER, I.V., NADIROV, N.K.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (2), 138-40

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LEGUME CROP, VEGETABLE OIL, CATALYTIC HYDROGENATION, METAL
   CATALYST, PALLADIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0151          STEP NO--UR/0322/70/000/002/0138/0140

CIRC ACCESSION NO--AT0137295
                         UNCLASSIFIED

CIRC ACCESSION NO--AT0137295

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PD CATALYST WAS PREPD. BY
IMPREGNATION OF A SPECIAL CLAY WITH AN ALC. SOLN. OF PDCL SUB2. THE
CLAY WAS FINELY GROUND, DRIED, AND CALCINED AT 600DEGREES FOR 5 HR.
REDN. OF CATALYST WAS DONE AS FOLLOWS:  DRYING FOR 1 HR AT 105DEGREES,
GRADUAL INCREASE OF TEMP. FOR 1 HR TO 230DEGREES, AND REDN. AT
230DEGREES FOR 35 MIN. SOYBEAN OIL WAS HYDROGENATED TO AN I NO. OF
65-80 AT 180-240DEGREES. THE MAX. RATE OF HYDROGENATION WAS OBTAINED
WITH 0.1PERCENT PD ON CLAY. ANAL. OF THE HYDROGENATED PRODUCT SHOWED A
GOOD SELECTIVITY.          FACILITY: KHABAROVSK. PEDAGOG. INST.,
KHABAROVSK, USSR.

UNCLASSIFIED

USSR

DANILOVA, M. V., and NADIROVA, I. M., Institute of Microbiology, Academy of Sciences USSR

"Effect of Lyophilization on the Diagnostic Properties of Pseudomonas Bacteria"

Abstract: After lyophilization, Pseudomonas aurantiaca, fluorescens, and pyocya-nea cultures kept for 12-18 months at temperatures of $2-4^\circ$C were found to be largely unchanged in their diagnostic properties. Microscopic studies showed that the bacteria retained their bacilliary shape and their size (1 to 1.5 x 0.5 ). The Hugh-Leifson method was used to study the consumption of carbon from various sources, including glucose, mannose, galactose, lactose, sucrose, maltose, d-ara-binose, 1-arabinose, xylose, glycerin, salicyl, inosite, and mannite. In some cases, there was a delay of 48-60 hours in the conversion of some of these car-bon sources; after one or two exchanges of the nutrient medium, however, the test cultures exhibited the same behavior in this respect as the controls. Urease formation, the use of organic acids as carbon sources, and the Lysenko iodine--acetate test were also studied. No changes in the diagnostic properties of the bacteria were found in any test.
1/1

UDC 621.385.6 (088.8)

USSR

KAL'YANOV, E.V., NADOLINSKIY, V.F.

"Type O Electron Microwave Device"

USSR Author's Certificate No 270097, filed 13 Nov 67, published 30 July 70 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A195P)

Translation:  A Type O electron microwave device with magnetic focusing of the electron stream is proposed, which contains an ion trap between the electron gun and the decelerating system. With the object of the elimination of ordinary and noise parasitic oscillations in the signal spectrum, the ion trap with a periodic electrostatic field is made in the form of a packet of conducting plates divided by insulators with apertures in the center for passage of the electron stream.

1/1

- 68 -

USSR                           $N$                    UDC   621.385.633

KAL'YANOV, E. V., NADOLINSKIY, V. F.

"Superhigh-Frequency Type 'O' Electron Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, 8 May 70, p 56, Patent No 270097, Filed 13 Nov 67

Translation: This Author's Certificate introduces a superhigh-frequency type "O" electron device with magnetic focusing of the electron flux. This device contains an ion trap between the electron gun and the decellerating system. The device is distinguished by the fact that in order to eliminate regular and noise parasitic oscillations in the signal spectrum, the ion trap with a periodic electrostatic field is executed in the form of a bunch of conducting plates separated by insulators with holes in the center for passage of the electron flux.
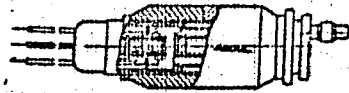


1/1

USSR                                                    UDC 632.954:633.511—

ZUBKOVA, N. F., NADTOCHAYA, O. G., and STONOV, L. D., All-Union Scientific
Research Institute of Chemical Means of Plant Protection

"The Influence of Defoliants on Two Phases of the Formation Process of the
Exfoliating Layer in Cultures of Cotton Plant Seed Leaves"

Moscow, Agrokhimiya, No 2, 1973, pp 128-133

Abstract: Experiments were conducted on seed leaf cultures of Gossipium
hirsutum L, type 108-F, prepared from sprouts which had two true leaves.
The explanted leaves measured 12 mm, and they were exposed to the defoliants
by placing the stem ends in a 1% agar solution containing the test substance,
in Petri dishes. Tests were made using butyphos, magnesium chlorate, and
ethrel. The length of the first phase was determined to be from the time
of preparation until the explanted leaves' loss of sensitivity to indolyl-
acetic acid. For this reason the leaves were placed in an agar solution
containing indolyacetic acid at intervals and observation was made for the
cessation of the acid's inhibiting action in formation of the separating
layer. The tests were repeated four times, in light, with a temperature
of 25-30 C. Results indicated that butyphos and magnesium chlorate speeded
the second phase of formation but did not seem to effect the first phase
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USSR

ZUBKOVA, N. F., et al., Agrokhimiya, No 2, 1973, pp 128-133

of separating layer formation.  In the constant presence of indolylacetic
acid both phases were speeded by these defoliants.  Ethrel speeded both
phases of separation and proved to be the most active of the three tested
defoliants.

2/2

USSR

UDC 632.95

NADTOCHAYA, O. G., GRUZINSKAYA, N. A., and STONOV, L. D.

"Determination of Butyphos in Cotton Plants"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt.
zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the
Second All-Union Conference on Investigation of Residues of Pesticides, and
Prevention of Pestidice Contamination of Foodstuffs, Fodder and the External
Environment), Tallinn, 1971, pp 1790180 (From RZh-Khimiya, No 11, Jun 72,
Abstract No 11N459)

Translation:    The study material is pulverized, triturated with quartz sand,
the homogenate is washed with acetone, filtered, 0.3 ml of concentrated $HNO_3$
is added to the acetone extract, the mixture is evaporated, and the residue is
dissolved in ethanol and chromatographically analyzed on silica gel in a
fixed layer in the hexane-acetone system (5:1), and developed with a bromo-
phenol reagent. The sensitivity of the method is 0.5-1 $\gamma$ . Within a half
hour after applying butyphos to the leaf blade, the compound is detected
in the petiole and in the zone of attachment of the leaf. The leaf blade
tissue interacts with the butyphos and the content of the chemical decreases.

1/1

1/2    023                    UNCLASSIFIED              PROCESSING DATE--11SEP70
TITLE--PREPARATION OF SINGLE CRYSTALS AND STUDY OF THE CADMIUM IODIDE ,
   STANNOUS IODIDE SYSTEM BY FUSIBILITY AND ELECTRICAL RESISTANCE METHODS
AUTHOR--BELOTSKIY, D.P., NADTOCHIY, V.F., TKACHUK, L.F.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1) 30-3

DATE PUBLISHED-------70


SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--CHEMICAL SYNTHESIS, SINGLE CRYSTAL, ELECTRIC CONDUCTIVITY,
   GRAPHIC TECHNIQUE, SEMICONDUCTOR MATERIAL, IODIDE, TIN COMPOUND, CADMIUM
   COMPOUND


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1325        STEP NO--UR/0073/70/036/001/0030/0033

CIRC ACCESSION NO--AP0107798
ZZZZZZZZZZZZZ                  UNCLASSIFIED

CIRC ACCESSION NO--AP0107798
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  CDI SUB2, SNI SUB2 AND MIXTS. WERE
  PREPD. BY REACTION OF THE METAL OR METAL MIXT. AND I SUB2 IN SEALED
  AMPULS.  THE AMPULS WERE HEATED IN TWO OVENS, ONE ABOVE AT A SOMEWHAT
  LOWER TEMP. AND A LOWER ONE AT A HIGHER TEMP. THE TEMPS. AND REGIME OF
  HEATING VARIED WITH THE METAL.  SINGLE CRYSTALS WERE OBTAINED BY ZONE
  CRYSTN. THE CDI SUB2, SNI SUB2 SYSTEM HAS A EUTECTIC AT 70 MOLE PERCENT
  SNI SUB2, M. AT 305DEGREES. . THE SOLY. OF TEMP. IS THAT OF
  SEMICONDUCTORS.  GRAPHS ARE GIVEN AND ALSO GRAPHS OF RESISTANCE AGAINST
  COMPN. WHICH CHANGES MARKEDLY WITH THE PHASES PRESENT.

UNCLASSIFIED

USSR

UDC 539.172.3

DUBOVOY, E. I. and NADTOCHIY, V. G.

Abstract: The fine resonance structure of a photoneutron cross section in a $^{58}$Ni nucleus is analyzed in the present article by means of the technique of Feynman diagrams. The article contains a drawing of the type of triangular diagrams used. The diagrams illustrate three virtual processes: the disintegration of $^{58}$Ni $\rightarrow$ $^{57}$Ni + n, excitation of the $^{57}$Ni nucleus by a photon, and inelastic scattering of the neutron in $^{57*}$Ni along with transferal of excitation to the neutron. These diagrams specify the existence of extrema in the cross section, the positions of which coincide with the thresholds of the ($\gamma$ n)-reactions in $^{58}$Ni with excitation of the residual nucleus of $^{57}$Ni. Within the limits of experimental error, 200 kilo electron volts, all resonances except for 18.6 million electron volts were found to coincide in position with the extreme. However, the resonance structure of the cross section cannot be unequivocally identified with these extrema because resonances could also be caused by the interaction in a finite state of a $^{57}$Ni nucleus and a neutron rather than a photon.
1/1

Navigation Aids

USSR

UDC 621.396

DYATLOV, A. P., NADTOKA, A. YE.

"Phase Direction Finder with Successive Signal Comparison"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy--Radioelektronika, Vol XIV, No 8, 1971, pp 889-893

Abstract: A study was made of the possibility of using an autocorrelation receiver in a phase direction finder with successive signal comparison, and the instrument error was analyzed. The information about the spatial position of a target is to be found in the amplitude and the phase difference. Only the phase difference of the signals is considered here. The commuted signal resembles a signal with relative phase manipulation, and autocorrelation receivers are used to process the signals [Petrovich, Peredacha diskretnoy informatsii v kanalakh s fazovoy manipulyatsiyey, Soviet Radio Press, 1965]. A block diagram of a range finder using an autocorrelation device is presented, and its operation is described.

The presented direction finder can operate not only with respect to monoharmonic signals but also with respect to continuous narrow band AM and FM

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USSR

DYATLOV, A. P., et al., Izvestiya vysshikh uchebnykh zavedeniy--Radioelektronika,
Vol XIV, No 8, 1971, pp 889-893

signals. A limiter is used at the autocorrelator input when receiving AM sig-
nals in order to eliminate the error as a result of the nature of the signal.
The special problems encountered here are also analyzed.

2/2

NADZHAFOV, A.N.

MEDICAL Service

Military Medical Journal   No 8   1960

:115

Lieutenant-Colonel of the Medical Service Ch. P. Zlobina
Major of the Medical Service A.N. Nadzhafov. Spontaneous rupture
of the musculus rectus abdominis

The patient S., a 53-year-old woman, fell suddenly ill while going up a flight of stairs. [...]

Received in February 1960.

USSR                    /\/        UDC:  614.445:616-884:616.995.7 (479.24)

NADZHAFOV, A.YU. and ABDULLAYEV, KH.I.

"Sanitary Hydraulic Engineering and Its Role in Preventing Certain Diseases and Controlling Blood-Sucking Insects in Azerbaydzhan"

Abstract:  During field trips in 1967-1968 to different parts of Azerbaydzhan, the authors found large bodies of water resulting from the failure to observe sanitary regulations in the building, repair, and operation of hydraulic works and from irrigation systems and reclamation projects.  These new expanses of water are epidemiological factors in the spread of malaria, leptospirosis, tularemia and other water-borne infections.  They also create favorable conditions for helminthiases, tickborne spirochetosis, and other diseases. Epidemic-control measures must be instituted at all the projects involving water.  The costs of prevention are far less than the economic losses produced by outbreaks of the diseases mentioned above.

1/1

USSR

ABDULLAYEV, S. K., MUKHTAROV, A. I., and RADZHAFOV, I. M., Azerbaydzhan State University

"Photon Emission in Hadron Pair Production in Colliding Electron-Positron Beams"

Abstract: The annihilation of an arbitrarily polarized $e^-e^+$-pair in a pair of hadrons accompanied by polarized photon emission is studied. Plots corresponding to photon emission by initial leptons are considered. Even though photon emission by the created hadrons can make some contribution to the cross-section for a certain region of kinematic variables, the principal contribution is that of photon emission by light initial particles. The coefficient of asymmetry, defined as the ratio of the difference of cross-sections to their sum for parallel $(\eta\eta' = 1)$ and antiparallel $(\eta\eta' = -1)$ transverse spins of electron and positron, was derived. The degree of circular polarization of gamma-quanta was also presented.

1/1

UNCLASSIFIED

TITLE--RADIATION SCATTERING OF NEUTRINOS BY LEPTONS -U-

PROCESSING DATE---20NOV70

AUTHOR-(03)-MUKHTAROV, A.I., NADZHAFOV, I.M., ABDULLAYEV, S.K.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(4), 69-73

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SCATTERING CROSS SECTION, PARTICLE INTERACTION, NEUTRINO, ELECTRON INTERACTION, ANGULAR DISTRIBUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1647

STEP NO--UR/0139/70/013/004/0069/0073

CIRC ACCESSION NO--AT0133552

UNCLASSIFIED

CIRC ACCESSION NO--AT0133552         UNCLASSIFIED          PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.  THE RADIATION SCATTERING IS
THEORETICALLY STUDIED OF NEUTRINOS BY LEPTONS (NAMELY E PRIME NEGATIVE),
THE POLARIZATION OF PARTICLES BEING TAKEN INTO ACCOUNT.  EXPLICIT
EQUATIONS ARE FOUND FOR DIFFERENTIAL CROSS SECTION OF THE SCATTERING
PROCESS, ANGULAR AND ENERGY DISTRIBUTION OF E, AND DEGREE OF BOTH
CIRCULAR AND LINEAR POLARIZATION OF GAMMA-QUANTUM.                FACILITY:
AZERB. GOSUNIV. IM. KIROVA, BAKU, USSR.

UNCLASSIFIED

USSR

NADZHAFOV, I. M. (Moscow State University)

"Multiphoton Polarized Bremsstrahlung"

Moscow, Journal of Nuclear Physics, February 1970, pp 416-424

Abstract:  The differential cross sections of two-, three-, and four-photon bremsstrahlung of an electron in the field of a nucleus, for any energies but small particle scattering angles, is calculated, taking into account longitudinal polarization of electrons and circular polarization of photons. Certain principles in multiphoton bremsstrahlung are also established. Particle scattering angles can deviate from 0 and $\pi$ by several degrees. In particular, it is shown that an even number of hard bremsstrahlung photons will radiation mainly at small angles.

1/1

TITLE--OPTICAL AND MOESSBAUER SPECTRA OF IRON IN TOURMALINES -U-

AUTHOR-(05)-MARFUMIN, A.S., MKRTCHYAN, A.R., NADZHARYAN, G.N., NYUSSIK,
  YA.M., PLATONOV, A.N.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (2), 146-50

DATE PUBLISHED--------70


SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--ABSORPTION BAND SPECTRUM, IRON, ALUMINUM SILICATE MINERAL,
  CRYSTAL, MOSSBAUER SPECTRUM


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1541       STEP NO--UR/0011/70/000/002/0146/0150

CIRC ACCESSION NO--AP0125168
                         UNCLASSIFIED

CIRC ACCESSION NO—AP0125168          UNCLASSIFIED          PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. TWO ABSORPTION BANDS OF VARIOUS INTENSITY IN THE VISIBLE (13,000-15,000 CM PRIME NEGATIVE1) AND IR (8500-9500 CM PRIME NEGATIVE1) REGIONS WERE OBSD. IN GREEN TOURMALINE CRYSTALS. THE OPTICAL ABSORPTION SPECTRA WERE INTERPRETED BY ASSUMING THAT IONS OF FE PRIME2 POSITIVE ARE SITUATED MOSTLY IN MG OCTAHEDRONS WITH LOCAL SYMMETRY OF APPROX. D SUB4H. MEANINGFUL DIFFERENCES WERE OBSD. IN POLARIZED SPECTRA OF BLACK TOURMALINES. THE SPECTRA ALONG OMEGA (ORDINARY RAY) WERE CHARACTERIZED BY A WIDE ABSORPTION BAND AT SIMILAR TO 12,000 CM PRIME NEGATIVE1 WHEREAS SPECTRA ALONG EPSILON (EXTRAORDINARY RAY) WERE SIMILAR TO ABSORPTION SPECTRA OF GREEN TOURMALINES. IN ADDN. A DIFFUSE BAND AT 18,000 CM PRIME NEGATIVE1 WAS OBSD. IN SPECTRA OF THE BLACK CRYSTALS. THE ABSORPTION BAND AT SIMILAR TO 12,000 CM PRIME NEGATIVE1 IS RELATED TO THE PRIME5 A SUB1G YIELDS PRIME5 D BUBG TRANSITION. THE ONLY ALLOWED ONE FOR FE PRIME2 POSITIVE IN A TRIGONAL FIELD. THIS INDICATED THAT A PART OF FE PRIME2 POSITIVE IN THE HIGH FE BLACK TOURMALINES ENTERS INTO THE AL,OCTAHEDRONS WITH LOCAL SYMMETRY OF SIMILAR TO C SUB3V. THE MG,OCTOHEDRONS ARE THE OTHER POSSIBLE POSITIONS OF FE IN BLACK TOURMALINES AS INDICATED BY THE SIMILAR CHARACTER OF THE OPTICAL SPECTRA ALONG EPSILON IN BLACK AND GREEN CRYSTALS. MOESSBAUER SPECTRA OF PRIME57 FE IN TOURMALINES INDICATED THAT FE PRIME2 POSITIVE OCCUPY IN BLACK TOURMALINES 2 NONEQUIV. OCTAHEDRON POSITIONS DIFFERING NOTICEABLY FROM EACH OTHER IN PARAMETERS OF MOESSBAUER SPECTRA. BOTH POSITIONS ARE SIMILAR TO THOSE OF FE PRIME2 POSITIVE IN GREEN TOURMALINES.

UNCLASSIFIED

CIRC ACCESSION NO--AP0125168    UNCLASSIFIED    PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--COMPARISON OF THE DATA ON OPTICAL AND MOESSBAUER SPECTRA OF NATURAL TOURMALINES SHOWS THAT MOST OF THE FE IN GREEN TOURMALINES IN IN A SINGLE OCTAHEDRAL POSITION WITH TETRAGONAL DISTORTION (MG,OCTAHEDRONS). FE IS PRESENT IN BLACK TOURMALINES IN 2 OCTAHEDRAL POSITIONS WITH TETRAGONAL (MG,OCRAHEDRONS) AND TRIGONAL DISTORTIONS (AL,OCTAHEDRONS). THE AMT. OF FE IN AL,OCTAHEDRONS OF BLACK TOURMALINES IS MUCH HIGHER THAN IN THE GREEN VARIETIES. THIS EXPLAINS THE DIFFERENCES IN THE OPTICAL ABSORPTION SPECTRA OF DIFFERENTLY COLORED CRYSTALS. FACILITY: INST. GEOL. RUD. MESTOROZH., PETOGR., MINER. GEOKHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

MUZRABEKOV, Sh. M., NADZHIMUTDINOV, K. N., and KAMILOV, I. K., Tashkent
Medical Institute

"Effect of Tetramethylthiuram Disulfide (TMTD) on the Action of Some Drugs"

Abstract: TMTD, a pesticide used to treat cotton seeds, grains, etc., was
found to potentiate the effect of the hypnotic hexobarbital and that of the
convulsant pentylenetetrazol in rats. TMTD injected intraperitoneally at
doses ranging from 1/20 to 13 $LD_{50}$ after the administration of hexobarbital
increased the duration of the animals' sleep by 65%. At the larger dose the
effect persisted 5 days. At doses of 150 and 120 $LD_{50}$ TMTD injected intraperi-
toneally into rats given pentylenetetrazol intensified the convulsions by 25
and 75%, respectively. Prolonged injection of low doses of the pesticide had
a wavelike effect, the peak occurring after the first month. Both hexobarbital
and pentylenetetrazol are known to be metabolized in the liver. The intensi-
fication of their effects under the influence of TMTD is attributed to the
inhibitory action of the pesticide on microsome metabolism in the liver.

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1/2 020
UNCLASSIFIED
TITLE--POLYMERS AND COPOLYMERS BASED ON VINYLPHOSPHONIC ACID
DIETHYLENIMIDE -U-
PROCESSING DATE--02OCT70
AUTHOR-(04)-NADZHIMUTDINOV, SH., KARGIN, V.A., USMANOV, KH.U., BRUEVICH,
G.YU.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260,887
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMER, ORGANIC PHOSPHORUS COMPOUND, PHOSPHONIC ACID,
IMIDE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0241
STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0111435
UNCLASSIFIED

CIRC ACCESSION NO--AA0111435
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  VINYLPHOSPHONIC ACID
DIETHYLENIMIDE WAS POLYMD. OR COPOLYMD. WITH VINYLPYRROLIDINONE IN THE
PRESENCE OF RADICAL POLYMN. INITIATORS DURING HEATING TO PROVIDE BIOL.
ACTIVE PRODUCTS.

UNCLASSIFIED

*NADZHIP, A. E.*

*7*

*NAD*

UDC 523.43

# PRELIMINARY RESULTS OF MEASURING THE H₂O CONTENT IN THE ATMOSPHERE OF MARS ON THE MARS-3 AUTOMATIC SPACE STATION

The IV-2 instrument designed to measure the water vapor content in the atmosphere of the planet was installed on the Mars-2 and Mars-3 automatic space stations (artificial Mars satellites). Such measurements have the following important advantages by comparison with ground observations [1-7]: 1) the measurements are taken with close spacing (1000-1500 km in the pericenter of the orbit) and the spatial resolution is about 5-10 km in two orders better than from the Earth; 2) all the difficulties connected with telluric absorption are completely removed, and smaller amounts of H₂O can be measured then from the Earth.

The IV-2 instrument (Fig. 1) measures the H₂O content in the atmosphere of Mars by the magnitude of the absorption at the center of the 1.38 μ band, the H₂O band of λ = 1.38 μ is formed in the spectrum of the reflected solar radiation, and its equivalent width does not in practice depend on the vertical temperature distribution in the atmosphere of the planet. This is the theoretical difference of the IV-2 from the Iris device used for the same purpose on the American Mariner-9 station [8]. The Iris records the rotational band of H₂O in the 25-50 μ region the intensity of which depends so strongly on the vertical temperature distribution that the band can be observed also in absorption and in emission [9].

Since the expected equivalent width of even the strongest lines at the center of the 1.38 μ band in the spectrum of Mars is small, the modulation method is used to measure it. The interference-polarization filter comprising a plate of Iceland spar (a double refracting crystal 5) and two polaroids (4,6) and the interference filter 3 separate three lines in the center of the band: 13,788, 13,807 and 13,827 Å. On rotation of the second polaroid 6 the transmission peaks of the interference-polarization filter

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[I - USSR - A]

* [Article submitted by Academician G. I. Petrov on 28 June 1973.]

Extraction and Refining

USSR                                        UDC 669.243.82.66.061.5

NAFTANOVICH, M. L., and KHEYFETS, V. L.

"Extraction Processes in the Nickel Industry"

Moscow, Tsvetnyye Metally, No 1, Jan 74, pp 14-21

Abstract: A review is presented of Soviet and Western research and experimental-industrial work on Ni extraction processes on their industrial adoption. Tabulated data of manufactured extractants show that the Soviet assortment is poorer than that of Western firms. The principal technologies of plants applying Cu extraction by $\alpha$-oxyoximes (LIX-64N) in combination with electrolysis are presented, and Western firms using this method are listed. Another method, used by the Hydrometallurgical Plant of the Falconbridge firm, is discussed. Canadian, US (Inco, Pyrites), and Swedish (Goteborg University) developments are considered. The adoption of extraction in the USSR is considered expedient in the construction of new plants. Technologies for the production of electrolytic Co with use of metal extraction by $C_7$-$C_9$ fatty acids (Noril'sk Metallurgical-Mining Combine) and by trioctylammonium and the schemata of refining sulfate-chloride nickel electrolyte, of Zn extraction, 1/2

USSR

NAFTANOVICH, M. L., and KHEYFETS, V. L., Tsvetnyye Metally, No 1, Jan 74,
pp 14-21

and of Cu extraction are discussed. The problem of developing selective
extractants for Ni extraction from Co solutions and for Co extraction from
solutions of Ni sulfate is emphasized. Seven figures, one table, 21 biblio-
graphic references.

2/2

NAGABED'YAN, A.K.

Medical Service

Lieutenant-Colonel of the Medical Service
Lieut. - Colonel of the Medical Service
use of contrast highorography.

As a contrast medium in highorography, we use a mixture of iodolipol, vaseline oil (from 3 to 6 ml each) and powdered morphanil - prontalbin (2 g.). The mucous membrane is first anesthetized and a test puncture is made in the sinus. If any pathological secretion is present, it is drawn out. The contrast mixture is then injected by means of a Kulikovskiy needle, with a puncture of the medial wall of the sinus at the level of the lower nasal passage. The pictures are made in the two usual projections, with the patient lying down. For an instant check of upper maxillary sinuses, we use the oblique projection recommended by S. I. Richmayer and I. L. Rylsits. Evaluation of the results of contrast highorography is carried out in taking account of the clinical data.

A total of 69 persons were examined by this method — 61 of them in the unit hospital and 8 — in the outpatient clinic. In six cases, because of technical flaws, the pictures proved unsatisfactory. A thickening of the mucous tissue covering the sinuses, due to inflammation, was found in 17 cases. A purulent-polyp process was recorded in 17 other cases, cystic formations — in 11, chronic polyp-cystitis — in 8, and the remaining 10 cases showed no changes in the nasal sinuses.

The X-ray data were confirmed in subsequent surgery. The contrast substance we used enabled us to be sparing in the use of iodolipol, a substance which possesses adequate contrast under X-ray exposure and easily covers the walls and contents of the sinuses, and permits the use of more morphanil - prontalbin (or some other sulfanilamide) which increases the viscosity of the oily mixture and strengthens its therapeutic effect.

Received in June 1959.

UDC 616.833.24

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J-9605

Captain of the Medical Service V. A. Gellmanov, Connection between pathology of the spinal cord radixcu in the lumbosacral region and anomalies in the spine.

Out of 72 patients suffering from lumbosacral radiculitis, 25 were found to have anomalies of the lumbosacral region of the spine. In 19 of these 25 cases we found evidence of spina bifida occulta involving a single group, in 3 cases — several groups were involved, in 2 — there was a combination of spina and sacralization, and in one other case — there was sacralization.

In 15 of the patients the disease was due to exposure to overly cold temperatures, in 5 cases it was due to lifting excessive weights, in five other cases the cause could not be determined.

The clinical progress of lumbosacral radiculitis in the presence of anomalies in the corresponding vertebrae, was characterized by the following manifestations: subacute beginning of the disease; short duration of the attack later, continuous pain in the lumbosacral area — more pronounced in the mornings, on getting out of bed, or after a long period of sitting down, and declining after physical exercise; periodic aggravation caused by too low a temperature or the lifting of heavy loads; localized pain on palpation of the interspinal spaces at the point of the anomaly.

In our opinion, anomalies of the lumbosacral sector of the spine should not be regarded as the basic cause of lumbosacral radiculitis. They may act as a contributing factor in the case of trauma of the radixes resulting from excessive strain, lifting excessive loads, or being exposed to excessively cold temperature.

Received in October 1958.

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UNCLASSIFIED

TITLE--ONE MORE SOURCE OF THE ADDITIONAL STRUCTURE OF DIPOLE RESONANCES
-U-

PROCESSING DATE--30OCT70

AUTHOR-(05)-ZHIVOPISTSEV, F.A., NAGAR, N.EL., SHITIKOVA, K.V., YUDIN,
N.P., AKBARY, M.Y.

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ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  STRUCTURE ARISING FROM THE
COUPLING OF 3 PRIME NEGATIVE STATES WITH PARTICLE HOLE STATES IS
CALCULATED.           FACILITY:  MOSCOW STATE UNIV., USSR.

UNCLASSIFIED

TITLE--ISOMERIZATION OF TRIMETHYLGLUCOSE TO
  TRIMETHYL,GLUCO,ORTHO,SACCHARINIC ACID -U-

AUTHOR-(03)-GAKHOKIDZE, R.A., NAGAYDELI, A.I., DANILOV, S.N.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK. GRUZ. SSR 1970, 57(1), 73-6

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CIRC ACCESSION NO--AP0123611
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  CONVERSION WAS CARRIED OUT OF
  3,5,6,TRI,OMICRON,METHYL,D,GLUCOSE INTO THE NEW COMPO.
  "3,5,6,TRI,METHYLGLUCOORTHOSACCHARINIC ACID," BY HEATING IN THE
  PRESCENCE OF PB(OH)SUB2.  THE SPECIFIC ROLE OF PB(OH)SUB2 IN THE
  ISOMERIZATION WAS INVESTIGATED.

UNCLASSIFIED

USSR

NAGAYEV, A. V.

"Some Limit Theorems for a General Stochastic Model of Epidemics"

Mat. Zametki [Mathematical Essays], 1973, 13, No 5, pp 709-716 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V292)

Translation: The limiting distributions of the number of patients $v_n^{(m)}$ at the moment of completion of an epidemic are studied. It is assumed that the initial number of susceptible persons $n \to \infty$, the initial number of patients m is limited and the ratio $\mu/\lambda n$ approaches a constant, where the parameters $\mu$ and $\lambda$ characterize the rate of removal from the population and the rate of infection respectively.                V. Chistyakov

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NAGAYEV, A. V., KHODZHABAGYAN, S. S.

"Two Limiting Theorems for Non-identically Distributed Components"

Lit. mat. sb. [Lithuanian Mathematics Collection], 1972, Vol 12, No 3, pp 147-156 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V22 by V. Petrov).

Translation: Suppose $X_1$, $X_2$, ... is a sequence of independent random quantities with zero mathematical expectations and finite dispersions $\sigma_1^2$, $\sigma_2^2$, ... If the Lindeberg condition is fulfilled and

$$P(X_j > x) = x^{-\alpha_j}(1 + \varepsilon_j(x)), \quad \alpha_j > 2,$$

where the functions $\varepsilon_j(x)$ are such that $|\varepsilon_j(x)| \le \varepsilon_0(x)$ evenly relative to $j$ and $\varepsilon_0(x) \to 0$ as $x \to \infty$, then

$$P(X_1 + \ldots + X_n > x) \sim \sum_{j=1}^{n} P(X_j > x) \tag{1}$$

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NAGAYEV, A. V., KHODZHABAGYAN, S. S., Lit. mat. sb., 1972, Vol 12, No 3, pp 147-156.

for $x \geq \max\left(n^{\delta}, B_n^{1+\gamma}\right)$ and arbitrarily small positive constants $\delta$ and $\gamma$; if, however, the additional condition $\alpha_j \geq \alpha_0 > 2$ is fulfilled, relationship (1) obtains for $x \geq \max(n^{\delta}, B_n \log B_n)$. Here $B_n^2 = \sum_{j=1}^{n} \sigma_j^2$.

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USSR

UDC 519.214

ANORINA, L. A. and NAGAYEV, A. V.

"Integral Limit Theorem for Sums of Independent Two-Dimensional Random Vectors Allowing for Large Deviations in the Case When Kramer's Condition is Not Satisfied"

Tashkent, Sluchayn. protsessy i smezhn. vopr.--Sbornik (Random Processes and Related Problems -- Collection of Works), Part 2, 1971, "Fan", pp 2-11 (from Referativnyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V73, by V. Petrov)

Translation: Suppose $A_\alpha$ is a region bounded by the close contour $\alpha x(\varphi) = \{\alpha x_1(\varphi), \alpha x_2(\varphi)\}$; $\{\xi_n\}$ is a sequence of independent, identically distributed, random, two-dimensional vectors with mathematical expectations equal to zero and with finite second moments. It is assumed that the distribution

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ANORINA, L. A. and NAGAYEV, A. V., Sluchayn. protsessy i smezhn. vopr.--
Sbornik, Part 2, 1971, pp 2-11

$\xi_1$ is absolutely continuous with the density $p(x) = |x|^{-\beta} (1 + \varepsilon(x))$, where $\beta > 4$, $\varepsilon(x) \longrightarrow 0$ as $|x| \longrightarrow \infty$, $x = (x_1, x_2)$, $|x| = \sqrt{x_1^2 + x_2^2}$. If the contour $A_1$ has actually only a finite number of points in which $x_1'(\varphi) = x_2'(\varphi) = 0$ and if the point $(0, 0)$ lies within the region $A_1$, then

$$P\left(\frac{1}{\sqrt{n}} (\xi_1 + \ldots + \xi_n) \bar{\in} A_\alpha\right) \sim nP(\xi_1 \bar{\in} A_\alpha)$$

as $n \longrightarrow \infty$ and $\dfrac{\alpha}{\sqrt{n} \log n} \longrightarrow \infty$.

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USSR

UDC 519.214

DZHAKHANGIROVA, F. A. and NAGAYEV, A. V.

"Multidimensional Integral Limit Theorem Allowing for Large Deviations"

Tashkent, Sluchayn. protsessy i smezhn. vopr.--Sbornik (Random Processes and Related Problems -- Collection of Works), Part 2, 1971, "Fan", pp 25-35 (from Referativnyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V74, by V. Petrov)

Translation: An exmmination is made of the sequence $\{\xi_n\}$ of independent, identically distributed, two-dimensional random vectors with bounded distribution density $p(x) = p(x_1, x_2)$ satisfying the condition $p(x) \sim \exp\{-|x|^\beta\}$ as $|x| \to \infty$, where $\beta > 1$.

A study is made of the asymptotic behavior, as $\gamma \to \infty$, of the probability $P(\xi_1 + \ldots + \xi_n \in A_{\gamma_n})$, where $A_\alpha$ is the same region as in Abstract No 9V73.

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