UDC 539.12

USSR

TAKIBAYEV, Zh. S., BOOS, E. G., and RUS'KINA, G. Ya.

"Study of the Properties of the Angular Distribution of Shower Particles in Proton-Nucleon Interaction at 76 Gigaelectron-Volts"

Alma-Ata, Akademii Nauk Kazakhskoy SSR -- Seriya Fiziko-Matematicheskaya, No 2, March-April 1971, pp 67-70

Abstract: Experimental data are presented for proton-nucleon interactions obtained by irradiating photoemulsion layers 6 cm x 10 cm x 200 μ using the internal beam of the Serpukhov accelerator at 76 gigaelectron volts. Data are presented graphically for the multiplicity distribution, the angular distribution of the shower particles in the center-of-mass system of colliding nucleons for events of varying multiplicity, the distribution of lg (γ_s/γ_c) for three multiplicity ranges, and the dependence of γ_s/γ_c on the multiplicity for three energy values E_0. The multiplicity distribution was found to be extremely broad. With an increase in n_s (relativistic tracks) the angular distribution becomes more isotropic. The distribution of lg (γ_s/γ_c) becomes less broad with an increase in n_s; however, the systematic shift toward high values of γ_s remains. Reasons are given for this phenomenon. The value of γ_s increases more rapidly than $\sqrt{E_0}$.

USSR

TAKIBAYEV, Zh. S., BOOS, E. G., SAN'KO, L. A., and TEMIRALIYEV, T., Institute of High Energy Physics, Academy of Sciences USSR

"Study of Quasi-Two-Particle Reactions in Proton-Proton Interactions at 10 Gev/c"

Abstract: The properties of quasi-two-particle reactions of the type $pp \rightarrow pN^*$, $pp \rightarrow p\Delta$, $pp \rightarrow \Delta N^*$, and $pp \rightarrow \Delta\Delta$ were studied. The reactions were identified in studying four-beam proton-proton interactions in an 81-cm hydrogen bubble chamber of Saclay irradiated at CERN by 10.01 $\pm$ 0.1 Gev/c protons. The reaction cross sections of the four reactions are given in a table. A second table gives experimental values for the ratio of the cross sections of different isotopic projections of the two-particle reaction $pp \rightarrow \Delta_{1236}\Delta_{1950}$. They are compared with calculations made for possible decay schemes of the isobar $\Delta_{1950} \rightarrow N_{\pi\pi}$. It was assumed that the isospin of the exchange particle is equal to unity. The experimental data are in good agreement with this hypothesis. It is also shown that the experiment does not contradict two hypotheses concerning the type of decay $\Delta_{1950} \rightarrow (\pi\pi)_{T=1} + N_{T=1/2}$ and Δ_{1950} 1/2

USSR

TAKIBAYEV, Zh. S., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 3, 5 Feb 71, pp 122-125

$\rightarrow (\pi)_{T=1} + \Delta(\pi N)_{T=3/2}$; the latter mode of decay agrees somewhat better with the average experimental values.

2/2

USSR

TAKIBAYEV, Zh. S.; TEMIRALIYEV, T. T.

"Study of the Angular Distribution of Particles with Energies of 10 bev"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR: Seriya Fiziko-Matematicheskaya;
November-December, 1970; pp 29-33

ABSTRACT: The work is devoted to a study of the angular distribution of par-
ticles and an explanation of the mechanism of particle generation in bimodal
jets. About 700 quadribeam PP-interactions were recorded in an 81-cm hydrogen
bubble chamber at CERN irradiated with protons having a pulse of 10 bev/sec.
It is shown that the dynamic characteristics of secondary charged particles
for various groups of showers ($D<0$, $D = 0$, $D>0$) are the same, within the
limits of statistical error.

1/2

USSR

TAKIBAYEV, Zh. S., et al, Izvestiya Akademii Nauk Kazakhskoy SSR: Seriya Fiziko-Matematicheskaya; November-December, 1970; pp 29-33

The distribution of the effective mass of a $(P\pi)$-system has a sharp peak in the Δ_{1236} region of mass. This indicates that a large proportion of cases takes place during the formation of Δ_{1236}. It is shown that bimodal showers are related to a joint production of an isobar, with their subsequent decay. Bimodality occurs under those conditions in which excited baryons are strongly collimated.

The article includes two tables, 4 figures. There are 19 references.

USSR

TAKIBAYEV, Zh. S.; et al (Kazakh State University)

"Production of Helium Nuclei in Interactions of 60-Bev Pions with Heavy Nuclei of a Photoemulsion"

Moscow, Yadernaya Fizika; October, 1970; pp 810-4

ABSTRACT: An analysis is made of helium nuclei with momenta greater than 800 mev/s, emitted from interactions of 60-bev pions with heavy nuclei of a photoemulsion. The results are compared with data obtained in an investigation of fast helium nuclei produced in proton- and pion-induced nuclear disintegrations in the 2-20 bev energy range. Dependence of the cross section and the angular and energy characteristics of helium on the energy and nature of a particle is studied. It is shown that the yield of two-charge particles increases with the number of gray-black tracks in the disintegration following the law: $W \sim \exp(0.06 \, N_h)$. It is noted that the results of the studies indicate a relation between the internuclear cascade processes and the emission of fast helium nuclei. The conclusion is drawn that the emission of fast helium nuclei cannot be explained by existing theoretical models.

1/1

USSR

GAYTINOV, A. Sh., TAKIBAYEV, Zh. S., CHASNIKOV, I. Ya., Institute of Nuclear Physics, Academy of Sciences, Kazakh SSR

"The Part Played by Energy-Released Particles in Pion-Nucleon Interactions"

Abstract: The part played by energy-released particles and their influence upon the characteristics of secondary pions in inelastic π^--p-interactions at an energy of 10.2 gigaelectron-volts is ascertained in this paper. Data on inelastic pp-interactions at the same energy are used for comparison. The number n_{max} of generated particles may be estimated as a function of the energy of the primary particle. As the number of generated particles increases, the average energy of the released particles decreases, and the transverse momentum at that time increases. This can be understood if it is assumed that the energy-released pions are "conserved" primary particles. 1 table, 3 figures, 10 bibliographic entries.

1/1

Nuclear Physics

USSR

GAYTINOV, A. SH., TAKIBAYEV, ZH. S., and CHASNIKOV, I. YA., In-
stitute of High-Energy Physics, Academy of Sciences Kazakh SSR

"The Nature of Energy-Separated Particles in Inelastic Interac-
tions"

Abstract: Previous articles by the authors stated that in pion-
nucleon interactions at energies of 7.5, 10, and 17 Gev and proton-
nucleon interactions at an energy of 9 Gev particles with $E \geq 0.3$
E_0 (E_0 and E being the primary- and secondary-particle energies)
should be considered energy-separated particles (e.s.p.). This
definition is supported by experimental facts obtained from an
analysis of 4-track $\pi^- p$ interactions in a hydrogen bubble
chamber at 10 Gev and 4-track pp interactions in a nuclear photo-
emulsion at 9 Gev. It is shown that in $\pi^- p$ interactions among
the secondary particles there stands out a group of pions ($E \geq
0.3$ E_0) whose energy and angle characteristics differ from those

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USSR

GAYTINOV, A. SH., et al., Yadernaya Fizika, Vol 13, No 1, 1971,
pp 124-129

of the remaining particles in these same interactions and at the
same time coincide with the characteristics of fast protons ($E \geqslant$
$0.3\ E_0$) from pp interactions. The mean energies and transverse
momenta of e.s.p. differ for different reaction channels. In
most cases energy-separated pions are produced as a result of ρ^0
resonance decay. Pions with different charge signs occur among
e.s. pions. The number of π^- mesons is considerably greater
than π^+ or π^0 mesons and decrease with an increased number of
final-state particles. In the reaction $\pi^- p \to \pi^- p \pi^- \pi^+ \pi^0$,
where e.s. pions of all signs are represented, the number of π^+
and π^0 mesons was found to be the same within error limits. In
the reactions $\pi^- p \to \pi^- n \pi^- \pi^+ \pi^+$ and $\pi^- p \to \pi^- n \pi^- \pi^+ \pi^+ (m\pi^0)$,
$m \geqslant 1$,   in which proton charge exchange takes place, the number
of π^+ mesons is greatest.

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USSR

GAYTINOV, A. SH., Yadernaya Fizika, Vol 13, No 1, 1971, pp 124-129

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USSR

TAKIBAYEV, ZH. S., BOOS, E. G., SAN'KO, L. A., TEMIRALIYEV, T., ANTONOVA, M. G., YERMILOVA, D. I., MUKHORDOVA, T. I., KHOLMETSKAYA, A. V., and FEDOSEYENKO, V. V., Institute of Nuclear Physics, Academy of Sciences Kazakh SSR

"Study of Dynamics of Resonance Production in Four-Track Proton-Proton Interactions at Momentum of 10 Gev/c"

Abstract: The article gives an analysis of 1800 four-track proton-proton interactions recorded in an 81-cm Saclay hydrogen bubble chamber irradiated with protons with a momentum of 10.01 ± 0.01 Gev/c on the CERN synchrotron. The following reactions are considered:

$$pp \rightarrow pp\pi^+\pi^-, \qquad (1)$$
$$pp \rightarrow pp\pi^+\pi^-\pi^0, \qquad (2)$$
$$pp \rightarrow pn\pi^+\pi^+\pi^-, \qquad (3)$$

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USSR

Nucleon and meson resonance production cross-sections are determined and the contribution of two-particle reactions studied. It is shown that pion production in all the channels considered is accompanied in most cases by nucleon resonance production. The contribution of boson resonances, which is greatest in the channel with π^0 meson production, does not exceed 10 percent of the reaction channel cross-section. The use of the maximum momentum method permits estimates of the cross-sections for different quasi-two-particle reactions. The cross-sections of the dynamic states being observed differ considerably in channels (2) and (3), where the number of pions and nucleons coincides. This may be due to changes in the nucleon charge in inelastic pp interactions.

2/2

UDC 539.12

USSR

VINITSKIY, A. KH., VOINOV, V. G., STREL'TSOV, I. S., TAKIBAYEV, ZH. S.,
Academician of the Academy of Sciences Kazakh SSR, and CHASNIKOV, I. YA.,
Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR, Alma-Ata

"Characteristics of the Coherent Interaction of π^--Mesons with Emulsion Nuclei
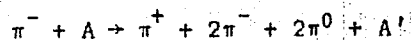at 60 Gev"

Abstract: Coherent generation of particles in the interaction of high-energy
pions with nuclei is discussed. The startup of the Serpukhov accelerator made
it possible to study these processes up to energies of 60-70 Gev. This article
discusses three- and five-ray events in a VR-2 photoemulsion found after examin-
ing tracks of primary pions over a distance of 870 m. It was found that the
cross section for the coherent formation of the system $\pi^-\pi^-\pi^-$ in the final state
increases with the energy of the primary particle, while the maximum in the ef-
fective mass distribution of this system remains in the same region as for an
energy of 17 Gev. A considerable rise in the number of five-particle coherent
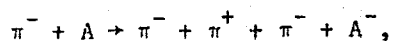
1/2

USSR

VINITSKIY, A. KH., et al, Doklady Akademii nauk SSSR, Vol. 194, No. 3, 21
Sep 70, pp 544-546

interactions was also found. At 17 Gev the number of events of the reaction

$$\pi^- + A \rightarrow \pi^+ + 2\pi^- + 2\pi^0 + A'$$

was 2% of the reaction

$$\pi^- + A \rightarrow \pi^- + \pi^+ + \pi^- + A^-,$$

while at 60 Gev the number of five-particle coherent states was 70% as compared
with the number of three-particle states. It is noted that this value may be
somewhat high, since the reaction $\pi^- A \rightarrow \pi^- \pi^0 \pi^- A'$ was not taken into account.

2/2

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--MECHANISM OF COHERENT PRODUCTION OF PARTICLES BY 19.8 GEV-C PROTONS
-U-

AUTHOR-(03)-BOOS, E.G., TAKIBAYEV, ZH.S., TURSUNOV, R.A.

COUNTRY OF INFO--USSR

SOURCE--VESTN. AKAD. NAUK KAZ. SSR 1970, 26(2), 42-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PROTON BOMBARDMENT, COHERENT SCATTERING, ANGULAR DISTRIBUTION,
PION, ANISOTROPY, NUCLEAR ISOBAR, PARTICLE PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1981/0129

STEP NO--UR/0031/70/026/002/0042/0048

CIRC ACCESSION NO--AP0050220

UNCLASSIFIED

2/2   021

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPT. CARRIED OUT BY E. G. BOOS, ET AL. (1966) WAS VERIFIED. THE CURVE OF THE STATISTICAL BACKGROUND FOR THE REACTION P PLUS A YIELDS P PLUS 2 PI PLUS A WAS STUDIED. THE EXCHANGE OF THE POMERANCHUK POLE IMPROVES THE AGREEMENT WITH THE EXPT. DISTRIBUTION BUT IT IS NOT SUFFICIENT FOR A COMPLETE DESCRIPTION. THE DISTRIBUTION HAS A SHARP SCATTER IN THE REGION OF (1.4-1.5) GEV,C PRIME2. THE PROCESS THROUGH THE FORMATION OF A NUCLEONIC ISOBAR N PRIME (1470) WHICH IN 45PERCENT OF ALL CASES DECAYS INTO A N AND 2 PIONS. THE ANGULAR DISTRIBUTION OF SECONDARY CHARGED PARTICLES IN THE REST SYSTEM (P PI PI) WITH REGARD TO THE DIRECTION OF THE RESULTING MOMENTUM OF 3 PARTICLES SHOWS THAT IT IS SYM. WITH REGARD TO THE DIRECTION FORWARD BACKWARD AND ANISOTROPIC. COMPARISON WITH ISOTROPY SHOWS A PROBABILITY OF P(X PRIME2) EQUALS 0.01 WITH 4 DEGREES OF FREEDOM. THE PIONS AND PROTONS ARE EJECTED AT LARGE ANGLES WHICH POINTS TO A POSSIBLE DECAY MECHANISM OF M YIELDS DELTA (1236) PLUS PI.

USSR

BOOS, E. G., TAKIBAYEV, ZH. S. and TURSUNOV, R. A.

"Mechanism for the Coherent Generation of Particles by 19.8 Gev/c Protons"

Alma-Ata, Vestnik Akademii Nauk Kazakhskoy SSR, No. 2, Feb 70, pp 42-48

Abstract: The coherent generation of particles by high-energy protons was studied in an emulsion presented by the CERN Emulsion Committee. A criterion for separating coherent events based on the magnitude of the longitudinal momentum transmitted to the nucleus is analyzed. A comparison of emulsion data with data obtained using bubble chambers shows that there is good agreement between the values for mean path obtained by the authors and the bubble chamber data. Analysis of effective mass distributions also supports the hypothesis that $N'(470)$ nucleon isobars, which in 45% of the cases decay into a nucleon and two pions, are formed in these events. This does not contradict the assumption of vacuum pole switching, since the quantum numbers of the resonance coincide with the quantum numbers of the nucleon.

1/1

USSR

UDC 539.171.017

TAKIBAYEV, Zh. S., BOOS, E. G., TURSUNOV, R. A., Institute of High-Energy
Physics of the Academy of Sciences Kazakh SSR

"Calculating the Cross Section for Coherent Particle Generation by Protons
As a Function of Primary Energy"

Abstract: The cross section for coherent processes was calculated as a
function of primary energy using the measurements of Grigarov, et al, on
the effective cross sections for the inelastic interaction of protons
with carbon nuclei in the energy range 20-60 Gev (Preprint 69-182(167),
Scientific Research Institute of Nuclear Physics, Moscow State University,
1969). The empirical relationship given in this study

$$\sigma_c(E) = \sigma_c(20)\,(1 + a \ln E/20) \qquad (1)$$

is used, where σ_c is the cross section for the interaction of a proton
with a carbon nucleus at energy E, $\sigma_c(20) = (216\pm7)$ mbarn, and $a =$
$1/3$ $(6.8\pm1.2)\cdot10^{-2}$. In this expression it is assumed that the quantity

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USSR

TAKIBAYEV, Zh. S., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1799-1800

$\sigma_c(E)$ measured in the experiment consists of two parts: the inelastic interaction cross section $\sigma_c^H(E)$ and the coherent interaction cross section $\sigma_c^K(E)$: i.e.,

$$\sigma_c(E) = \sigma_c^H(E) + \sigma_c^K(E) \ .\tag{2}$$

$\sigma_c^H(20) = \sigma_c^H(E)$, the following relationship holds in the energy interval 20-600 Gev:

$$\sigma_c^K(E) = \sigma_c^K(20) + \sigma_c(20) a \ln \frac{E}{20} =$$

$$= \sigma_c(E) + \sigma_c^K(20) - \sigma_c(20).\tag{3}$$

Using a previously determined value for the mean-free path length for coherent interactions with nuclei of the photoemulsions ($\lambda = 133 \pm 56$ m) and assuming that $\sigma^K(A) \sim A^{2/3}$, the authors determined that $\sigma_c^K(20) = 0.7 \pm 0.3$ mbarn. Values of $\sigma_c^K(E)$ are plotted on a figure and compared

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USSR

TAKIBAYEV, Zh. S., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol. 36, No. 8, Aug 72, pp 1799-1800

with other data. The figure shows that the growth in cross section with a
rise in energy in the interval 20-600 Gev obtained in the work of Grigorov
can be explained by the contribution of coherent processes if a rapid
growth in the cross section for coherent interaction of protons with
nuclei can be observed in the energy range >20 Gev. This analysis was
based only on consideration of coherent reactions with three charged
particles in the final state, but consideration of the contribution of
events with five charged particles would have practically no effect on
these results.

2/3

USSR

TAKIBAYEV, Zh. S.; et al (Institute of High-Energy Physics, Kazakh Academy of Sciences)

"Momentum Characteristics of Pion-Nucleon Interactions at 60 Bev"

Moscow, Yadernaya Fizika; September, 1972; pp 539-45

ABSTRACT: Momentum characteristics of secondary particles produced in pion-nucleon interactions in a nuclear photoemulsion are analyzed. The momentum characteristics of the particles are compared with data obtained at 7.5 and 17 Bev. It is shown that the form of the momentum spectra for pions and protons in the center-of-mass system does not change greatly with an increase in the energy of a primary particle E_o. The pion mean energy varies with E_o as $E_o^{\frac{1}{4}}$. The experimental data are compared with hydrodynamic and multiperipheral models.

The article includes six figures and three tables. There are 18 references.

1/1

USSR

BOOS, E. G., VINITSKIY, A. Kh., TAKIBAYEV, Zh. S., TURSUNOV, R. A.,
CHASHNIKOV, I. Ya., Institute of High-Energy Physics of the Academy of
Sciences Kazakh SSR

"Comparison of the Characteristics of Pion-Nucleon and Proton-Nucleon
Interactions"

Abstract: The various characteristics of inelastic proton-nucleon (pN)
and pion-nucleon (πN) collisions were compared, since they are of great
interest in explaining the characteristics of the mechanism of hadron
interactions and in determining the possibility of distinguishing differ-
ent types of events formed by cosmic ray particles. The work is based on
experimental material obtained in studying collisions between 17-Gev pions
and 20-Gev protons with nucleons of a nuclear emulsion. The CERN synchro-
tron was used in the study. A comparison of experimental material for
these energies was convenient, since the center-of-inertia systems of hadron
collisions in this case have approximately the same velocity. Data obtained

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USSR

BOOS, E. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol. 36, No. 8, Aug 72, pp 1701-1704

from analyzing 286 πN-interactions found in nuclear emulsions irradiated
by 60-Gev pions in the accelerator of the Institute of High-Energy Physics
(Serpukhov) were also used in the study. A table is given showing the
coefficient of asymmetry of the angular distribution of the charged pions
as a function of the number of secondary charged particles. Despite the
presence of asymmetry in individual groups of proton-nucleon collisions,
the angular distribution of π-mesons from pN-interactions was practically
the same averaged over all multiplicities. In pion-nucleon collisions
there was found a strong asymmetry of the charged pions in the leading
hemisphere of the center-of-inertia system that decreased with the growth
of the number of secondary charged particles. This asymmetry is some-
times explained by the primary pions conserving their direction, but at
an energy of 17 Gev the hypothesis of a "conserving pion" encounters
certain difficulties, since the number of pions contributing to the
asymmetry of the angular distribution of pions summed over all multipli-
cities is approximately equal to the number of interactions necessary

2/3

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USSR

BOOS, E. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1701-1704

to assume the absence of charge exchange of the primary pion. It is concluded that there is a difference in the characteristics of πN- and pN-interactions which does not disappear completely upon taking into account "conserving pions", since the divergence is more characteristic for a small number of secondary charged particles. At the same time, coincidence of the characteristics of these interactions is noted for collisions with large values of four-dimensional transfers.

3/3

USSR

UDC 539.184.01

ZAPOL', B. P., KUNIN, P. YE., and TAKSAR, I. M., Latvian Order of the Red Banner of Labor State University imeni P. Stuchka

"Effective Potential Method for Computation of Quantum Systems. II. Non-relativistic Wave Functions and Eigenvalues"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 6, 1971, pp 20-25

Abstract: The article gives a detailed description of a new calculation technique using the effective potential method, discussed in an earlier article by the authors. The fundamental principle of the method is as follows: For calculating wave functions of an optical electron in an alkali metal atom in a good approximation, it can be considered that its states are defined by some effective field so that the problem reduces to a one-electron problem. The effective potential of this field in the effective potential method is found from ordinary physical considerations and from the condition for the best coincidence between the eigenvalue spectrum of the effective potential and the experimental energy spectrum of the electron energy in the effective potential and the experimental energy spectrum. The method is based
1/3

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.USSR

ZAPOL', B. P., et al., Izvestiya Akademii Nauk Latviyskoy SSR, Seriya
Fizicheskikh i Tekhnicheskikh Nauk, No 6, 1971, pp 20-25

on the physical assumption that the small difference of the energy spectra
for two different potentials over the entire energy range also entails the
small difference of wave functions. The validity of this assumption was con-
firmed by the results of the authors' previous article. The fundamental dif-
ference between the effective potential method and semiempirical methods is
the use of eigenfunctions of the electron in the effective potential, which is
the same for all states and assures the best coincidence between the eigen-
value spectrum and the experimental spectrum.

The calculation procedure is considered, with the effective potential
sought in the following form (atomic units are used in the article):

$$U(r) = -(A_i/r) - G_i \text{ for } r_i < r < r_{i+1};$$

$$i = 1, 2, \ldots, m; \quad r_0 = 0; \quad r_{m+1} = \infty:$$

2/3

USSR

ZAPOL', B. P., et al., Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 6, 1971, pp 20-25

where $A_0 = Z$, $A_m = K$, $G_m = 0$; while the remaining A_i, G_i, and r_i are free parameters to be determined from the condition for the best coincidence between the theoretically found and the experimental spectrum. Eigenvalues and analytic eigenfunctions are given for a series of Na and Rb states.

An appendix suggests a new method for calculating Whittaker functions.

3/3

CSO: 1862-W   - END -

USSR   UDC: 547.44:547.415.5

TAKSIDI, V. KH., and STEPANOV, B. I., Moscow Chemical-Technology Institute
Imeni D. I. Mendeleyev

"Aldehyde Reactions With Tertiary Amines in Presence of Hexachlorocyclophos-
phazatriene"

Abstract: Hexachlorocyclophosphazatriene /HCCPT/ appears to be an energetic
condensing agent in reactions of aldehydes and tertiary amines, leading to
the formation of di- and triarylmethyl derivatives. For example, HCCPT
reacted with pyridine, dialkylanilines, benzaldehyde and its sulfoacids, with
furfurole, acetaldehyde and formaldehyde at 10-18° yields after 50-60 hrs
colored products which are soluble in alcohol, stable under normal conditions,
but easily decompose in aqueous NaOH solution. For example, treatment of the
adduct of HCCPT, pyridine and benzaldehyde with NaOH regenerates some pyridine,
benzaldehyde, and yields a new orange colored compound, which the authors have
shown to be the benzylidene derivative of 1-aminopentadiene-1,3-al-5, m.p.
about 40°. It is soluble in alcohol, benzene, and ether, insoluble in petro-
leum ether.
1/1

1/2   015
TITLE—REACTION OF ALDEHYDES WITH TERTIARY AMINES
   HEXACHLORO,1,3,5,2,4,6,TRIAZATRIPHOSPHORINE -U-
   AUTHOR-(02)-TAKSIDI, V.KH., STEPANOV, B.I.

UNCLASSIFIED

PROCESSING DATE--30OCT70
IN THE PRESENCE OF

CCUNTRY OF INFO--USSR

SOURCE—ZH. ORG. KHIM. 1970, 6(4), 815-18

DATE PUBLISHED------70

SUBJECT AREAS—CHEMISTRY, MATERIALS

TOPIC TAGS—ALDEHYDE, TERTIARY AMINE, CHLORINATED ORGANIC COMPOUND,
   URGANIC PHOSPHORUS COMPOUND, PYRIDINE, ORGANIC COMPLEX COMPOUND, DYE

CCNTRCL MARKING—NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1949

STEP NO---UR/0366/70/006/004/0815/0818

CIRC ACCESSION NO—AP0125538

UNCLASSIFIED

2/2   015

CIRC ACCESSION NO--AP0125538   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPD. (I) IS AN
EXCELLENT CONDENSING AGENT. E.G., I, BZH, AND PYRIDINE GIVE
PHCH:NCH:CHCH:CHCHO (II) AND THE HEXAHYDRO DERIV. OF I. THE REACTION
INVOLVES THE FORMATION OF A COLORED COMPLEX BETWEEN I AND THE REACTANTS,
WHICH IS DECOMPD. WITH NA SUB2 CU SUB3 SOLN. TO II. IN THE CASE OF THE
REACTION BETWEEN BZH AND PHNME SUB2 IN THE PRESENCE OF I 85PERCENT
MALACHITE GREEN LEUCO FORM WAS OBTAINED. SIMILARLY, CONDENSATION OF
2,4,(HAO SUB3 S) SUB2 C SUB6 H SUB3 CHO WITH PHNET SUB2 GAVE THE LEUCO
FORM OF ACID BRILLIANT BLUE. HEATING I, PHNET SUB2, AND HCHO GAVE
94PERCENT CH SUB2 (C SUB6 H SUB4 NET SUB2 P) SUB2.   FACILITY:
MOSK. KHIM.-TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

TITLE--USE OF AN UNSTABLE PLASMA BEAM FOR HEATING IONS IN A TRAP WITH MAGNETIC PLUGS -U-

PROCESSING DATE--30OCT70

AUTHOR-(03)-NEZLIN, M.V., TAKTAKISHVILI, M.I., TRUBNIKOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(2), 392-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA BEAM, ION TRAP, PLASMA INSTABILITY, ELECTRIC FIELD, STRONG MAGNETIC FIELD, ION ACCELERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1085

STEP NO--UR/0057/70/040/002/0392/0395

CIRC ACCESSION NO--AP0107594

UNCLASSIFIED

CIRC ACCESSION NO--AP0107594   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PREVIOUSLY DESCRIBED METHOD
(CA 63:6428E) WAS REINVESTIGATED. THE NARROW ELEC. FIELD RANGE OF
EFFECTIVENESS (2-3 KOE) IN THE EARLIER METHOD IS BROADENED BY
INTRODUCTION OF AN ISOLATED GRID INTO THE PLASMA BEAM. THE GRID
INCREASES THE EFFECTIVENESS OF THE ION ACCELERATION IN THE RANGE OF HIGH
MAGNETIC FIELDS (7-8 KOE) BY A POWER OF TEN.

UNCLASSIFIED

APPLICATION OF EQUIVALENCY RELATIONS FOR DESCRIPTION OF EVENTS REPRESENTED BY FINITE AUTOMATA

V. V. RUDNEV, A. A. TAL.

It is shown that: 1. for any regular event it is possible to make such a k — set K (a finite ensemble consisting of. words equivalent to their origins) as well as a certain finite ensemble of words K_0 which fully describe this event; and 2. the ensemble, determined by the arbitrary given correct k — set K and a certain finite ensemble K_0, is always regular. The algorithms of the analysis and the synthesis of the finite automata that correspond to these results are presented.

REEL/FRAME

19881510

DT 4

USSR

UDC

TAL', A. A., Doctor of Technical Sciences

"Current State and Trends in Development of Pneumatic Automation"

Moscow, Pribory i Sistemy Upravleniya, No. 5, 1970, p 10.

Abstract: Seminars on pneumatic and hydraulic automation have been held regularly since 1957 at the Institute of Automation and Telemechanics, Academy of Sciences, USSR. The organization of the seminar coincided with the intensive development of fluidics devices, based on the application of the effects arising upon interaction of streams of gases or liquids, for the construction of elements to be used in pneumatic and hydraulic instrument building. The result of the development of these elements was a tremendous expansion of the area of application of pneumatic equipment in many branches of industry. The USEPPA system of standardized fluidics elements developed by the institute and "Tizpribor" plant is widely used in the manufacture of fluidics devices. Later developments have included the production of fluidic elements without membranes or other moving parts. The Tenth All-Union Conference on Pneumatic Automation was held in 1969 at Donetsk. The conferees noted the achievements which have been made in

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USSR

TAL', A. A., Doctor of Technical Sciences, Moscow, Pribory i Sistemy Upravleniya, No. 5, 1970, p 10.

fluidics over the past decade, confirmed the effectiveness of fluidics devices and noted the problems requiring further development, including particularly the creation of systems of standard units made up of standard elements and having standardized design. The assortment of such standard units should be sufficient to allow the production of virtually any industrial automation system without requiring the creation of special units.

2/2

1/2   010   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--DEVELOPMENT OF RELAY BRANCH OF UNIVERSAL SYSTEM OF ELEMENTS OF
   INDUSTRIAL PNEUMATIC AUTOMATION -U-
AUTHOR-(04)-BERENDS, T.K., YEFREMOVA, T.K., TAGAYEVSKAYA, A.A., TAL, A.A.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 4, PP 176-181

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MECH., IND., CIVIL AND
   MARINE ENGR
TOPIC TAGS--INDUSTRIAL AUTOMATION, DISCRETE AUTOMATION, PNEUMATIC CONTROL
   SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1731
                              STEP NO--UR/0103/70/000/004/0176/0181
CIRC ACCESSION NO--AP0118709
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0118709   UNCLASSIFIED   PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS PRESENTED THE VALIDITY OF
   THE EXPEDIENCY OF USING A JET DIAPHRAGM METHOD OF CONSTRUCTING PNEUMATIC
   DISCRETE SYSTEMS IN THE RELAY BRANCH OF THE UNIVERSAL SYSTEMS.

UNCLASSIFIED

CONCERNING DESCRIPTION OF FINITE AUTOMATON BY MEANS OF FINITE ENSEMBLE OF INPUT-OUTPUT SEQUENCES. I

V. A. Buyevich, N. G. KALANDARISHVILI, A. A. TAL

It is shown that when using the notion, introduced in the present article, of the equivalent transformations of input-output sequences, the behaviour of any strongly bound finite automaton may be fully defined by the setting of a finite ensemble of input-output sequences of finite length with the marks indicating their initial parts (by the setting of the k-array). The algorithm of making up the k-array for a set finite automaton is presented.

USSR

UDC: 621.315.592

GUTKIN, A. A., LEBEDEV, A. A., RADU, R. K., TALALAKIN, G. N., and
SHAPOSHNIKOVA, T. A.

"Investigating the Spectra of Photoionization Cross Sections in
GaAs Alloyed with Cr, Using the Photocapacitive Effect in Struc-
tures with a Potential Barrier"

Abstract: The purpose of this paper is to investigate the photo-
capacities in GaAs structures alloyed with Cr, and thereby obtain
photoionization cross section spectra of deep centers. This idea
is based on theoretical work published in earlier papers regarding
an impurity photoeffect in the space-charge layer of a p-n junc-
tion and its connection with the parameters of impurity centers.
Using the results of this theoretical work, the authors qualitative-
ly explain the absorption spectra characteristic of the three types
of specimens investigated. These are: surface-barrier diodes ob-
tained by chemical precipitation of gold on n-type GaAs alloyed with
Cr; p-i-n GaAs diodes obtained by successive diffusion of chromium
and zinc in n-type GaAs; p-i-n GaAs diodes obtained by epitaxial

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USSR

UDC: 621.315.592

GUTKIN, A. A., et al, Fizika i tekhnika poluprovodnikov, No 10,
1972, pp 1954-1960

growth of i and n layers of GaAs with a Cr additive on a p-type
GaAs substrate. The kinetics of the change in the barrier capaci-
tance of the structures under the action of mixed lighting in the
photon energy region of 0.55-1.3 ev is also investigated. The
authors thank D. N. Nasledov for his interest in the work, and
M. B. Kagan and B. A. Kholev for supplying the specimens.

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USSR

GASANLI, Sh. M., YEMEL'YANENKO, O. V., NASLEDOV, D. N., and
TALALAKIN, G. N.

UDC: 621.315.592

"Peculiarities of Current-Carrier Migration in p-GaAs Crystals
With Deep Impurity Levels"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 2055-
2056

Abstract: The results are given of experiments performed with p-
type GaAs crystals doped with Mn, Co, Ni, and Cr. In addition to
the Hall effect and the electrical conductivity, the change in re-
sistance of the specimens in a transverse magnetic field was mea-
sured. It was found, in this brief communication, that in crystals
with Mn and Co, the carrier migration occurred in the usual way.
In crystals with Ni and Cr, and to some extent in strongly compen-
sated crystals with Co, the migration shows peculiar variations.
A table of the specimens and their characteristics at temperatures
of 100-500° K is given. It is also found that there is a sharp
drop in mobility at low temperatures in crystals of the AIII-BV
type, containing deep levels or impurities tending to form clus-
ters. The authors note that the observed migration effects are not
connected with surface conductivity influences.
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USSR

IBRAGIMOV, V.YU., KOLCHANOVA, N.M., NASLEDOV, D.N., TALALAKIN, G.N.

"Special Feature Of Negative Photoconduction In Gallium Arsenide Crystals"

Abstract: The paper considers the negative photoconduction which was observed in high-resistance n-type gallium-arsenide crystals (with concentrations of electrons of 10^{10} -- 10^{11} cm^{-3}) during illumination by "impurity" light. Negative photoconduction occurred with electrical fields exceeding 100 v/cm. In order to account for negative photoconduction the mechanism of recombination with the participation of centers with a negative barrier is drawn. The temperature, lux-ampere, and other dependences of the photoconductivity are explained on the basis of the proposed model of the structure of the forbidden band of the crystal. Physicotechnical Institute imeni A.F. Ioffe, AS, USSR, Leningrad. Received by editors 19 Feb 1971; in finished rewording 17 May 1971. 4 fig. 14 ref.

1/1

Acc. Nr. AP0054347 Abstracting Service: 6-70/ Ref. Code UR0449
— CHEMICAL ABST.

115930g Properties of gallium arsenide doped with iron and nickel. Kolchanova, N. M.; Nasledov, D. N.; Talalakin, G. N. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). Fiz. Tekh. Poluprov. 1970, 4(1), 134-41 (Russ). The Hall effect, sp. resistance, photocond., and photomagnetic effect of GaAs single crystals doped with Fe and Ni to a concn. of 0.01-1.5 at. % were studied as functions of temp. at 80-300°. At low Fe and Ni contents (0.01%) a series of n-type specimens was obtained, with electron concns. of 10^{14}–10^{17}/cm³. The mobility of the electrons in these specimens was lower than in undoped crystals having the same electron concn. and grown under the same conditions. This is probably due to the presence of Fe and Ni atoms. In low-resistance n-type crystals doped with Ni, the electron mobility increases with decrease in temp. down to 80°. Thus, $\mu_{300} = 2400$–3300, and $\mu_{80} = 3100$–4150 cm²/V-sec. The hole concn. in crystals doped with Ni is 10^{14}–10^{15}/cm³, and their mobility is 100–200 cm²/V-sec, and falls on lowering the temp. The decrease in mobility indicates that in p-type crystals the ratio between the no. of Ni ions and atoms changes in such a way that the ions play the predominant part in current carrying. On lowering the temp., the equil. concn. of holes decreases, which indicates the presence of a deep impurity level, which may be assocd. with the presence of Ni. The spectral distribution of the photocond. in n-type specimens contg. Ni and Fe, with a carrier concn. of 10^{14}–10^{17}/cm³, is no different from that of undoped crystals with

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similar electron concns. The curve for the spectral distribution of the photocond. of crystals doped with Fe, with a concn. of approx. $10^{13}/cm^3$, exhibits impurity cond. The luminescence spectra also exhibit a wide max. at 0.95 eV. In crystals contg. Ni, the photoluminescence spectra did not exhibit characteristic bands at 0.22 and 0.35 eV at room temp. and the temp. of liq. N. p-Type GaAs single crystals with impurity Fe atoms at a concn. $>10^{17}/cm^3$ showed little sensitivity to light at 200–300°K. p-Type GaAs single crystals contg. Fe atoms to a concn. $>10^{17}/cm^3$ show little sensitivity to light at high temps. (200–300°K), and no changes in the concn. of current carriers under the action of light were obsd. over this temp. range. The lifetimes of the holes and electrons in specimens contg. Ni are $\sim 10^{-4}$ and $\sim 10^{-8}$ sec, resp., at room temp.   F. N. Standen

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CK

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USSR

GUTKIN, A. A., LEBEDEV, A. A., TALALAKIN, G. N., and SHAPOSHNIKOVA, T. A.,
Physicotechnical Institute imeni Ioffe, Acad. Sci. USSR, Leningrad

"Photoconductivity of Semi-Insulator GaAs Doped With Cr in Strong
Electric Fields"

Abstract: This paper discusses the N-shaped volt-ampere character-
istics of high-resistance GaAs alloyed with chromium and their ac-
companying spontaneous low-frequency current oscillations. The ex-
periments of this research involved the measurement of photoconduc-
tivity with the Q-1 monochromator using an SiO_2 prism with unmodu-
lated illumination from the KИШ2-100 incandescent lamp. The GaAs
specimens were prepared by the Chokhral'skiy method, with a re-
sistivity of 10^6-10^8 ohm·cm at room temperature; their contacts were
obtained by melting an In-Au alloy at $400°$ C. The photoconducti-
vity spectral distribution obtained for various electric field in-
tensities is plotted. The authors express gratitude to D. N. Nasledov
and N. M. Kolchanov for their useful comments.
1/1

USSR

TALALAY, A. M.

UDC 621.396.6-181.48

"Analysis of the Fractional Factor Experiments in Microelectronic Technology"

V sb. Metody mat. i fiz. modelir. i optimiz. parametrov radioelektron. appara-
tury. No 2 (Methods of Mathematical and Physical Simulation and Optimization
of the Parameters of Radio Electronic Equipment. No 2 -- collection of works),
Moscow, 1972, pp 79-80 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No
7V249)

Translation: The possibility of applying the Hicks algorithm (see Osnovnyye
printsipy planirovaniya eksperimenta [basic Principles of Experiment Planning],
Moscow, Mir Press, 1967) for the analysis of the effect of qualitative factors
on production parameters in microelectronic technology is demonstrated. The
application of the algorithm is investigated in the example of an analysis of
the experimental results by investigating the effect of the furnace number, the
knife   pressure and the type of paste on the resistance of the resistor in
the hybrid microcircuit. There are 2 tables and a 2-entry bibliography.

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USSR

TALALAY, A. M.

"Interpretation of Results of Dispersion Analysis (DA) Considering
Limitations on Randomization of Experiments"

Translation: In studies of actual processes by methods of experimental
planning, it is frequently impossible to perform full randomization of
experiments. This forces researchers to use special plans (Latin squares,
block plans, split-allotment plans, etc.). The purpose of this work is
to study the influence of limitations on randomization of experiments on
the conclusions of dispersion analysis using a specific model experiment.

1/1

USSR

UDC 621.372.852.15(088.8)

TUZOV, G.I., TALALAY, M.A.

"Tracking Filter For Processing Of A Pulse Phase Manipulated Pseudorandom Signal"

USSR Author's Certificate No 305557, filed 5 Nov 69, published 4 Aug 71 (from RZh:Radiotekhnika, No 2, Feb 72, Abstract No 2D55P)

Translation: A tracking filter is proposed, which includes: 1) A system of phase automatic frequency control, consisting of a series-connected frequency converter, the IF amplifier of a phase detector, the control input of which is connected across a modulator with the output of a reference generator, a low-frequency filter with two inputs, a reactance tube, a controlled oscillator and a phase shifter, the input of which is connected with the output of the reference generator; 2) A delay tracking circuit containing a series-connected phase detector, the input of which is connected with the output of the phase shifter and the IF amplifier of the system of automatic frequency control, a multiplier, summator, a low-frequency filter with two inputs, a controlled timing oscillator,

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USSR

TUZOV, G. I. et al, USSR Author's Certificate No 305557

a shift register, the output of which is connected with the modulator and the multiplier, and a decoder. In order to increase noise immunity during realization of optimum gating of the receiver at the time of arrival of the pulse signal, the output of the controlled timing oscillator is connected with an impulse counter which is connected across a trigger with the control inputs of the switches [klyuch], one of which is connected to the output of the frequency converter of the phase automatic frequency control, and the other between the controlled timing oscillator and the shift register of the delay tracking circuit, and with the control inputs of the low-frequency filter.

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USSR

UDC: 621.372.852.15

TUZOV, G. I., TALALAY, M. A.

"A Tracking Filter for Processing a Pseudorandom Phase-Keyed Pulse Signal"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 18, Jun 71, Author's Certificate No 305557, Division H, filed 5 Nov 69, published 4 Jun 71, pp 186-187

Translation: This Author's Certificate introduces a tracking filter for processing a pseudorandom phase-keyed pulse signal. The filter incorporates a phase AFC system made up of a mixer, i-f amplifier, phase detector, low frequency filter with two inputs, reactive tube, controllable oscillator and phase shifter all connected in series. The controlling input of the phase detector is connected through a modulator to the output of a reference oscillator, and the input of the phase shifter is connected directly to the output of the reference oscillator. The tracking filter also includes a delay tracking circuit which contains a phase detector, multipliers, an adder, a low frequency filter with two inputs, a controllable cadence oscillator, shift register and decoder all connected in series. The inputs of the phase detector are connected to the outputs of the phase shifter and

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TUZOV, G. I., TALALAY, M. A., USSR Author's Certificate No 305557

the i-f amplifier in the phase AFC system, and the outputs of the shift register are connected to the modulator and to the multipliers. As a distinguishing feature of the patent, resistance to interference is improved while implementing optimum gating of the receiver for the time of arrival of the pulse signal by connecting the output of the controlled cadence generator to a pulse counter which is connected through a flip-flop to the controlling inputs of switches. One of the switches is connected across the input of the phase AFC mixer, and the other is connected between the controllable cadence oscillator and the shift register of the delay tracking circuit, and to the controlling inputs of the low frequency filter.

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USSR

DELYUKIN, G. V., YEGOROVA, T. G., POLYAKOV, V. A., and TALALAY, M. M.

"Subprograms for Processing Symbolic Information"

Translation: The deficiencies of glossary capacity in modern and newly designed electronic computers are considered. It is proposed to increase the computer's glossary capacity by introducing new commands or standard subprograms for element-by-element transformation of symbols. The content of most of the programs is described by the command of a hypothetical computer.
    Increasing the glossary capacity of the computer permits realization of element-by-element transformation of symbols, eases the associative search for information, and simplifies the modeling of digital devices of any significance on existing computers of the general type. Resume.

1/1

USSR

BELOV, K. P., NIKITIN, S. A., TALALAYEVA, YE. V., CHERNIKOVA, L. A., KUDRYAVTSEVA, T. V., TIKHONOV, V. V., and IVANOVSKIY, V. I., Moscow State University

"Determination of the Exchange Interaction of Ferrite-Gadolinium Garnet Sublattices Based on the Magnetocaloric Effect"

Abstract: Ferrite-rare earth garnets $R_3Fe_5O_{12}$ have a trisublattice magnetic structure. In the majority of cases within the framework of molecular field theory it is possible to examine such ferrite-garnets as having a bisublattice structure. In this case both a and d iron sublattices are examined as a single Fe_{a-d}-sublattice, in the effective exchange field of which are found rare earth ions. The author determined the effective exchange field acting on the R^{3+} ions from the side of the Fe^{3+} ions. Based on the measurement data of the magnetocaloric effect, the susceptibility of the paraprocess, and the specific heat in the region of the temperature of compensation, the authors determined the exchange field in the garnet structure. The measurements showed that for the $Gd_3Fe_5O_{12}$ garnet the field
structure.

USSR

$H_{2eff} = 258$ kOe, and for $Gd_3Ga_{0.3}Fe_{4.7}O_{12}$ the field $H_{2eff} = 232$ kOe, which is 10% less than   for the gadolinium garnet. The article contains 3 illustration and 6 bibliographic entries.

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1/2   020

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--INDUCED NONCOLLINEAR MAGNETIC STRUCTURE IN RARE EARTH FERRITE GARNETS -U-

AUTHOR-(05)-BELOV, K.P., CHERNIKOVA, L.A., TALALAYEVA, YE.V., LEVITIN, R.Z., KUDRYAVTSEVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 6, PP 1923-1927

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--FERRITE, GARNET, RARE EARTH METAL, MAGNETIC STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0423

STEP NO--UR/0056/70/058/006/1923/1927

CIRC ACCESSION NO--AP0121097

UNCLASSIFIED

CIRC ACCESSION NO--AP0121097   UNCLASSIFIED   PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE APPEARANCE OF NONCOLLINEAR MAGNETIC STRUCTURES IN RELATIVELY WEAK FIELDS (UP TO 20 KOE) COULD BE OBSERVED AS A RESULT OF MAGNETOCALORIMETRIC EFFECT MEASUREMENTS IN GD, DY, OR HO FERRITE GARNETS CARRIED OUT IN THE VICINITY OF THE COMPENSATION TEMPERATURE. IT IS SHOWN THAT MEASUREMENT OF THE MAGNETOCALORIMETRIC EFFECT OPENS A NEW POSSIBILITY OF INVESTIGATION OF NONCOLLINEAR SPIN STRUCTURES INDUCED BY AN EXTERNAL FIELD. FACILITY: MOSKOVSKIY GOSUDARSTVENNYY UNIVERSITET IM. M. V. LOMONOSOVA.

UNCLASSIFIED

Pharmacology and Toxicology

USSR

UDC 612.014.4:613.2

PONOMARENKO, N. S., Lt Col Med Serv, TALAN, F. S., and VOLYNETS. M. T.

"Monitoring Toxic Chemicals in Food Products"

Abstract: Vegetables procured for military units were tested by thin-layer chromatography and the Shekhter-Galler [transliteration] method for the presence of toxic chemicals, chiefly DDT. Traces within public health standards were detected in 21% of the raw potato, 18% of the fresh and pickled cabbage, and 30% of the prepared vegetables sampled. The higher percentage in prepared vegetables is probably due to addition of meat products containing DDT. DDT was also detected in quantities not exceeding 5 mg/kg in subcutaneous, fatty cellular tissue taken from surgical patients, and up to 0.1-0.6 mg/kg in blood and bile. Military physicians must monitor toxic chemicals in food products constantly and see that farms providing produce to military units comply with toxic chemical use, storage, transport, and certification regulations.

1/1

TALAN, F.S.

MEDICINE

HYGIENE AND EPIDEMIOLOGY

VITAMIN C CONTENT IN THE MAIN DIETETIC MENUS

By

F.S. Talan, Lt.Col. of Med.Serv.

It is well known that vitamin C possesses a very wide spectrum of activity. It helps sound health, it strengthens the antitoxic and immune biological properties of the organism, it takes part in oxidative-reductive processes, in protein and carbohydrate metabolism, in the function of stomach, intestine, liver, endocrine glands, and has an favorable effect upon the functions of stomach.

...the organism causes various pathological changes, especially in the lowering of the gastric secretion (G.P. Shultsev & Z.A. ...disturbance of the acid forming and motor function of the stomach (S.A. Santarov). It causes an exacerbation of chronic gastritis, disturbance of the formation of erosions on the gastric mucosa (V.I. Kulakov, T.S. Yakovlev).

In the human organism vitamin C is not synthesized; therefore, its level in the blood chiefly depends upon its access from the food. The generally accepted standard of ascorbic acid content in the blood plasma is 0.7 - 1.2 mg%.

In the literature communications are available stating that in a few daily rations of hospital therapeutic menus, e.g., in the antiulcer diet, the vitamin C amount is not enough. This fact deserves special attention also therefore because in many alimentary... the organism needs increased amounts of vitamin C. In regard to this, we made laboratory examinations of vegetable dishes, very widely used in therapeutic nutrition, to determine their ascorbic acid content. The obtained findings are in the Table.

Examined vegetables Diet	Number of analyses	Vitamin C losses in %	
		minimum	maximum
Vegetable soups on meat bouillon	11, 15	6	46	73
Vegetable soups on meat bouillon	2	17	72	90
Grated potato soup	1,4,5n	16	47	78
Vegetarian vegetable purée potato soups	5,8,10	6	53	71
Grated vegetable soups table soups	5n,10n	15	70	88
Potato purée	1,2,5n	26	45	87
	5,10,11 et al.			

Remarks: The examinations were made at once after the preparation of the dish.

It can be seen from the table that in non-grated meat bouillon and in vegetarian soups) the vitamin meat bouillon, although in individual cases they the smallest, although in individual cases they able sizes, and exceed the generally accepted dishes (50%). In purée-shaped potato and pr...

1/2   022   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--PLASTIC MATERIALS FOR MOLD CONSTRUCTION -U-

AUTHOR--TALANKER, YE. I.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, (1) 9-10

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PHENOL FORMALDEHYDE RESIN, STYRENE, POLYVINYL ACETATE,
   POLYVINYL CHLORIDE, REINFORCED PLASTIC, PAPER, GLASS FIBER, MOLDING
   MATERIAL, COMINATED PLASTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0537   STEP NO--UR/0128/70/000/001/0009/0010

UDC 669.28.054.2.546.21

USSR

KARAYEVA, A. A., MIKHAYLOV, S. M., PETUSHKOV, Ye. Ye., NAVALIKHIN, L. V.,
and TALANIN, Yu. N.

Determination of Oxygen in Molybdenum Single Crystals

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory
and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 47-49

Translation: Activation analysis using fast neutrons was used to study the
distribution of oxygen in molybdenum single crystals produced by crucibleless
zone melting, allowing the change in concentration of impurities with increas-
ing number of passes of the zone to be determined. The errors in measurement
due to surface oxygen were determined. It was found that purification of the
surface of the specimens can be performed by bombardment with electrons.
Electrolytic etching at low oxygen contents is a less acceptable method of
purification. 1 Figure; 4 Bibliographic References.

1/1

CIRC ACCESSION NO--AP0107142
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METAL MOLDS USED IN THE MANUF. OF
  EXPANDED PLASTICS (POLYSTYRENE, POLYURETHANES, POLY(VINYL CHLORIDE) (I),
  I POLY(VINYL ACETATE) MIXTS., ETC.) CAN BE REPLACED BY MOLDS FORMED FROM
  EXPANDED PLASTIC TO WHICH LAMINATES OF PAPER AND PHENOL HCHO RESIN,
  CLOTH RESIN LAMINATE, GLASS CLOTH REINFORCED PLASTIC, FIBERBOARD, OR
  CHIPBOARD ARE BONDED ON 2 SIDES. THE MOLDS CAN ALSO BE MADE BY
  EXPANDING THE PLASTICS BETWEEN PRESHAPED PLASTIC SHEETS RIGIDLY HELD IN
  A SUPPORTING FRAME.

UNCLASSIFIED

USSR

KOVALEVA, YE. S., and TALANOV, G. A., Khimiya v Sel'skom Khozyaistve, No 4, 1973, pp 34-37

be detected in the pulp of the beet and potato tubers. TChM-3 content in potato was from 0.006 to 0.16 mg/kg, in the skin of sugar beet root from 0.09 to 0.48 mg/kg, and in the tubers from 0.004 to 0.014 mg/kg. On the basis of these data a waiting period has been proposed of 10 days for diazinon, 40 days for TChM-3 and 60 days for metaphos between the last application and the harvesting time.

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UNCLASSIFIED   PROCESSING DATE--11DEC70

1/2   013
TITLE--REMOVAL OF TRACE IMPURITIES IN PHOSPHORUS BY DISTILLATION WITH
WATER VAPOR IN THE PRESENCE OF ION EXCHANGE RESINS -U-
AUTHOR-(03)-TALANOV, N.D., ASTAKHOVA, G.V., SHCHIGAREVA, ZH.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 820-3

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SEPARATION, PHOSPHORUS, ION EXCHANGE RESIN, COPPER,
IRON, ALUMINUM, AQUEOUS SOLUTION/(U)PF ION EXCHANGE RESIN, (U)KF ION
EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0965   STEP NO--UR/0080/70/043/004/0820/0823

CIRC ACCESSION NO--AP0131550
UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0131550
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR PURIFYING WHITE P IS
GIVEN. A SAMPLE OF P, PURIFIED CATION EXCHANGER (PF OR KF) WITH
PHOSPHONIC ACID FUNCTIONAL GROUPS, AND PURE WATER (1:4:30) WERE PLACED
IN A DISTN. APP. THAT WAS THEN EVACUATED AND FILLED WITH INERT GAS, AND
STEAM WAS PASSED THROUGH AT ATM. PRESSURE. THE TEMP. OF WATER IN
CONDENSER AND IN RECEIVER WAS MAINTAINED AT 55-65DEGREES. THE PURIFIED
P WAS TRANSFERRED INTO AN AMPUL, DIRED IN VACUO, AND TRANSFORMED INTO
THE RED MODIFICATION. ANAL. CONTROL WAS PERFORMED BY SPECTROCHEM.
METHOD. THE AMT. OF METALLIC IMPURITIES (CU, FE, AND AL IN THE
PURIFIED P WAS SMALLER THAN OR EQUAL TO 1 TIMES 10 PRIME NEGATIVE6
PERCENT. THE IONIC FORM OF THE RESIN (H PRIME POSITIVE, NA PRIME
POSITIVE, OR NH SUB4 PRIME POSITIVE) APPARENTLY HAD NO EFFECT ON THE
QUALITY OF PURIFICATION, BUT BETTER RESULTS WERE OBTAINED WITH KF THAN
WITH PF EXCHANGER. THE PURITY OF THE PRODUCT SLIGHTLY DECREASED WHEN
INCREASING DISTN. RATE (FROM 350 TO 1300 ML H SUB2 O-HOUR) AND AMT. OF P
TAKEN (FROM 100 TO 200 G).

UNCLASSIFIED

1/2   011   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--POLYMORPHISM OF ACYRTHOSIPHON PISI KALT -U-

AUTHOR--TALANOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK ZOOLOGII, 1970, NR 3, PP 79-82

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INSECTA, ANATOMY, PLANT PARASITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0722   STEP NO--UR/0575/70/000/003/0079/0082

CIRC ACCESSION NO--AP0126434
                              UNCLASSIFIED

CIRC ACCESSION NC--AP0126434
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO THE AUTHOR'S DATA
ACYRTHOSIPHON PISI KALT, EXEPT FOR THE FORMS, DESCRIBED IN THE
LITERATURE, HAVE ALSO THE FOLLOWING ONES: WINGLED FEMALE SEXUPARA AND
WINGLED MALES. THESE FURMS APPEAR IN THE POPULATION, LIVED ON PEA AND
WINTER VETCH IN AUTUMN PERIOD.   FACILITY: THE PEDAGOGICAL
INSTITUTE, KFERSON.

UNCLASSIFIED

USSR   UDC 615.37:]576.851.46+576.852.23+576.851.551]:615.451.
                13.015.2:615.831.4

IVANOV, V. G., MOSHIASHVILI, I. Ya. and TALANOVA, I. K., Institute of
Pediatrics, Academy of Medical Sciences USSR; Central Institute of Health
Resorts and Physiotherapy, USSR Ministry of Health; Institute of Vaccines and
Sera imeni Mechnikov, Moscow

"The Effect of Prophylactic Ultraviolet Irradiation on Antibody Production in
Rabbits Immunized With DPT Vaccine

Abstract: The effect of the combined application of small doses of ultra-
violet (UV) irradiation with DPT vaccine on the production of antibodies to
the pertussis, diphtheria, and tetanus antigenic components of the vaccine
was studied. Rabbits were divided into three groups. Group one, the control
group, received only the vaccine in an intramuscular dose of 0.15-025 mll/kg,
in group two the animals were irradiated with UV in increasing doses from
1/4 to 1 3/4 biodoses immediately after vaccination. In group three rabbits
were given the vaccine after a course of 7-8 treatments with UV. Antibody

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USSR

IVANOV, V. G., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunologii,
Vol 48, No 6, Jun 71, p 148

titers were determined by the indirect hemagglutination method using ultrasonic
erythrocyte diagnosticums (developed by Moshiashvili). It was established that
ultraviolet irradiation intensified the rate of antibody formation to the three
antigenic components of the vaccine, the highest rate of antibody production
occurred in response to the pertussis component of the vaccine, and immunity
to pertusis was retained longest in animals vaccinated after a preliminary
course of UV treatment.

2/2

USSR   UDC 581.121.037

TALANOVA, I. M. and SHAKHBAZOV, V. G., Kharkov State University

"Effect of Constant Magnetic Fields in the Respiration Rate of Pure-Strain and Heterosis Corn Seeds"

Moscow, Fiziologiya Rasteniy, No 1, 1973, pp 204-206

Abstract: Exposure to a constant magnetic field (CMF) of 2.2 koe for 4 hours had no significant effect on the respiratory rate of pure-strain VIR-44 and VIR-38 or Slava hybrid corn seeds. However, exposure for 20 hours intensified respiration in the pure-strain seeds (118.4%) but depressed it in the hybrid (74.4%). When the seeds were exposed for 4 hours to stronger magnetic fields (4 and 7 koe), oxygen consumption sharply increased in the VIR-44 seeds (183%) but was depressed in the hybrid (77 to 82%). Thus, a short exposure to a CMF of higher intensity produced the same effect on oxygen consumption by the hybrid seeds as a long exposure to a weaker field.

1/1

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UDC 621.357.13:669.28

USSR

BARABOSHKIN, A. N., SALTYKOVA, N. A., TALANOVA, M. I., and MARTEM'YANOVA, Z. S.

"The Structure of Continuous Deposits of Molybdenum Obtained from the Electrolysis of the Melt KCl-K$_3$MoCl$_6$"

Abstract: A study was made of the influence of the electrolysis parameters on the structure of the continuous deposition of Mo prepared from a melt containing KCl and K$_3$MoCl$_6$. The electrolysis was carried out under an atmosphere of argon. The precipitate was studied metallographically and by x-ray analysis. The thickness was determined from the increase in weight. The radial texture by the ARKHAROV method. The feasibility was demonstrated for preparing deposits of high purity Mo having a thickness of a new mm from strictly chloride melts. For this, it is necessary to use high purity salts as a starting material and high purity inert gas to separate the anolyte from the catholyte. A number of materials, such as graphite, W, Pt, Sr, Pd, Au, Ha, Fe, Ni, and Ag, may be used for the cathode and strongly cohesive

1/2

- 2 -

USSR

BARABOSHKIN, A. N., et al., Tr. In-ta elektrokhimii. Ural'sk. nauch.
tsentr AN SSR, Vyp 18, 1972, pp 87-93

precipitates may be obtained from chloride oxide melts. The texture of the
growth is type 3. It is produced by relatively high rates of growth of the
grain having orientation of III perpendicular to the substrate such that it is
actually related to it by a twin structure.

2/2

Turbine and Engine Design

"Effect of Certain Gas Turbine Combustion Chamber Structural Parameters on Circular Irregularity of the Gas Temperature Field"

Abstract: A study is reported on a generalization of the effect of separate structural parameters of the combustion chamber mixing region on circular irregularity of the temperature field. The dependence of the temperature field circular irregularity on the total surface of holes of equal diameter in a heating tube, with equal distance between holes, is determined under certain simplifying assumptions and presented in graphs. Empirical formulas for determining the circular irregularity were established on the basis of the available experimental relations. An analysis of the results shows that: 1) for every value of total surface of the holes there exists an optimal equivalent diameter, at which the circular irregularity is minimum; 2) the minimum circular irregularity decreases with the total surface of the holes; 3) there exists an optimal dependence of circular irregularity on distance between the holes. Recommendations are given on the design of

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USSR

SPIRIDONOV, Yu. A., and TALANTOV, A. V., Izvestiya VUZ, Aviatsionnaya
Tekhnika, No 4, 1970, pp 80-86

combustion chamber mixing region and on the method of equalizing the gas
temperature fields along the circular irregularity. 4 formulas, 4 figures,
3 references.

2/2

USSR   UDC 629.7.036:3:536.46

KUZIN, A. F., YANKOVSKIY, V. M., APOLONOV, V. L., and TALANTOV, A. V.

"Influence of the Initial Temperature Upon the Basic Combustion Characteristics
of a Homogeneous Mixture in a Turbulent Stream"

Moscow, Goreniye i Vzryv--Sbornik (Combustion and Explosion--Collection of
Works), Nauka, 1972, pp 337-341 (from Referativnyy Zhurnal--Aviatsionnyye i
Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34.34. Resume)

Translation: Data are presented of an experimental investigation of the
relationship of the length of the combustion zone, the combustion time, and
the rate of turbulent propagation of the flame to the temperature. The object
of the investigation was a two-dimensional (turbulent) flame of a homogeneous
gasoline-air mixture. The range of the investigation embraces: $T_O = 393-793^{O}K$;
$\alpha = 0.4-1.9$; $\omega = 30-75$ m/sec; $C = 4.7\%$. The experiments enabled the following
to be established. 1. The mainstream temperature exerts a substantial influ-
ence upon the basic combustion characteristics. 2. As the mainstream tempera-
ture is increased, the rate of turbulent propagation of the flame increases,
and the combustion time decreases, as does also the length of the combustion
zone. 3. With an increase of the initial rate, the degree of influence of
the initial temperature upon the combustion characteristics decreases. An
1/2

- 30 -

USSR

KUZIN, A. F., Goreniye i Vzryn--Sbornik, Nauka, 1972, pp 337-341

analysis of the results of the investigation, conducted on the basis of a sur-
face model of turbulent combustion, manifests a good correspondence between
the conclusions of the theory and the experimental data. 4 figures. 5 refer-
ences.

2/2

USSR

UDC 533.601.1+533.607.14

VINOGRADOV, YU. V., GRUZDEV, V. N., TALANTOV, A. V.

"Effect of the Turbulence Intensity on the Processes of Wake Mixing for Different Velocity Ratios"

V sb. Teoriya i praktika szhiganiya gaza (Theory and Practice of Gas Combustion --collection of works), No 5, Leningrad, Nedra, 1972, pp 28-33 (from RZh-Aviatsionnyye i raketnyy dvigateli, otdel'nyy vypusk, No 11, Nov 72, Abstract No 11.34.8)

Translation: In this paper an experimental study was made of the effect of the turbulence intensity on the mixing of isothermal wakes in a closed flow with a velocity ratio m from 0 to 5. The analysis of the results demonstrated that a simultaneous increase in the turbulence intensity in the wakes leads to intensification of mixing. This agrees with the theory of turbulent diffusion. The effect of the turbulence remains approximately the same as the velocity difference of the wakes increases. There are 2 illustrations and a 5-entry bibliography.

1/1

USSR   UDC 616.001.28+591.8.434-05

TALAPIN, V. I., CHEVLYTKO, A. A., and MUKOSEY, N. V.

"Condition of Enterochromaffin Cells in Acute Radiation Sickness"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk,
No 1, 1971, pp 114-116

Abstract: Histochemical studies were conducted to determine
shifts in the serotonin content in enterochromaffin cells of ran-
dom-bred dogs with acute radiation sickness. Acute radiation
sickness was induced in the animals by a single irradiation with
filtered x-rays in a total dose of 600 rad. The irradiated but
untreated animals all perished within 15-21 days after irradia-
tion. The treated dogs were kept under observation for periods
of up to five years. Enterochromaffin cells were extracted from
transverse sections of the large and small intestines. The
survivors were divided into three groups, with group one sacri-
ficed and examined within 3-5 months, group two -- within 6-9

1/2

USSR

TALAPIN, V. I., CHEVLYTKO, A. A., and MUKOSEY, N. V., Izvestiya
Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 1, 1971,
pp 114-116

months, and group three -- within 15 months to five years after
the beginning of the tests. Practically no enterochromaffin
cells were found in the animals perishing from acute radiation
sickness, and the number of serotonin granules in those cells
which were found was very small. In the animals which survived
acute radiation sickness and fully recovered as a result of
medical treatment, the complete restoration of enterochromaffin
cells saturated with serotonin was observed.

2/2

1/2   028   UNCLASSIFIED   PROCESSING DATE---13NOV70
TITLE--EFFECT OF NEODYMIUM ON TEMPER BRITTLENESS AND IMPACT STRENGTH OF
  CHROMIUM NICKEL MANGANESE STEEL FOR MINING MACHINE PARTS -U-
AUTHOR--TALAPIN, V.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., GORN. ZH. 1970, 13(1), 116-17

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MINING MACHINERY, NEODYMIUM STEEL, CHROMIUM STEEL, NICKEL
  STEEL, MANGANESE STEEL, REACTION KINETICS, IMPACT STRENGTH, AUSTENITIC
  STEEL, STEEL DEOXIDATION, STEEL QUENCHING, METAL BRITTLENESS/(U)38KHGN
  STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0956   STEP NO--UR/0150/70/013/001/0116/0117

CIRC ACCESSION NO--AT0105825
                    UNCLASSIFIED

CIRC ACCESSION NO--AT0105825
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ATTEMPT WAS MADE TO EXPLAIN THE
 EFFECT OF ND ON CERTAIN PROPERTIES OF CONSTRUCTION CR-NI-MN STEEL OF THE
 38KHGN TYPE, SUCH AS IS WIDELY USED FOR THE MANUF. OF EXCAVATORS AND
 BORING MACHINES. THE DEOXION. OF THE STEEL TO BE STUDIED WAS DONE BY
 FERROSILICON. FROM 0.07 TO 0.11PERCENT ND WAS USED. WITHIN THESE
 CONCNS. THE ND HAS NO SIGNIFICANT EFFECT ON THE KINETICS OF
 TRANSFORMATICNS OF SUPERCOOLED AUSTENITE BOTH UNDER ISOTHERMAL
 CONDITIONS AND ON CONTINUOUS COOLING, ALTHOUGH IT SOMEWHAT INCREASES THE
 MECH. PROPERTIES OF THE STEEL STUDIED AFTER QUENCHING AND TEMPERING.
 THE IMPACT SAMPLES WERE QUENCHED AT 730DEGREES IN OIL AND WERE TEMPERED
 AT 630DEGREES FOR 2 HR AND THEN COOLED IN OIL. SOME OF THE SAMPLES WERE
 SUBJECTED TO ADDNL. EMBRITTLEMENT AT 500DEGREES. THE RESULTS OBTAINED
 INDICATE THE SIGNIFICANT EFFECT OF ND ON THE TENDENCY OF THIS STEEL TO
 TEMPER BRITTLENESS; THIS EFFECT CANNOT BE ATTRIBUTED TO THE FINER
 PARTICLE SIZE OF THE AUSTENITE GRAINS. ADDNS. OF ND SHIFT THE
 BRITTLENESS THRESHOLD TOWARD LOWER TEMPS., WHICH ATTESTS TO THE
 SUPPRESSION OF THE TEMPER BRITTLENESS.

UNCLASSIFIED

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USSR   UDC 632.95

MEL'NIKOV, N. N., SOKOLOVA, YE. M., TRUNOV, P. P., VOLODKOVICH, S. D.,
INISHAKOVA, G. M., GOLYSHIN, N. M., ABELENTSEV, V. I., UMRATLINS, N. S.,
FEDOSEYENKO, L. G., ZAKHIN, B. A., DVUMISHLIRSTOV, M. G., VISHEVETSKAYA, A. M.,
ORLOV, S. I., ZAVIZION, A. P., and TALASH, A. I.

"Polycarbazin"

V sb. Khim. sredstva sashchity rast. (Chemical Plant Protectants -- collection
of works), vyp 1, Moscow, 1970, pp 95-104 (from RZh-Khimiya, No 13, 10 Jul 72,
Abstract No 13N593 by T. A. Belyayeva)

Translation: The effectiveness of polycarbazin (I) on apple scab and grape-
vine mildew equals that of zineb (II) and polymar-combi, while on cherry-
fruit gray rot it equals Bordeaux liquid (III) (1 percent), but is ahead of
II. I equals II and III for Clasterosporium infection of the cherry plum
and tomato macrosporiosis. The decisive factor which determine the length
of action of I is precipitation, which washes thepreparation off plants.

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USSR

VIKTOROV, I. A., TALASHEV, A. A., Acoustics Institute of the Academy of
Sciences of the USSR, Moscow

"Propagation of Rayleigh Waves on a Piezodielectric-Semiconductor Interface"

Abstract: A detailed theoretical and experimental study is made of the
interaction between ultrasonic Rayleigh waves and electrons on the boundary
between a piezodielectric and a semiconductor, and the results are compared
with data in the literature. It is assumed that a plane harmonic Rayleigh
wave propagates in the direction of the x-axis along the boundary z = 0 be-
tween piezodielectric and semiconductor half-spaces separated by an in-
finitely thin gap without mechanical contact. It is shown that the inten-
sity of interaction is appreciably less than in the case of interaction
between a Rayleigh wave and electrons in a piezosemiconductor. In the
high-frequency case, the analysis is done with regard to the influence of
surface states of the semiconductor. The authors thank T. M. Knyokina for
assistance with the computations.

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TALAVRINOV, V. A.

JPRS 56,459

14 July 72

110

CHARACTERISTICS OF THE METHOD FOR REGISTERING THE INDICES
OF PHYSIOLOGIC FUNCTIONS ON THE "SOYUZ-9" SPACESHIP

[Article by V. A. Talavrinov, A. F. Serenko, L. V. Sokolov and
V. V. Parshenkova; Moscow, Aktual'nyye Voprosy Kosmicheskoy
Biologii i Meditsiny (Current Problems in Space Biology and Med-
icine), Russian, 1971, pp 265-267]

The great duration of flight by the "Soyuz-9" spaceship
made it particularly important to prevent changes of the skin
under the ECG electrodes.

Physiologic information aboard the "Soyuz-9" spaceship
was registered using the same medical monitoring apparatus
as during previous flights of the "Soyuz" ships, described ear-
lier (Yu. G. Nefedov, L. I. Kakurin, et al., 1970), but a num-
ber of improvements were introduced into the system of physio-
logic sensors and the method for its use due to the consider-
able lengthening of flight duration.

During the flight we registered the electrocardiogram
(ECG) in the "DS" lead, seismocardiogram (SCG), pneumogram
(PG) and pulse rate of each of the crew members. All the physio-
logic sensors and electrodes were attached to the bodies of
the cosmonauts by elastic fabric straps.

The most important of the improvements in the method for
using the physiologic sensors were:

1) the cosmonauts themselves put on and took off the sys-
tem of physiologic sensors; 2) every day, in case of continued
wearing of the ECG electrodes, they were moved to other parts of
the skin in such a way that on each of the skin sectors designated
ed for this purpose the electrode was present for one day and
the skin was free of it for three days. The cosmonaut himself
processes the skin with a degreasing fluid, applies the current-

1/2   013

TITLE—THERMAL STABILITY OF MODIFIED WATER —U—

UNCLASSIFIED

PROCESSING DATE--30OCT70

AUTHOR-(05)-DERYAGIN, B.V., ZORIN, Z.M., RABINOVICH, YA.I., TALAYEV, M.V., CHURAYEV, N.V.

COUNTRY OF INFO—USSR

SOURCE—DOKL. AKAD. NAUK SSSR 1970, 191(4), 859-61

DATE PUBLISHED————70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—WATER, THERMAL STABILITY, DISTILLATION, BOND ENERGY

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/0697

STEP NO—UR/0020/70/191/004/0859/0861

CIRC ACCESSION NO—AT0124369

UNCLASSIFIED

CIRC ACCESSION NO--AT0124369   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL STABILITY OF MODIFIED
WATER WAS STUDIED BY USING THE METHOD OF DISTN. THROUGH A THERMAL
BARRIER (D., 1967). THE RESULTS SHOW THAT THE ANOMALOUS COMPONENT OF
THE MODIFIED WATER DECOMPS. TO FORM ORDINARY WATER. THE BOND ENERGY FOR
THE MOLS. OF THE ANOMALOUS COMPONENT WAS EVALUATED BY MEANS OF THE
BATLER-POLYANI EQUATION (1962) AND FOUND TO BE 50 KCAL-MOLE. THE HIGH
THERMAL STABILITY OF THE ANOMALOUS COMPONENT MOLS. EXPLAINS THE
STABILITY OF THE MODIFIED WATER, THE PROPERTIES OF WHICH DO NOT CHANGE
EVEN DURING PROLONGED STORAGE.   FACILITY: INST. FIZ. KHIM.,
MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 541.12.013.5

DERYAGIN, B. V., Corresponding Member Academy of Sciences USSR, ZORIN, Z. M.,
RABINOVICH, YA. I., TALAYEV, M. V., (DECEASED) and CHURAYEV, N. V., Institute
of Physical Chemistry, Moscow, Academy of Sciences USSR

"Thermal Stability of Modified Water"

Moscow, Doklady Akademii Nauk, SSSR, Vol 191, No 4, Apr 70, pp 359-361

Abstract: The authors confirmed the results obtained in preliminary experi-
ments that at temperatures $\geq 700^{\circ}$ modified water (M.W.), which consists of
two components -- anomalous component (A.C.) and normal water -- decomposes
converting to normal water. Initially changes in expansion of water columns
were studied in temperatures of 250 and 400° and both cases gave similar
curves, separated in accordance with the temperature difference. Next dis-
tiliation of the M. W. across a heat barrier was carried out and it was
shown that up to 500° no noticeable changes occur. At 700° the condensate
looked like normal water, indicating that thermal decomposition of M.W.
occurs at $t \geq 700^{\circ}$. On the basis of their experimental data the authors
calculated the bond energy of A.C. molecules to be about 50 kcal/mole.

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83434e   Dependence of water vapor pressure on the concentration of the anomalous component in modified water.   Deryagin, B. V.; Zheleznyi, B. V.; Rabinovich, Ya. I.; Simonova, V. Kh.; Talaev, M. V.; Churaev, N. V. (Inst. Fiz. Khim., Moscow, USSR).   Dokl. Akad. Nauk SSSR 1970, 190(2), 372–5 [Phys Chem] (Russ).   The so-called modified water, defined as a 2-component system, one of which is ordinary water and the other referred to as "anomalous component" of which the nature is unknown for the present, was studied.   The anomalous component is less volatile, its diffusion coeff. is smaller, its d. is greater, and its n and mol. wt. are appreciably greater than of ordinary water.   The mol. wt. of the anomalous component was detd. exptl. as 200 ± 50 and by a method of computation as 180 ± 50.   For the present, these values given for mol. wt. are merely tentative upper limit values.   The changes observed in modified water upon removal of one of the components are completely reversible.   The state of complete modification of water, i.e. a state in which the water is satd. with the anomalous component, is equally reversible; however, the time required for attaining equil. may be several days or even weeks.   M. Hoseh

REEL/FRAME

19741300

1/2 039

UNCLASSIFIED

TITLE--CORROSION RESISTANCE OF METALLIC MATERIALS IN TRIACETATE FIBER PRODUCTION -U-

PROCESSING DATE--04DEC70

AUTHOR-(02)-SRETENSKAYA, G.V., TALAYEVA, G.V.

COUNTRY OF INFO--USSR

SOURCE--(USSR). KHIM. VOLOKNA 1970, (3), 55-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CORROSION RESISTANCE, METAL CORROSION, ACETATE, SYNTHETIC FIBER, LOW CARBON STEEL, ITIANIUM ALLOY, COPPER ALLOY, STAINLESS STEEL, NICKEL BASE ALLOY/(U)KH17M3T STAINLESS STEEL, (U)OKH21N5T STAINLESS STEEL, (U)HASTELLOY NICKEL BASE ALLOY, (U)OKH23N28M3DT STAINLESS STEEL, (U)KH17N13M2T STAINLESS STEEL, (U)OKH23N28M3D3T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/E03 STEP NO--UR/0183/70/000/003/0055/0058

CIRC ACCESSION NO--AP0140305

UNCLASSIFIED

CIRC ACCESSION NO--AP0140305   UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT THE CORROSION RESISTANCE WAS STUDIED OF STAINLESS STEELS, CU AND ITS ALLOYS, NI-MO STEELS, LOW C STEELS, TI AND ITS ALLOYS IN THE MIXTS. OF CH SUB2 CL SUB2 WITH ETOH, IN THE SOLN. OF CELLULOSE TRIACETATE (I) IN 9"1 CH SUB2 CL SUB2-ETOH MIXT., IN THE RECYCLE SOLVNET (MIXT. OF CH SUB2 CL SUB2, ETOH, AND WATER), IN AN ACTIVATED CHARACOL ADSORBER WORKING AT 40-120DEGREES IN A VAPOR OF SOLVENT, AND IN DRYING OVENS. THE LOW C STEELS ARE NOT RECOMMENDED AS THE REPLACEMENT FOR CU DESPITE THEIR SATISFACTORY CORROSION RESISTANCE; THEIR CORROSION PRODUCTS COLOR I FIBERS. THE FOLLOWING METALS ARE RECOMMENDED: STEELS 1KH18N9T, KH17N13M3T, OKH21N5T, OKH2LN6M2T, TI(IN ADSORBER), TI ALLOYS, HASTELLOY C, STEEL OKH23N28M3D3T, AND STEEL KH17N13M2T OR OKH23N28M3D3T (IN DRIERS ONLY).

UNCLASSIFIED

TALAYEVA, Yu. G.

SANITARY MICROBIOLOGICAL RESEARCH DEALING WITH PREVENTION OF BACTERIAL AND VIRAL INFECTIONS

[Article by L.Ye. Korsh, G.A. Bagdasar'yan, V.V. Vlodavets, Yu.G. Talayeva, Yu.L. Ivanovich, T.Z. Artemova, R.A. Dmitriyeva (Moscow); Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 1, 1972, pp 71-78]

One of the decisive factors in nonspecific prophylaxis of bacterial and viral infections is institution of health improving hygienic measures. Prompt development of first and foremost sanitary measures is determined largely by the results of systematic sanitary microbiological investigations of environmental objects (water, air in buildings, soil).

Sanitary microbiology, which has been studying the quality of drinking water and sanitary state of reservoirs, soil, and air, jointly with hygienists, have developed sensitive methods and accumulated extensive experimental and factual data, which permitted recommendation of norms that are used in routine sanitary practice to regulate the quality of water.

From the standpoint of prophylaxis of intestinal infections, improvement of reservoirs with respect to bacterial contamination is becoming very important. One of the directions of work in this area is evaluation of the existing methodological approaches to isolation of the E. coli group of bacteria as indicators of the degree of fecal pollution of water. For this purpose, the sanitary significance of bacteria included in the E. coli group ... on the basis of fermentation of glucose at 43°, according ... (All-Union State Standard) 5216-50, for several years in different ... states of the nation, in reservoirs of different types and with ... degrees of pollution. It was established that the glucose tempera... ... permit precise differentiation between bacteria that are ... from the sanitary point of view and E. coli that have lost this ... in the South but also in the temperate zone. This was confirmed not only for the reservoirs ... with respect to fecal contamination. The quality of water in reservoirs... ... variants of Enterobacteriaceae, studied on lactose media at a tempe... ... of 37° and demonstrated best by the method of membrane filters (L.Ye.

- 106 -

USSR

UDC 513.88:513.83(07)

TALDYKIN, A. T.

"Systems and Theories of Elements"

Moscow, Sistemy i ryady elementov (English title above), "Nauka," 1971,
144 pp, ill., 49 kopecks (from Referativnyy Zhurnal -- Matematika, No 7,
July 71, Abstract No 7B673 K)

Translation: The fundamentals of the theory of nonorthogonal systems
(sequences) of elements in Hilbert space are presented; this theory
represents a generalization of the theory of orthogonal systems. Also
included are some applications. (26 bibliographic references)

1/1

Hematology

USSR

UDC 615.387.012:663.63.065/.07:612.111-086.3

TERENT'YEVA, E. I., VINOGRAD-FINKEL', F. R., MALELENOVA, N. M., and KRUTIKOV, V. A., Cytology Laboratory and Laboratory of Blood Preservation, Central Institute of Hematology and Blood Transfusion, Ministry of Health USSR, Moscow

"Electron-Microscope Study of Erythrocytes of Whole Blood Rapidly Frozen in Liquid Nitrogen with Polyvinylpyrrolidone"

Abstract: It had been established that in freezing whole blood it is best to use concentrated solutions (50%) of polyvinylpyrrolidone (PVP) (1 part solution per five parts blood), because the amount of ice that is formed decreases and the damage to erythrocytes is reduced. It is advisable to retain the initial hematocrit value of the blood as far as possible. Use of a 50 percent solution of PVP in an 0.7 percent NaCl solution containing small amounts of glucose and Na citrate was recommended. Whole blood containing a protective solution of PVP was frozen rapidly at the temperature of liquid N_2 (-196°C) and stored at that temperature for 1 hr - 12 mos. Erythrocytes of the stored blood were examined under an electron microscope after 1 hr, 1 month, and 3, 6, and 12 months of storage. After 1 hr of storage, the ultrastructure of 84-85 percent of

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TERENT'YEVA, E. I., et al, Problemy Gematologii i Perelivaniya Krovi, Vol 15, No. 4, 1970, pp 20-25

erythrocytes did not differ from that of erythrocytes in donor blood not treated with PVP or preserved by freezing. The ratio of erythrocytes with unchanged structure remained at the same level of approximately 85 percent until the end of the 12-month period of storage at -196°C.

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MIL.ESNIK, Ye. A.

ALL-UNION CONSTRUCTION INDUSTRY CONFERENCE REVIEWED

Article by Ye. A. Telesnik, candidate of Economic Sciences: "All-Union Conference on Predicting the Development and Distribution of Construction and Its Industrial Base in the USSR"; Moscow, Beton I Zhelezobeton, Russian, No 3, 1972, pp 45-48.

The fulfillment of the impressive tasks that were incorporated into the 24th CPSU Congress' decisions will require long-range planning and scientific forecasts in the various sectors of the national economy. An all-Union conference on predicting the development and distribution of construction and its industrial base was held during October in the city of construction for Construction. The conference was organized by USSR Gosstroy [State Committee for Construction (NIIES) and the Scientific Research Institute of the preceding year the Economic Institute with the participation of the USSR Gosplan [State Committee of Central and Lithuanian republic boards of the USSR Academy of Scientific and Technical Department]. Planning Committee], and the [Scientific and Technical Department] of the construction industry's NTO

There were 450 representatives of a number of ministries: planning, scientific research, and construction planning organizations; higher educational institutions; NTO; publishing organs, and others at the conference. It was opened by the chairman of the Lithuanian SSR Council of Ministers, Doctor of Economic Sciences I. A. Manyushis.

Reports were presented by candidate of Technical Sciences P. D. Gorbushin and Doctor of Economic Sciences D. M. Chudnovskiy (NIIES), Doctor of Economic Sciences V. P. Krasovskiy (Institute of Economics of the USSR Academy of Sciences), Candidate of Economic Mathematics Institute of the USSR [Central Scientific Research Institute of Economic Sciences V. I. Danilova-Danil'yeva (Central Scientific Research Institute of Technical Sciences I. P. Vikhrev (TsNII Promzdaniy, Industrial Buildings and Structures], G. N. Prozorovskiy (Minpel'stroy)

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UDC 536.423.4:546.36

BORISHANSKIY, V. M., TALEYEV, I. I., ET. AL.

"Condensation of Cesium Vapors from a Stream of Argon"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 4, Apr. 71, p. 600-605.

Abstract: The results are presented from an experimental study of the condensation of small admixtures of cesium vapor from a stream of argon. Condensation was studied with laminar flow inside a tube and for a tube bundle with turbulent flow. The experimental data obtained on precipitation of cesium are compared with calculated data, based on similarity of heat and mass transfer. This comparison, combined with wall temperature and inlet cesium concentration effects, showed that cesium concentration is influenced by the formation of mist with decreasing gas temperature. Mist formation decreases condensation.

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KARASHEV, T.B.,ARANOVICH, R.M., VAYNO, A.A., TALI, A.A.

UDC 621.382.2

"Effect Of Annealing Of Radiation Defects On The Electrical Properties Of P-N Junctions, Produced On High-Resistance P-Type Silicon By Bombardment Of Nitrogen Ions"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Non-Metallic Crystals--Collection Of Works), Minsk, "Nauka i tekhn.," 1970, pp 174-180 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B134)

Translation: Injection of nitrogen ions with an energy of 34 kev with a current density of 10 microamp/cm^2 was performed in p-type Si with a resistivity of 1500--2000 ohm. cm. and an orientation of the surface in the (111) plane; the duration of irradiation was one minute and the residual pressure in the chamber 10^{-5} mm. Annealing of radiation defects was conducted for 30 minutes at temperatures of 20--900° C. Thickness of the n-type layer amounts to 0.4 micrometer; the resistance of the layer decreases with an increase of the annealing temperature to 600° C and remains unchanged with a further increase of the temperature. The ratio of the average concentration of electrons to the concentration of injected ions $\leq$ 5 . 10^{-3}. The breakdown voltage of n-p junctions of annealed and non-annealed specimens amounts to 1500--1700 v. 6 ill. 5 ref. V.M.

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ABDULLAYEV, G. B., Corresponding Member of the USSR Academy of Sciences, GARIBOV, M. A., GADZHIYEV, N. D., and TALIBI, M. A.

UDC 621.382.004:539.293

"Selenium Moisture Element -- a New Form of Semiconductor Converter"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 2, 1973,
pp 17-21

Abstract: This theoretical paper is concerned with selenium diodes with p-n heterojunctions which are capable of producing an electrical voltage in response to a moisture or humidity stimulus. The voltage-moisture characteristic of such a device is similar to that of photosensitive diodes responding to light. The purpose of this paper is to obtain a fuller notion of the mechanism producing this moisture emf. Experiments performed on such diodes showed that the electrical effects of the moisture are the results of processes in the electron-hole junction region. It is found that, under the action of humidity, there is an imbalance of electron-hole pairs on the n-layer side. All the holes originating in the n-layer and arriving at the junction under the effect of the contact field cross over to the p region; the electrons are repelled by the contact field and remain in the n region.
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ABDULLAYEV, G. B., et al, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 2, 1973, pp 17-21

UDC 621.382.004:539.293

Expressions are found for the current and voltage as functions of the humidity, and the corresponding characteristics are plotted.

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GELLER, I. Kh., KRUTENYUK, V. A., KRUTENYUK, Ye. G., TALIBI, M. A.

"The Role of Cadmium in the Formation of the Se-CdSe Rectifying Junction"

Tr. Kafedry fiz. Mariysk. ped. in-ta, [Works of the Physics Department of
Mariysk Pedagogics Institute], Yoshkar-Ola, 1970, pp 74-87. (Translated
from Referativnyy Zhurnal Fizika, No 10, 1970, Abstract No 10 Ye 943 by
B. A. Osadin).

Translation: The influence of the thickness of Cd, its oxidation, and also
the oxidation of the Bi layer on the rectifying properties of the p-n
heterocontact of Se-rectifying elements with Cd and Bi-electrodes were
studied. After electrical forming (transmission of a reverse current), as
the thickness of the Cd layer was increased from 1.64 to 3.88 μ, a decrease
in the reverse current was observed as a result of thickening of the area
of the space charge, resulting from reactive diffusion between Cd and Se.
It is s h o w n   that the presence of a CdO film on the Se side influences
the electrophysical properties of the blocking layer both directly and as a
result of a change in the nature of the spherulitic crystallization of the

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GELLER, I. Kh., et al, Tr. Kafedry fiz. Mariysk. ped. in-ta, Yoshkar-Ola, 1970, pp 74-87

Se-rectifier elements. The CdO oxide film in Se elements is one cause of layer separation. Oxidation of the Bi surface on the side of the ohmic contact with the Se also changes the nature of spherulitic crystallization of Se. The presence of a reverse-connected rectifying BiO-Se layer with an Se-CdSe p-n junction significantly changes the static volt-ampere characteristic of the entire system. The acceptor impurity in the Se does not eliminate the anisotropy of the BiO-Se conductivity.

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UDC 621.314.634

TALIBI, M.A., KRUTENYUK, V.A., KRUTENYUK, YE. G.

"Respective Electrical Parameters Of Selenium Rectifier Elements Of Various Manufacture"

Tr. kafedry fiz. Mariysk. ped. in-ta (Works Of The Physics Faculty. Mariysk Pedagog-ical Institute), Yoshkar-Ola, 1970, pp 52-65 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B312)

Translation: A survey is made of various works in which various production processes for manufacture of selenium rectifier elements are considered. 4 tab. 54 ref. V.N.

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