MAKSIMENKO, Viktor Grigor'yevich, inzh.; ZAGORSKIY, G., red.; KUZNETSOVA, A., tekhn. red.

[Take care of your tractor]Ukhazhivai za svoim traktorom. Moskva, Mosk. rabochii, 1961. 21 p. (MIRA 15:10)
(Tractors--Maintenance and repair)

MAKSIMENKO, Viktor Grigor'yevich; ZAGORSKIY, G., red.; YAKOVLEVA, Ye., tekhn. red.

[Machinery for corn cultivation] Kompleks mashin dlia vozdelyvaniia kukuruzy. Moskva, Mosk. rabochii, 1961. 43 p. (MIRA 15:7)

(Corn (Maize)) (Agricultural machinery)

MAKSIMENKO, Viktor Grigor'yevich, inzh.; ZAGORSKIY, G., red.; USTINOVA, S., tekhn. red.

[Combine harvesting of potatoes]Kombainovaia uborka kartofelia. Moskva, Mosk. rabochii, 1962. 39 p. (MIRA 15:10)

(Potatoes—Harvesting)
(Combines (Agricultural machinery))

L 44721-65 EWT(m)/EWP(w)/EWP(v)/EPR/EWP(k) Pf-4 EM

ACCESSION NR: AR5008950 S/0124/65/000/002/V048/V048

SOURCE: Ref. zh. Mekhanika, Abs. 2V391

AUTHOR: Maksimenko, V. I.

TITLE: The use of a composite matrix method in solving problems on the strain calculation of beam columns

CITED SOURCE: Dokl. 15 Nauchn. konferentsii Novocherk. politekhn. in-ta. Stroit. sekts., 1964. Novocherkassk, 1964, 14-16

TOPIC TAGS: H beam, overhang beam, beam strain calculation, composite matrix method, beam column

TRANSLATION: The author cites approximate formulas for strain calculations of beam columns. The formulas were derived from the general formulas of G. V. Vorontsov. An H-type overhang beam is discussed as an example. Results obtained with the proposed method differed little from data obtained by integrating differential equations in infinite series. A. V. Dyatlov

SUB CODE: MM, MA ENCL: 00

Card 1/1

MAKSIMENKO, V.I.

Water-cooled rammed roof of an electric arc furnace. Lit. proizv. no.12:37-38 D '61. (MIRA 14:12)
(Electric furnaces)

BURKATSKIY, A.P., tekhnik; MAKSIMENKO, V.I., tekhnik

Dismantling of insulators. Energetik 10 no.10:25 O '62.
(MIRA 15:12)
(Electric insulators and insulation)

MAKSIMENKO, V. I.

Psychoses treated with insulin according to data of Tambov's psychiatric hospital. Nevropat. psikhiat., Moskva 19:3, May-June 50. p. 50

CIML 19, 5, Nov., 1950

MAKSIMENKO, V. I.

ZIMIN, P.N.; PISARNITSKAYA, A.M.; VISH, I.M.; MAKSIMENKO, V.I.; SAMORODOVA, A.I.

Immediate results of tissue therapy in psychic disorders. Zh. nevropat. psikhiat., Moskva 52 no.1:47-48 Jan 52. (CLML 21:5)

1. Of Tambov Oblast Psychoneurological Hospital (Head Physician—A.M. Pisarnitskaya).

MAKSIMENKO, V.I.

Intravenous infusion of hypertonic solution of boiled salt in psychiatric patients refusing to eat. Zh. nevropat. psikhiat., Moskva 52 no.1:53-55 Jan 52. (CIML 21:5)

1. Of Tambov Oblast Psychiatric Hospital (Head Physician--A.M. Pisarnitskaya).

MAKSIMENKO, V. I.

"On the Question of the Pathogenesis and Therapy of the Rejection of Food by Mental Patients." Cand Med Sci, Central Inst for the Advanced Training of Physicians, 30 Nov 54. (VM, 15 Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

MAKSIMENKO, V.I.

Clinical aspects of mental disorders in influenza. Zhur. nevr. i psikh 59 no.3:275-279 '59 (MIRA 12:4)

1. Tambovskaya oblastnaya psikhonevrologicheskaya bol'nitsa (glavnyy vrach A.M. Pisarnitskaya).
(INFLUENZA, compl. ment. disord. (Rus))
(MENTAL DISORDERS, etiol. & pathogen. influenza (Rus))

AUTHOR: Ivanov, V. Ye.; Zelenskiy, V. F.; Fayfer, S. I.; Zhdanov, S. M.; Maksimenko, V. I.; Savchenko, V. I.

TITLE: Powder magnesium and magnesium-beryllium alloys

SOURCE: Poroshkovaya metallurgiya, no. 5, 1965, 46-53

TOPIC TAGS: powder magnesium alloy, powder magnesium beryllium alloy, powder magnesium oxide containing alloy, magnesium alloy property

ABSTRACT: [illegible] magnesium oxide alloys containing 0.5 to 10% MgO and [illegible] magnesium-beryllium alloys containing 1 to 10% Be have been developed. Magnesium powder MPF-1 (-0.500 to +0.160 mm) and MPF-4 [illegible] +0.050 mm; GOST 6001-51) produced by the rapid milling method, and magnesium oxide obtained by surface oxidation of magnesium powder in air at 300—450C for several hours were used. Magnesium alloys were prepared by cold compacting the powder mixture into bars, 65 x 150 mm, under a pressure of 25—30 kn/cm² for 0.5—1.5 min. The compacted bars were then hot extruded at 500—520C with 98—99% reduction under a pressure of 20—25 kn/cm². A mixture of oil with laminated graphite was used for lubrication during hot extrusion. Magnesium oxide, even in small amounts, substan-

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L 55146-65
ACCESSION NR: AP5013251

tially improved the strength of magnesium alloys, and its effectiveness increased with increasing temperature. However, the addition of 0.3 to 5% magnesium oxide had little effect on the tensile strength at all investigated temperatures. The addition of magnesium oxide also improved the structural stability and mechanical properties of magnesium-beryllium alloys. The addition of beryllium increased resistance to high-temperature oxidation and reduced the sensitivity to overheating. The properties of magnesium-beryllium alloys excelled those of magnesium alloys. Powder magnesium-beryllium alloys have been used for shielding uranium fuel elements in nuclear reactors and have been tested successfully for 6000 hr at temperatures of 500—520C and a neutron flux of 2.10^{20} n/cm^2. Orig. art. has: 5 figures and 2 tables. [AZ]

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 02Mar64 ENCL: 00 SUB CODE: MM

NO REF SOV: 004 OTHER: 003 ATD PRESS: 4025

Card 2/2

L 09377-67 EWP(k)/EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) AT/WH/JW/JD/JG/GD

ACC NR: AT6026917 (N) SOURCE CODE: UR/0000/66/000/000/0166/0169

61
60

AUTHOR: Ivanov, V. Ye.; Zelenskiy, V. F.; Fayfer, S. I.; Savchenko, V. I.; Maksimenko, V. I.

ORG: None

TITLE: Internal friction in powder metal beryllium

SOURCE: AN SSSR. Institut metallurgii. Vnutrenneye treniye v metallakh i splavakh (Internal friction in metals and alloys). Moscow, Izd-vo Nauka, 1966, 166-169

TOPIC TAGS: internal friction, powder metal, shear modulus, elastic modulus, beryllium

ABSTRACT: Previous studies of internal friction for such powder metal systems as Cu-Fe-Ni, Cu-Mo, Cu-W, Ni + Al_2O_3, SAP and beryllium have shown that the temperature relationship of internal friction Q^{-1} (T) affects the nature of the initial components the method of producing a compact material and its structure. This paper discusses the same property, plus shear modulus and modulus of elasticity, for hot-pressed powder metal alloys of Be-BeO containing 0.3, 1.5 and 7% by weight BeO. Testing was conducted in a vacuum relaxation tester at forced torsion oscillations in resonance. Internal friction was determined according to change of oscillation amplitude along with measurement of frequency for constructing the temperature relationship of shear modulus and modulus of elasticity. Samples were vacuum annealed one

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L 09377-67
ACC NR: AT6026917

hour at 1,000°C prior to testing to remove stresses and adsorbed gases and to put the alloy in a more equilibrium state. Test results show maximums for all curves, and according to the authors, the behavior of these maximums depends on solubility of the components, their concentration, distribution and other factors. From a comparison of the high-temperature "background" of $Q^{-1}(T)$ it is clear that temperature of abrupt growth of the curve increases with oxide content while slope of curve becomes less. This "background" can serve as a criterion of increasing heat resistance with increased oxide content. Orig. art. has: 3 figures.

SUB CODE: 11 / SUBM DATE: 02 Apr 66/ORIG REF: 008

Card 2/2 mla

MAKSIMENKO, V.I.

(5)

IVANOV, V. Ye., ZELENSKIY, V. F., FAYFER, S. I., ZHDANOV, S. M., MAKSIMENKO V. I., SAVCHENKO V. I.,

"Magnesium Cermets and Magnesium-Beryllium Alloys

Report submitted for the Conference on New Nuclear Materials Technology including Non-Metallic Fuel Elements (IAEA), Prague, 1-5 July 1963

VORONTSOV, G.V. (Novocherkassk); MAKSIMENKO, V.I. (Novocherkassk)

Stability and steady strength of symmetric thin-walled three-dimensionally loaded rods. Prikl. mekh. 1 no.12: 50-56 '65. (MIRA 19:1)

1. Novocherkasskiy politekhnicheskiy institut. Submitted Dec. 14, 1964.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1740
AUTHOR MAKSIMENKO, V.M., NIKITOV, A.I.
TITLE The Multiple Production of Particles on the Occasion of Nucleon-Nucleon Collisions at 5,3 BeV.
PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.4, 727-729 (1956)
Issued: 1 / 1957

The authors theoretically computed the distribution of nucleon-nucleon collisions at 5,3 BeV over the number of secondary particles. These computations were carried out in accordance with the statistical theory of the multiple production of particles with and without consideration of isobaric states. For these computations the method suggested by V.M. MAKSIMENKO, I.L. ROSENTAL', Žurn.eksp.i teor.fis (in print) was used, which makes the exact computation of statistical weights possible.

The statistical weight of the various processes (in %) are shown in form of a table. Two further tables illustrate the further distribution of p - p and n - p - collisions obtained from the postulate for the conservation of isotopic spin. On the occasion of a p - p - collision the process NN 2π (its statistical weight is given by the table) thus leads to the charge state (pp+-) with the probability 0,300, and to the charge state (ppOO) with the probability 0,100, etc.

From the aforementioned data it is easy to obtain the distribution of non-elastic collisions over the number of charged particles (rays) which, on the

Žurn.eksp.i teor.fis,31,fasc.4,727-729 (1956) CARD 2 / 2 PA - 1740

occasion of p - p - collisions, can be compared with the experimental data obtained by W.FOWLER et al., Phys.Rev., 100, 6, 1802 (1955). This comparison shows that taking the resonance interaction of nucleons and mesons into account by the introduction of isobaric states leads to the best agreement with the experiment.

This is a nearly verbal translation of this short note. The attached tables are rather voluminous.

INSTITUTION: Physical Institute "P.N.LEBEDEV" of the Academy of Science in the USSR.

MAKSIMENKO, V.M.

CARD 1 / 2 PA - 1848

SUBJECT USSR / PHYSICS

AUTHOR BIRGER,N.G., GUSEVA,V.V., KOTEL'NIKOV,K.A., MAKSIMENKO,V.M., RJABIKOV,S.V., SLAVATINSKIJ,S.A., STAŠKOV,G.M.

TITLE The Analysis of the Cases of the Production of Mesons by Particles of Cosmic Radiation. II.

PERIODICAL Žurn.eksp.i teor.fis,31, fasc.6, 982-986 (1956)
Issued: 1 / 1957

Three such cases are described here. For the direct measuring of the energy of the particles producing electron-nucleon showers the authors in the winter of 1955-1956 added a further WILSON chamber fitted below the gap of the electromagnet to their apparatus (described by BIRGER et al., Zurn.eksp.i teor. fis, 31, 971 (1956)). The charged particle is deflected after passage through the upper chamber by the field of the electromagnet with a field strength of about 10^4 Ørsted. In the lower chamber the trace of the primary particle can be followed on a beryllium plate, and from the traces of the secondary particles the point of the production of the shower in the beryllium plate is determined. From the deviation of this point from the direction of the motion of the particle before being deflected in the magnetic field it is possible to determine the momentum and the sign of the charge of the shower-producing particle. In the case under investigation p_{max}=50 BeV/c. However, by using two WILSON chambers the "light intensity" of the device was considerably diminished. Altogether, four pictures of showers with more than four charged secondary particles were taken, from which it was possible to determine

Žurn.eksp.i teor.fis,31, fasc.6, 982-986 (1956) CARD 2 / 2 PA - 1848

the momentum of the primary particles. In the case of three showers it was possible to determine the distribution of the energy of the primary particle over the secondary particles and the angular distribution of the particles in the center of mass system.

Shower No 27.16.: The particle producing this shower, which has a positive charge, is most probably a proton. If a nucleon-nucleon collision is assumed the conservation of energy and momentum within the limits of measuring errors holds, if a neutron emitted under a small angle carried off a momentum of about 2,3 BeV/c. Reaction must then develop according to the scheme $p + p \rightarrow 3\pi^+ + 2\pi^- + p + n$. Conservation of charge excludes the possibility of pn-interaction. The angle of emission and the momentum of the particles are shown in a table.

Shower No 68.18.: The primary particle is apparently a negative pion with ~ 6,5 BeV, which has been produced in the graphite filter arranged above the measuring device. This shower was probably produced by the reaction $\pi^- + n \rightarrow 2\pi^+ + 3\pi^- + p + m\pi^0$, where m denotes the number of neutralized pions.

Shower No 6.116.: The momentum of the primary particle amounted to 54 BeV/c. The process was able to take its course according to one of the following schemes: $p + n \rightarrow 3\pi^+ + 2\pi^- + n + m + k\pi^0$ or $p + p \rightarrow 3\pi^+ + 2\pi^- + p + n + k\pi^0$.

INSTITUTION: Physical Institute "P.N.LEBEDEV" of the Academy of Science in the USSR

MAKSIMENKO, V.M.

3
1-RMK
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MULTIPLE FORMATION OF PARTICLES IN 5.3 Bev NUCLEON-NUCLEON COLLISIONS, V. M. Maksimenko and A. I. Nikishov (Academy of Sciences, USSR). Soviet Phys. JETP 4, 614-16(1957) May.

The distribution of nucleon-nucleon collisions at 5.3 Bev was calculated theoretically from the number of secondary particles, using the statistical theory of multiple-particle formation with and without the isobar states. A method was employed in the calculations with which statistical weights can be accurately calculated. The percentage statistical weights of the various processes and a classification by charged states are given. (M.H.R.)

RMK

MAKSIMENKO, V. M.

Distr: 4E3d

3753

AN ANALYSIS OF SOME COSMIC RAY MESON PRODUC-TION EVENTS. II. N. G. Birger, V. V. Guseva, S. A. Kotel'nikov, V. M. Maksimenko, G. V. Rinikov, S. I. Slavatinskii, and G. M. Ryabkov (Academy of Sciences, USSR). Soviet Phys. JETP 4, 236-41(1957) July.

Three cases of meson production by cosmic rays are described. In each one, the momentum of the primary particle was measured by a magnetic method using two cloud chambers. The analysis confirms the existence of a large spread in the number of secondary particles and in the energy carried away by π mesons. (auth)

56-4-4/52

AUTHOR MAKSIMENKO, V.M., ROZENTAL', I.L.

TITLE Some Problems of the Statistical Theory of Plural Production of Particles.
(Nekotoryye voprosy statisticheskoy teorii mnozhestvennogo obrazovaniya chastits - Russian)

PERIODICAL Zhurnal Eksperim.i Teoret.Fiziki, 1957, Vol 32, Nr 4, pp 658-666 (U.S.S.R.)

ABSTRACT Taking into account the laws of conservation of energy and of momentum, the paper under review computes the exact values of the statistical values of a system which consists of N particles of arbitrary masses. According to Fermi, the basic lines of the processes leading to plural production of particles are determined by statistical factors. This concept of the plural processes can be somewhat widened by taking into consideration the influence of the change of the matrix element. But this change has to be taken into account only very roughly, whereas the second, namely statistical, factor should be considered with as great accuracy as possible. As it is known, the statistical factor consists, in turn, of three factors. The first factor $(V/8\pi^3\hbar^3)^{N-1}$ (N denotes the number of particles) is determined by the volume V in the space of coordinates; the second factor is caused by the laws of conservation of angular momentum and of isotopic spin, and is computed with the aid of the usual rules of quantum mechanics; the third factor is the density of the states $dQ_n(E_0)/dE_0 = W_N(E_0)$ in the space of momentum. The paper under review now aims at computing the exact value

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MAKSIMENKO, V.M.

Annihilation of antinucleons [with summary in English]. Zhur. eksp. i teor. fiz. 33 no.1:232-237 Jl '57. (MLRA 10:9)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.
(Nucleons)

MAKSIMENKO, V. M.

56-7-33/66

AUTHOR MAKSIMENKO, V.M.

TITLE On the Annihilation of Antinucleons.
(K voprosu ob annigilyatsii antinuklonov.- Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 33, Nr 7 pp 232-237 (USSR)

ABSTRACT By means of the statistical theory of the multiple production of particles the present paper calculates the distribution of stars created on the occasion of the annihilation of a nucleon-nucleon pair over the nucleon of secondary particles. First, the formula for the probability of the production of n-particles furnished by the statistical theory is given. In these computations some assumptions are made concerning the effective volume V and the type of the particles created on the occasion of the annihilation. On the occasion of the annihilation only pions are created: $\tilde{N} + N \rightarrow n\pi$. Here the following three varieties are investigated:
1.) $V = 4\pi r_0^3/3$ is true, where $r_0 = \hbar/\mu c = 1{,}4 \cdot 10^{-13}$ cm applies.

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2.) In the case of the same V the interaction of the pions in the final state is taken into account. This increases the volume (n-1)-fold and leads to the occurance of additional factors $(n-1)^{n-1}$ in the above mentioned expression for the probability of the creation of n-particles.
3.) Also the interaction of pions is taken into account, but on the assumption of $r_0 = 1{,}0.10^{-13}$ cm. The computed distribution of the annihilation stars and the amount n of the pions for these varieties are shown in a table. A further table contains the distribution of the annihilation stars over the number of charged particles.

B. In the case of annihilation, besides the process $\tilde{N} + N \rightarrow n\pi$ also the process $\tilde{N} + N \rightarrow 2K + n\pi$ is possible. Here two varieties with a different selection of V is investigated:
1.) The effective radius is a priori equal to $r_0 = 1{,}4.10^{-13}$ cm;
2.) The effective radius is euwal to $r_0 = 1{,}0.10^{-13}$ cm and the correction by POMERANCHUK is taken into account. Here the K-mesons may be assumed to have the same inter-

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On the Annihilation of Antinucleons. 56-7-33/66

action as the pions. The distribution of the annihilation stars over the possible end states, the average number of pions, and the average number of K-mesons in a star are shown in tables. The result found here can be compared wich the experimental data obtained by SEGRE et al. All data of the variety A agree satisfactorily with the experiment, hut it is not possible to choose between them. In conclusion the momentum distribution of the pions created on the occasion of annihilation is computed and shown in form of a diagram. (With 1 Illustration and 5 Tables)

ASSOCIATION: Physical Institute "P.N. LEBEDEV" of the Academy of Sciences of the USSR.
(Fizicheskiy institut P.N. Lebedeva Akademii nauk SSSR)

PRESENTED BY: -

SUBMITTED: 25. January 1957

AVAILABLE: Library of Congress.

CARD 3/3

AUTHOR: BELEN'KIY, S.Z., MAKSIMENKO, V.M., NIKISHOV, A.I., ROZENTAL', I.L.

TITLE: Statistical Theory of the Multiple Production of Particles. (Statisticheskaya teoriya mnozhestvennogo obrazovaniya chastits, Russian)

PERIODICAL: Uspekhi Fiz. Nauk, 1957, Vol 62, Nr 2, pp 1 - 36 (U.S.S.R.)

ABSTRACT: Lately, the fact that on the occasion of the collision of two high-energy particles always several mesons are produced, has been more and more experimentally confirmed. A logical interpretation of the phenomenon is lacking. The various experiments to set up a theory of multiple production of particles are based upon more or less good fundamental conditions, the accuracy of which can be confirmed only theoretically.

A theory promising a special success was proposed by FERMI, who, includes the statistical course in his theory. In the present paper this theory is derived, explained, and extended.

The following individual problems are solved theoretically:
1) Interaction between particles. Selection of the "volume".
2) Isotopic spin, equality of particles, distribution of the charge states.
3) The phase-"volume"

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Statistical Theory of the Multiple Production of Particles. 53-2-1/9

4) Distribution of the secondary particles according to momenta.
5) Comparison of theoretical with experimental data on N-N and $\bar{N}$-N collisions at energies of from 1 - 5 BeV.
6) Applicability of the statistical theory to processes which are connected with the annihilation of antinucleons.

Three additions from the conclusion of this paper consisting of 35 pages, in which the following is dealt with:
a) Probability of the state of charge in the statistical theory,
b) Charge distribution and "isotopic" invariance
c) Summaries, which result from the general expression of the "phase"-volume of a system with n-particles.

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

VIL'SON, Dzh. [Wilson, J.G.], red.; BAYYER, V.N. [translator]; MAKSIMENKO, V.M. [translator]; SARYCHEVA, L.I. [translator]; BIRGER, N.G., red.; ROZENTAL', I.L., red.; MAKHIMSON, I.G., red.; KHAR'KOVSKAYA, L.M., tekhn.red.

[Physics of cosmic rays; modern achievements] Fizika kosmicheskikh luchei; sovremennye dostizheniia. Sost. gruppoi avtorov. Pod red. Dzh.Vil'sona. Moskva, Izd-vo inostr.lit-ry. Vol.3. 1958. 444 p. Translated from the English. (MIRA 13:6)
(Cosmic rays)

MAKSIMENKO, V. M. , BARASHENKOV, V. S., BARBASHEV, B. M., BUBELOV, E. G.

"Multiple Production of Heavy Particles in Two Nucleon Collisions," Nuclear Physics, Vol. 5, No. 1, Jan '58 (No. Holland Publ. Co., Amsterdam) c

Physics Inst, imeni P. N. Lebedev, Acad. Sci. USSR, Moscow - for V. M. MAKSIMENKO,

Abst: The probabilities of particle production in nucleon-nucleon collisions at an energy of E = 5 GeV have been calculated using Fermi's statistical theory and by taking into account the conservation of baryon number, strangeness, isobaric spin as well as strong resonance pion-nucleon interaction in the T = 3/2, P = 3/2 state. Various effective space volumes in which secondary particles are produced are considered.

21(7) SOV/56-35-5-46/56

AUTHOR: Maksimenko, V. M.

TITLE: The Statistical Interpretation of Experimental Data Concerning the Multiple Production of Particles at Energies of 1-20 BeV (Statisticheskaya interpretatsiya eksperimental'nykh dannykh o mnozhestvennom obrazovanii chastits pri energiyakh 1-20 BeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958 Vol 35, Nr 5, pp 1302-1304 (USSR)

ABSTRACT: The present report deals with the results obtained by comparing the experimental data on the multiple production of particles in nucleon-nucleon or pion-nucleon collisions at energies of several BeV with the theory of multiple production of particles (Ref 1) suggested by Fermi. Calculation was carried out according to two variants of the statistical theory: a) by taking the resonance interaction between nucleons and pions into account by the introduction of isobaric states, and b) without taking such an interaction into account. The radius of the effective volume is assumed to be $1.4.10^{-13}$ cm. A table contains the experimental and theoretical distributions of p-p collisions (at various energies) over the number of produced pions. Also the distributions over the number of

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The Statistical Interpretation of Experimental Data Concerning the Multiple Production of Particles at Energies of 1-20 BeV

secondary particles and the momentum spectra for nucleon-nucleon collisions at an average energy of 20 BeV were calculated in order to be able to compare the results obtained by these calculations with the experiments concerning the nuclear interactions of the protons of cosmic radiation with Be. Unfortunately, the insufficient experimental data hitherto available made a sufficiently reliable comparison of experimental and theoretical distributions over the number of secondary particles impossible. However, the momentum spectra agree within the limits of statistical errors. The calculations discussed confirm the conclusion previously drawn that Fermi's theory, by taking isobaric states into account, gives a sufficiently good description of the multiplicity and the momentum distributions of nucleon-nucleon and pion-nucleon collisions at an energy of several BeV. However, without taking isobaric states into account, Fermi's theory does not agree so well with the experiment. The angular distributions of particles, by the way, did not agree with the predictions of Fermi's theory in the here discussed experiments. The author thanks I. L. Rozental' and Ye. L. Feynberg for the interest they dis-

SOV/56-35-5-46/56

The Statistical Interpretation of Experimental Data Concerning the Multiple Production of Particles at Energies of 1-20 BeV

played in this work, and also N. G. Birger and S. A. Slavatinskiy for discussing data concerning cosmic radiation. There are 2 figures, 1 table, and 8 references, 4 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: July 10, 1958

Card 3/3

MAKSIMENKO, V. M.

INTERPRETATION OF MULTIPLE FORMATION OF MESONS AT ENERGIES OF ~ 10^{11} ev

V. M. Maksimenko and S. A. Slavatinskiy

An analysis is given of experimental data on the multiple production of mesons in nucleon-nucleon collisions with energies $\sim 10^{11}$ ev. The experimental data are correlated with calculations made on the basis of statistical theory.

In the analyzed canes the experimental data are found to be in agreement with calculations on multiplicity, and there is a considerable divergence in the impulse distribution of mesons.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959.

21(7) SOV/56-37-3-6/62

AUTHORS: Zhdanov, G. B., Maksimenko, V. M., Tret'yakova, M. I., Shcherbakova, M. N.

TITLE: Nuclear Interactions of Protons With Energies of 8.7 Bev in Photographic Emulsions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3(9), pp 620 - 633 (USSR)

ABSTRACT: The authors investigated an emulsion pile, which had been irradiated with 8.7 Bev protons at the synchrophasotron of the OIYaI (United Institute of Nuclear Research). The photographic emulsions concerned were of the NIKFI-R type, which had a thickness of 450 μ (27-30 grains/100μ). For the purpose of the present very detailed paper, about 25000 tracks with a total length of $\sim$ 300 m were evaluated. In chapter 1 the investiga tion results which make an evaluation of the inelastic inter action cross section possible are discussed and some of them are given by two tables. Table 1 contains the ranges λ for two forms of interaction: for star formation (λ = 35.0$\pm$1.3cm) and for "pure" scattering (1750$\pm$500 cm) if the scattering angle

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$>5^{\circ}$, and 750 ± 150 cm if it is between 1 and 5°. In consideration of the degree of efficiency of recording, 500 ± 100 cm is obtained. If in the former case all error sources are taken into account, $\lambda_{inelast} = 34\pm 2$ cm is obtained, and the geometric total cross section of all photographic emulsion nuclei may be estimated at $\sigma_{geom} = \pi\cdot(1.38\cdot 10^{-13}\text{cm})^2 A^{2/3}$. The second part of the paper deals with the distribution of stars according to the number of fast and slow particles. The number of "pure" charge exchange interactions (proton-neutron) without any considerable energy loss was low (3%, i.e. 17 among 520 stars). The distribution of stars over various kinds is shown by the diagram of figures 1-3. Chapter 3 describes results concerning the angular distribution of fast and slow particles (Figs 4-8) and the following chapter deals with the results of the analysis of angular distribution curves of the various types of stars. Several conclusions are drawn after comparing the results obtained with calculations based upon the statistical theory. Thus, conclusions are drawn as to the existence of interactions of the peripheral kind (nucleon-nucleon), as about 25% of the

interactions with emulsion nuclei with respect to angular distribution and to the average multiplicity of the production of fast particles corresponds to the nucleon-nucleon interaction (according to the statistical theory). The angular distribution of the "gray" tracks depends very weakly on the angular distribution of the fast particles and deviates somewhat from the distribution prevailing in the case of pion interaction with emulsion nuclei (E_π = 1.5 Bev). It may be assumed in this case that the occurrence of "gray" particles is due to a considerable extent to the secondary interaction of 1 Bev pions. From the monotonous broadening of angular distributions with growing multiplicity of fast particle production it is possible to draw conclusions as to the nature of the interaction between the primary nucleon and the nucleons in a composite nucleus.

The authors finally thank Academician V. I. Veksler for making irradiation on the synchrophasotron possible and they further thank the collaborators of the OIYaI M. I. Podgoretskiy, I. M. Gramenitskiy, K. D. Tolstov, and R. M. Lebedev for discussions, the younger scientifical collaborator of the FIAN (Institute

of Physics AS USSR) Ye. A. Zamchalova for her assistance, and further also Professor N. A. Dobrotin, I. L. Rozental', D. S. Chernavskiy, and N. G. Birger for their advice and discussions. There are 10 figures, 8 tables, and 11 references, 5 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: April 4, 1959

MAKSIMENKO, V. M. Cand Phys-Math Sci -- "Studies in the statistical theory of multiple formation of particles." Dubna, 1960. (Joint Inst of Nuclear Studies. Laboratory of High Energies) KL, 1-61, 180)

MAKSIMENKO, V.M.

Peripheral collisions of high-energy nucleons. Zhur. eksp. i teor. fiz. 38 no.1:306-307 Jan '60. (MIRA 14:9)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
(Collisions (Nuclear physics)) (Nucleons)

MAKSIMENKO, V.M.

Pp resonance interaction. Zhur.eksp.i teor.fiz. 38 no.2:652-654 F '60. (MIRA 14:5)

1. Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR.
(Mesons)

S/056/60/039/003/029/045
B006/B063

AUTHORS: Maksimenko, V. M., Rozental', I. L.

TITLE: The Covariant Statistical Theories of Multiple Production of Particles

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3(9), pp. 754-756

TEXT: The present paper gives an analysis of the possible covariant theories of multiple production of particles when assuming that the matrix element can be factorized. The authors studied the invariant function $\Phi(K_0, k_1, \ldots, k_j)$ from the equation holding for the production probability W_N of N particles in the collision of two particles:

$$W_N = \int \ldots \int \Phi(K_0, k_1, \ldots k_N)\, \delta^4(K_0 - \sum_{j=1}^{N} k_j) \prod_{j=1}^{N} \delta(k_j^2 - m_j^2) d^4k_j.$$

This function depends on the character of interaction. The interaction of particles is assumed to be so small that correlations may be neglected;

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The Covariant Statistical Theories of Multiple Production of Particles

S/056/60/039/003/028/045
B006/B063

then, $\Phi(K_o, k_1, \ldots k_N) = \prod_{j=1}^{N} \Phi_j(K_o, k_j)$. The authors restrict themselves to functions of a class for which $\Phi_j(K_o, k_j) = C(K_{o\nu} k_{j\nu})^q / (\sqrt{K_{o\nu} k_{o\nu}})^s$ holds, where C is independent of K_o and k_j, and is determined by coupling constants, masses, spins, and isotopic spins of the particles; q and s are integers. The two special cases $\Phi_j(K_o, k_j) = C(K_{o\nu} k_{j\nu})/(K_{o\nu} k_{o\nu})$ and $\Phi_j(K_o, k_j) = C$ are considered. The former corresponds to Fermi's statistical theory, and the latter to the theory by Srivastava and Sudarshan. Several formulas are derived for W_N. Finally, a further expression is obtained for W_N by assuming that the matrix element be a power function of the energy of the particles involved in the process. The authors thank Ye. L. Feynberg for his remarks. L. G. Yakovlev is mentioned. There are 7 references: 2 Soviet, 1 Japanese, and 3 US.

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The Covariant Statistical Theories of Multiple Production of Particles

S/056/60/039/003/028/045
B006/B063

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: April 13, 1960

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83776

S/056/60/039/003/037/045
B004/B060

24.6900

AUTHORS: Gol'danskiy, V. I., Maksimenko, V. M.

TITLE: Hypothesis of the Neutral ρ^0-Meson Basing on Data on the Annihilation of Antiprotons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3 (9), pp. 841-844

TEXT: The authors discuss the ρ^0-meson decay modes indicated in publications. The ρ^0-meson is classified as existing and having a zero strangeness according to Gell-Mann and Nishidjima. The three possible decay modes are written down. $\rho^0 \longrightarrow \pi^+ + \pi^- + \gamma$ (1); $\rho^0 = \pi^0_0 \longrightarrow 2\gamma$ (2); $\rho^0 = \pi^0_{10} \longrightarrow 3\gamma$ (3). Starting from the statistical theory of multiple processes, the authors compare these processes with experimental data concerning the annihilation of antiprotons (Ref. 10). The mean values of the yields are given. $\bar{n}_{\pi^+} = 1.53 \pm 0.08$;

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Hypothesis of the Neutral ρ^0-Meson Basing on Data on the Annihilation of Antiprotons

S/056/60/039/003/037/045
B004/B060

$\bar{n}_{\pi^-} = 1.53 \pm 0.08$; $\bar{n}_{\pi^0} = 1.60 \pm 0.50$. Application of the equations developed in Refs. 11, 12 leads to the following results (Figs. 1-3): The decay mode (1) does not contradict the experimental data obtained with an arbitrary ρ^0-meson mass. Decay mode (2) requires a ρ^0-meson mass of $\geqslant 3.5\ m_\pi$, and decay mode (3) can be made to fit experimental data provided the ρ^0-meson mass is at least $5.5\ m_\pi$. The emission of mesons with different signs in the annihilation of antiprotons thus excludes the existence of both π^0_0- and π^0_{10}-mesons. There are 3 figures and 15 references: 7 Soviet, 5 US, and 7 Italian.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: April 26, 1960

Card 2/2

CHERNAVSKIY, D. S., DREMIN, I. M. and MAKSIMENKO, V. M.

"Application of Diagram Method to the Calculation of Characteristics for Nucleon-Nucleon Interaction at the Energy of 300 Bev and Their Comparison with Experimental Data"

Report presented at the International Conference on Cosmic Rays and Earth Storm, 4-15 Sep 61, Kyoto, Japan.

P. N. Lebedev Physical Institute, Academy of Sciences of the USSR

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031620008-0"

GRAMENITSKIY, I.M.; DREMIN, I.M.; MAKSIMENKO, V.M.; CHERNAVSKIY, D.S.

Nucleon-nucleon interaction at 9 Bev. Zhur. eksp. i teor. fiz. 40 no.4:1093-1100 Ap '61. (MIRA 14:7)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.
(Nuclear reactions) (Nucleons)

S/823/62/000/000/006/007
B125/B102

AUTHORS: Gol'danskiy, V. I., Maksimenko, V. M.

TITLE: Annihilation of antiprotons stopped in hydrogen and the hypothesis regarding the neutral Q^o-meson

SOURCE: Nekotoryye voprosy fiziki elementarnykh chastits i atomnogo yadra. Ed. by V. D. Mikhaylov and I. L. Rozental'. Mosk. inzh.-fiz. inst. Moscow, Gosatomizdat, 1962, 118-130

TEXT: Gell-Mann's and Nishijima's original and modified classifications of elementary particles predicted the existence of a Q^o-meson with zero isotopic spin and zero strangeness. According to Ya. B. Zel'dovich (ZhETF, 34, 1644, 1958), this meson is pseudoscalar and spinless, and in any case its mass is greater than that of the neutral pion. When $m_\pi < m_{Q^o} < 2m_\pi$ the main decay mode is $Q^o_o \to 2\gamma$, and when $2m_\pi < m_Q < 3m_\pi$, the mode $Q^o_o \to \pi^+ + \pi^- + \gamma$ is also possible. The π^o_o-meson discovered by A. M. Baldin (Nuovo Cimento, 8, 569 (1958)) is regarded as a concrete version of the hypothetical

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Annihilation of antiprotons stopped...

ϱ_0^0-meson. ϱ_0^0, and especially π_0^0, may be produced by a strong interaction: $d + d \rightarrow \varrho_0^{00} + He^4$. The vectorial spin-1 ϱ_1^0-meson (vecton) must decay according to $\varrho_1^0 \rightarrow \pi^0 + \gamma \rightarrow 3\gamma$ ($\tau \sim 10^{-20}$ sec) when $m_{\varrho^0} < 3m_\pi$, and according to $\varrho_1^0 \rightarrow \pi^+ + \pi^- + \pi^0$ when $m_\varrho > 3m_\pi$ ($\tau \sim 10^{-23}$ sec). The data available on the annihilation of antiprotons stopped in hydrogen are incompatible with the existence of ϱ_0^0-mesons with $m_{\varrho^0} < 3.5\ m_\pi$ and $m_{\varrho^0} > 5.5\ m_\pi$. All attempts to discover the ϱ_0^0-meson experimentally failed; for example, no capture of stopped pions by protons could be observed, and the search for the reaction $d + d \rightarrow \pi^0 + He^4$ and for the heavy ϱ^0-meson failed. An analysis of the possible ϱ^0 decays when antiprotons are stopped in hydrogen, based on the statistical theory of multiple processes, pointed to the impossibility of ϱ^0 existing with $m_{\varrho_0^0} < 3.5\ m_\pi$ or $m_{\varrho_1^0} < 5.5\ m_\pi$. The possibility of using the distribution of effective mass ($M = \sqrt{E^2 - p^2}$) in the search for ϱ^0

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Annihilation of antiprotons stopped... S/823/62/000/000/006/007
B125/B102

(Solmitz, F. Proc. Annual Intern. Conf. on High Energy Physics at Rochester, 163, 1960) is discussed in detail. E is the total energy of the neutral annihilation products, and p is the total momentum. A single ϱ^0-meson among these products would cause a peak in dN/dM at $M = m_{\varrho^0}$. Experimental data of two-, four-, and six-pronged stars were analyzed from this point of view but the theoretically predicted particularity of the threshold of ϱ^0-meson production according to $\pi^- + p \rightarrow \varrho^0 + n$ could not be verified. There are 5 figures and 1 table.

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DOBROTIN, N.A.; ZELENSKAYA, N.S.; MAKSIMENKO, V.M.; PUCHKOV, V.S.; SLAVATINSKIY, S.A.

Pulsed spectrum of π-mesons generated in nuclear interactions involving energies of hundreds of Bev. Izv. AN SSSR. Ser. fiz. 28 no.11:1751-1754 N '64. (MIRA 17:12)

1. Firicheskiy institut im. P.N. Lebedeva AN SSSR.

L 20208-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pb-4/Pab-10 IJP(c)/APWL/
SSD/BSD/ASD(a)-5/AFMDC/AFETR/ESD(t)
ACCESSION NR: AP4038551 S/0053/64/083/001/0183/0190

AUTHOR: Gramenitskiy, I. M.; Maksimenko, V. M.; Mukhin, A. I.

TITLE: Ninth international conference on high energy physics

SOURCE: Uspekhi fizicheskikh nauk, v. 83, no. 1, 1964, 183-190

TOPIC TAGS: cosmic ray, high energy particle, pion, muon, muon capture, nucleon interaction, K meson

ABSTRACT: The Ninth international conference of Soviet-block experts on high-energy physics was held in Krakow, Poland on 24--26 September 1963 and was devoted essentially to interactions of nucleons and nuclei with particles of energies ranging from several to several hundred GeV. Three sessions were devoted to accelerator results, two to cosmic ray results, one to methods, and one to individual problems in the theory of high-energy particle interactions. It was attended by 111 scientists (Acad. Sci. SSSR - 9, Joint Inst. of Nuc. Res. - 10, Bulgaria - 4, Hungary - 5, DDR - 9, China - 2, Poland - 60, Rumania - 6, and Czechoslovakia - 6). The conference was opened by Prof. M. Miesowicz, followed by a large survey paper by Ye. L. Feynberg (see

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ACCESSION NR: AP4038551

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Ye. L. Feynberg and D. I. Chernavskiy, UFN v. 82 (1), 3, 1964). The reported papers are: G. I. Budker (Novosibirsk)- on the small high-current accelerator. A. I. Mukhin (Dubna) - muon capture by nuclei. Yu. M. Kazarinov (Dubna) - phase shift analysis of NN scattering. V. S. Yevseyev et al. - capture of polarized μ mesons by Ca^{40}. O. A. Zaymidoroga et al. - nuclear capture of muons in He^3. Yu. M. Kazarinov et al. - elastic NN interaction below 1 GeV. Z. Suchorzewska, Gajewski, and E. Zakrzewski (Warsaw) - several communications on fragments and hyperfragments. T. Visky (Bucharest) - production of subbarrier positive pions. T. Hofmokl (Warsaw) - interaction of 3.0 GeV/c antiprotons with protons. K. Lanmus (Berlin) - π^+p interaction at 4.0 GeV/c. M. Bardadin (Warsaw) - π^-p interactions with $n \geq 6$ charged particles at 9.9 GeV/c. A. Eskreis (Krakow) - secondary stars due to neutrons in hydrogen bubble chamber bombarded by 10.6-GeV/c π^+ mesons. Z. Vrana (Prague) - π^-N interaction at 7 GeV. I. Klugow (Berlin) - neutral pion production in π^-N interactions. A. Mihul (Bucharest) - π^-p reaction at low momentum transfer. E. Balla (Bucha-

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rest) - analysis of π^-p interaction at 7 GeV. E. Loskiewicz (Krakow) - production of neutral pions in xenon bubble chamber by 9 GeV/c π^- mesons. I. M. Gramenitskiy (Dubna) - generation of neutral pions by negative pions in the Coulomb field of the xenon nucleus; scattering of negative pions by quasi-free neutrons and charge exchange of negative pions by quasi-free neutrons and charge exchange of negative pions by quasi-free protons. R. Sosnowski (Warsaw) - production of strange particles in π^-p interactions. E. Bartke (Krakow) - strange particle production by 16 GeV/c negative pions. V. I. Moroz (LVE OIYaI, Dubna) - possible system of isobar states and their transition schemes. E. Skrzypczak (Warsaw) - interaction between 24 GeV protons and 17 GeV pions. Prof. M. Miesowicz, Prof. E. Gierula, S. Krzywdzinski, and K. Zaleski (Krakow) - several reports on nuclear interactions in emulsions exposed on balloons at high altitudes. V. M. Maksimenko (report of FIAN group headed by N. A. Dobrotin) - momentum spectrum of secondary pions generated in interactions with average energy 220 GeV. S. A. Slavatinskiy and I. N. Fetisov (same FIAN group) - upper limit of K^0 meson and hyperon production in interactions with nucleons of average energy 300 GeV. V. Ya. Shestoperov (report of group headed by N. L. Grigorov, Moscow, MGU) - inelastic

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ACCESSION NR: AP4038551

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interactions between nucleons and nuclei at $\bar{x}$ 10^{12} - 10^{13} eV. Yu. A. Smorodin et al. (Moscow, FIAN) - results of production of electron-photon cascades in air at 5 x 10^{10} -- 10^{13} eV. N. M. Nesterova (group headed by A. Ye. Chudakov, Moscow, FIAN) - primary cosmic radiation and search for high-energy photons. A. Zawadski (Lodz) - same but with a different procedure. B. A. Khrenov (report of group headed by S. N. Vernov) report of comprehensive study of extensive air showers. N. M. Nesterova and S. I. Nikol'skiy - possibility of deducing primary radiation composition from fluctuations of the relative intensity of a Cerenkov flash due to an extensive air shower with specified particle number. Orig. art. has 1 figure, 19 formulas, and 2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: NP NR REF SOV: 001 OTHER: 000

Card 4/4

BUGAY, A.A.; LEVKOVSKIY, P.T.; MAKSIMENKO, V.M.; PASHKOVSKIY, M.V.; ROYTSIN, A.B.

Splitting of the electron paramagnetic resonance lines Cr^{3+} in $ZnWO_4$ by an external electric field. Pis'. v red. Zhur. eksper. i teoret. fiz. 2 no. 7:344-346 O '65. (MIRA 18:12)

1. Institut poluprovodnikov AN UkrSSR, L'vov. Submitted Aug. 6, 1965.

L 4477-66 EWT(l)/EWT(m)/FCC/T/EWA(h) IJP(c) GW

ACC NR: AP5024619 SOURCE CODE: UR/0048/65/029/009/1627/1630

AUTHOR: Dobrotin, N.A.; Zelevinskaya, N.G.; Kotel'nikov, K.A.; Maksimenko, V.M.; Puchkov, V.S.; Slavatinskiy, S.A.; Smorodin, Yu. A.

ORG: none

TITLE: Phenomenological picture of secondary particle production in nucleon interactions at hundreds and thousands of BeV. /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1627-1630

TOPIC TAGS: primary cosmic ray, secondary cosmic ray, pi meson, high energy particle, particle production

ABSTRACT: The authors briefly review the experimental data on secondary particle production by primary cosmic rays. The inelastic interaction cross section is practically constant for energies from 20 to 10^5 BeV, and the inelasticity is constant and equal to 0.4-0.5 for energies up to 10^4 BeV. About 90% of the secondaries are pions. Two production mechanisms are distinguished: fireball production, and production and decay of excited nucleons (isobars). Most of the secondaries are produced by the fireball mechanism. In the hundred BeV range there is a reference system in which the pions are emitted isotropically. In this system the pion energy distribution can be represented, except for a high-energy tail, by a Bose-Planck function for a temperature of 0.7-1.0

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ACC NR: AP5024619

pion masses. In the thousand BeV region there are indications that two or more fireballs may be produced. The high-energy tail on the pion energy distribution is ascribed to decay of highly excited isobar states. It is shown that the exponents in the atmospheric energy spectra of nuclear-active particles and of high-energy photons (ascribed to pion decay) are very nearly the same. From this it is concluded that the energies of the high-energy pions are proportional to the energies of the primaries producing them. Only a few (one or two) high energy pions are produced in each interaction, and these carry 10-20 % of the incident particle energy. It is anticipated that counter installations now under construction will provide more accurate data on both pion production mechanisms in the thousand VeV range. Orig. art. has: 6 formulas, 2 figures, and 1 table.

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 007/ OTH REF: 009

Card 2/2

L 4463-66 EWT(1)/EWT(m)/FCC/T/EWA(m)-2/EWA(h) GW

ACC NR: AP5024622 SOURCE CODE: UR/0048/65/029/009/1640/1643

AUTHOR: Zelevinskaya, N.G.; Maksimenko, V.M.; Slavatinskiy, S.A.; Sokolovskiy, V.V.

ORG: none

TITLE: On the angular distribution of secondaries in elementary multiple production events at high energies /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1640-1643

TOPIC TAGS: primary cosmic ray, secondary cosmic ray, nucleon interaction, inelastic interaction, pi meson, particle production

ABSTRACT: The authors have calculated the distribution to be expected for elementary multiple production events with respect to the absolute difference between the numbers of forward and backward secondaries on the assumptions that energy, momentum, and charge are conserved, that all the secondaries are ultrarelativistic pions, and that the probability for any possible distribution of momentum among the secondaries is proportional to the corresponding volume of phase space. The details of this calculation are not discussed, but the results are presented and are compared with the observed distribution for multiple production events of multiplicity 4 or greater. Many more highly asymmetric events are observed than are predicted by the calculation, and it is concluded that statistical factors cannot account for the asymmetry of multiple

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ACC NR: AP5024622

production. One must take account of the asymmetry of multiple production when investigating the energy dependence of different features of the process. In particular, the apparent energy dependence of the inelasticity found by W. Fretter and L. Hansen (Phys. Rev., 118, 812, 1960) and by I. Kita and G. Fujioka (J. Phys. Soc. Japan, 16, 1099, 1107, 1961) can be accounted for in terms of an energy independent inelasticity and an asymmetric multiple production process. Orig. art. has: 6 formulas, 2 figures, and 1 table.

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 003

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L 21808-66 EWT(m)/T
ACC NR: AP6012192 SOURCE CODE: UR/0386/66/003/008/0340/0344

AUTHOR: Maksimenko, V. M.; Sisakyan, I. N.; Feynberg, Ye. L.; Chernavskiy, D. S.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: The cross section of quark generation

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 8, 1966, 340-344

TOPIC TAGS: quantum electrodynamics, strong nuclear interaction, nuclear cross section, collision cross section, quark

ABSTRACT: The authors show that both independent experiment and the theory yield for the quark generation cross section a value some 5 orders of magnitude larger than would follow from estimates based on the absence of quarks from pN collisions in accelerators or cosmic rays. The basic assumption is that at the particular interaction distances the qN or $q\pi$ (q = quark) interaction is essentially the usual one for NN and πN. The dependence of the cross section for the generation of pairs of heavy strongly-interacting particles on their mass can be deduced from accelerator experiments on the generation of $\tilde{p}$ (antiprotons) and $\tilde{d}$ (antideuterons), and also Σ^- and Y_1^*. From an estimate of the ratio of their numbers $n_{\tilde{p}}$ and $n_{\tilde{d}}$

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to the number of pions n_{π^-} in the p-Be collison act (which is practically the same as for the pN collision) it is possible to estimate the generation cross sections $\sigma_{\tilde{p}}$ and $\sigma_{\tilde{d}}$ in pN collision, and from them the cross sections and the number of the quarks. A theoretical justification for the estimate is given. As an example it is indicated that even for very large $n_{\pi} \sim 500$, for example in collisions of a Ca nucleus with energy $E_{lab} > 10^{12}$ ev/nucleon in emulsion, the estimate yields $n_{\tilde{q}} \approx 12$, 0.6×10^{-3}, and 1×10^{-9} for $m_{\tilde{q}}/m_N = 1$, 2, and 3, respectively. The relation derived theoretically is general and shows that the decay of any excited center into pions is always more convenient than other processes. The same holds also for electric generation, and in general for any diagram vertex in which a $q\tilde{q}$ pair is produced. Orig. art. has: 1 figure and 2 formulas.

SUB CODE: 20/ SUBM DATE: 11Mar66/ ORIG REF: 001/ OTH REF: 005

L 40995-66 EWT(1) IJP(c) WW/GG

ACC NR: AP6020205 SOURCE CODE: UR/0056/66/050/006/1510/1518

AUTHORS: Bugay, A. A.; Levkovskiy, P. T.; Maksimenko, V. M.; Pashkovskiy, M. V.; Roytsin, A. B.

ORG: Institute of Semiconductors, Academy of Sciences, Ukrainian SSR (Institut poluprovodnikov Akademii nauk Ukrainskoy SSR)

TITLE: Splitting of EPR lines of Cr^{3+} in $ZnWO_4$ by an external electric field

SOURCE: Zh eksper i teor fiz, v. 50, no. 6, 1966, 1510-1518

TOPIC TAGS: electric field, line splitting, Hamiltonian spin, ~~EPR~~ electron paramagnetic resonance

ABSTRACT: Splitting of EPR lines of Cr^{3+} in $ZnWO_4$ by an external electric field has been detected. An investigation has been made of the angular dependence of splitting (dependence of splitting value on orientation of external magnetic and electric fields with respect to crystallorgraphic axes). A Hamiltonian spin is set up describing the interaction between the system and the external electric field. Corrections to the transition frequencies have been found. The theoretical results satisfactorily describe the experimental angular dependences of the splitting. The corresponding Hamiltonian spin constants have

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ACC NR: AP6020205

been determined. A correlation effect between the angular splitting dependence and angular dependence of the EPR half-width line has been detected for the first time in the absence of an external electric field. A qualitative interpretation of the phenomenon has been described. The authors thank M. F. Deygen and V. B. Steynshleyger for their constant interest in thus work, V. A. Atsarkin for discussion of individual problems, and L. I. Datsenko for assistance in measurements. Orig. art. has: 6 figures, 9 formulas, and 2 tables. [Based on authors' abstract] [NT]

SUB CODE: 20/ SUBM DATE: 24Jan66/ ORIG REF: 007/ OTH REF: 008

Card 2/2 11b

L 12025-66 EWT(1) IJP(e) WW/GG

ACC NR: AP5028000 SOURCE CODE: UR/0386/65/002/007/0340/0340

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AUTHOR: Bugay, A. A.; Levkovskiy, P. T.; Maksimenko, V. M.; Pashkovskiy, M. V.; Roytsin, A. B.

ORG: Institute of Semiconductors Academy of Sciences, Ukrainian SSR (Institut poluprovodnikov Akademii nauk Ukrainskoy SSR)

TITLE: Splitting of EPR lines of Cr^{3+} in $ZnWO_4$ by an external electric field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. (Prilozheniye), v. 2, no. 7, 1965, 340-340

TOPIC TAGS: zinc compound, EPR spectrum, line splitting

ABSTRACT: The authors have observed the splitting of two Cr^{3+} EPR lines corresponding to transitions between the sublevels of the Kramers doublets occurring when an external static electric field E is applied to a $ZnWO_4$ crystal, in which are two nonequivalent positions of the Zn^{2+} ion replaced by the Cr^{3+} ion. These positions differ in inversion with respect to the position occupied by the zinc ion, so that the shift of the EPR line should manifest itself in the form of its splitting. The dependence of the line splitting on the orientation of an external static magnetic field H was also investigated. The experiments were made with an EPR spectrometer operating at 9380 Mc and at room temperature. The angular dependence of the line splitting, corresponding to the transition between the sublevels of the lower Kramers doublet (Fig. 1), is presented for the case when the field E is directed along the crystallographic

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L 12025-66

ACC NR: AP5028000

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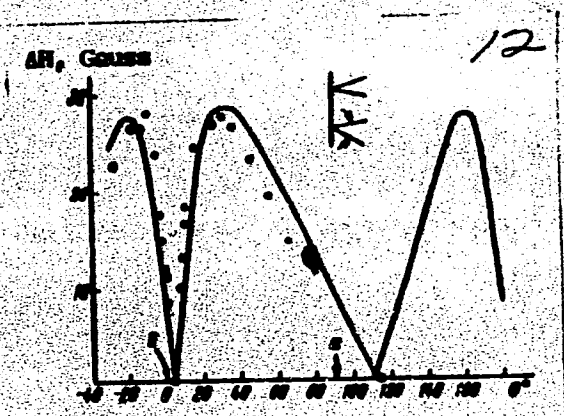


Fig. 1. Angular dependence of the EPR line splitting at E = 225 kv/cm. Continuous curve - theoretical; points - experimental values obtained with sample no. 1; circles - with sample no. 2.

axis b (y axis), and the field H changes its orientation in the (xz) plane. The experimental points shown on the plot correspond to the directly measured splitting. The results agree with calculations based on the use of a spin Hamiltonian in the form $W = W_0 + W_E$ where W_0 is the usual spin Hamiltonian, including the operator of the Zeeman energy and the energy of the crystalline field and W_E is the operator of the energy of interaction with the external electric field E. Authors thank M. F. Deygen and V. B. Shteynshleyger for continuous interest in the work, and also L. I. Datsenko and N. F. Kogdenko for help with the measurements. Orig. art. has: 1 formula and 1 figure.

SUB CODE: 20/ SUBM DATE: 06Aug65/ ORIG REF: 002/ OTH REF: 002

Card 2/2

FRANTSEVICH, I.N.; ONESIN, O.O.; SEMENOV, Yu.N.; BORODULIN, P.Ya.; ANTIPIN, L.N.; VAZHENIN, S.F.; MAKSIMENKO, V.M.; MASHNITSKIY, A.A.

Lining material for aluminum electrolytic cells. TSvet. met. 38 no.6:49-54 Je '65. (MIRA 18:10)

MAKSIMENKO, V.P. [Maksymenko, V.P.] (Kiyev)

Design of a thick square plate clamped along three sides and subjected to the action of a concentrated force. Prykl.mekh. 5 no.2:200-209 '59. (MIRA 12:9)

1. Institut stroitel'noy mekhaniki AN USSR.
(Elastic plates and shells)

MAKSIMENKO, V.P. [Maksymenko, V. P.] (Kiyev)

Bending of a thick plate. Prykl.mekh. 7 no.3:335-339 '61. (MIRA 14:6)

1. Institut mekhaniki AN USSR.
(Elastic plates and shells)

MAKSIMENKO, V.P. [Maksymenko, V.P.] (Kiyev)

Methods for determining deformations in the AG-4s glass-reinforced plastic under static loads and at normal temperature. Prykl.mekh. 9 no.2:222-227 '63. (MIRA 16:3)

1. Institut mekhaniki AN UkrSSR.
(Glass reinforced plastics--Testing)

MAKSIMENKO, V.

Championship in aquatic sports. Voen. znan. 30 no.11:16 N '54. (MIRA 11:6)

(Aquatic sports)

MAKSIMENKO, V.

Championship of young multiple-events participants. Voen.znan. 31 no.10:23 O '55. (MLRA 9:3)
(Sports)

MAKSIMENKO, V.

Motorboat racing. Voen.znan. 31 no.11:23 N '55. (MLRA 9:5)
(Motorboat racing)

MAKSIMENKO, V.

Divers-rescuers. Voen.znan. 31 [i.e. 32] no.4:19 Ap '56.(MLRA 9:8)
(Lifesaving) (Emel'ianov, Alekseĭ Ivanovich)

MAKSIMENKO, V.

Diving. Voen.znan. 31 no.8:22 Ag '56. (MLRA 9:11)
(Diving)

MAKSIMENKO, Vasiliy Pavlovich. Prinimali uchastiye: KAMENSKIY, V.K.; SUROVIKIN, V.D., vrach-fiziolog; SHEFTEL', M.A., vrach; ZAOMEGIN, V.N., vodolaznyy spetsialist; KUZNETSOV, I.I., vodolaznyy spetsialist; SHTORM, V.M., vodolaznyy spetsialist; IGOSHIN, M.G., red.; KARYAKINA, M.S., tekhn.red.

[Manual for divers engaged in rescue work] Posobie dlia vodolaza-spasatelia. Moskva, Izd-vo DOSAAF, 1957. 158 p. (MIRA 13:8)
(Diving, Submarine)

KUZNETSOV, I.; MAKSIMENKO, V.

Lightweight divers. Voen. znan. 37 no. 1:11-12 Ja '61.
(MIRA 14:1)

(Diving, Submarine)

KUZNETSOV, I.; MAKSIMENKO, V.

Deep sea divers. Voen.znan. 37 no.7:19-20 Jl '61. (MIRA 14:6)
(Diving, Submarine)

MAKSIMENKO, V.

Competition of courageous men. Voen. znan. 38 no.11:31-32 N '62. (MIRA 15:11)
(Aquatic sports) (Diving, Submarine)

L 25840-66 EWT(m)/EWA(d)/EWP(t) LJP(c) JD

ACC NR: AR5019275 SOURCE CODE: UR/0277/65/000/007/0011/0011

AUTHOR: Savchenko, N. V.; Novokreshchenov, P. D.; Maksimov, V. P.

ORG: none

TITLE: Effect of low-melting metal plating on the mechanical properties of metals affected by high, quick-change temperatures

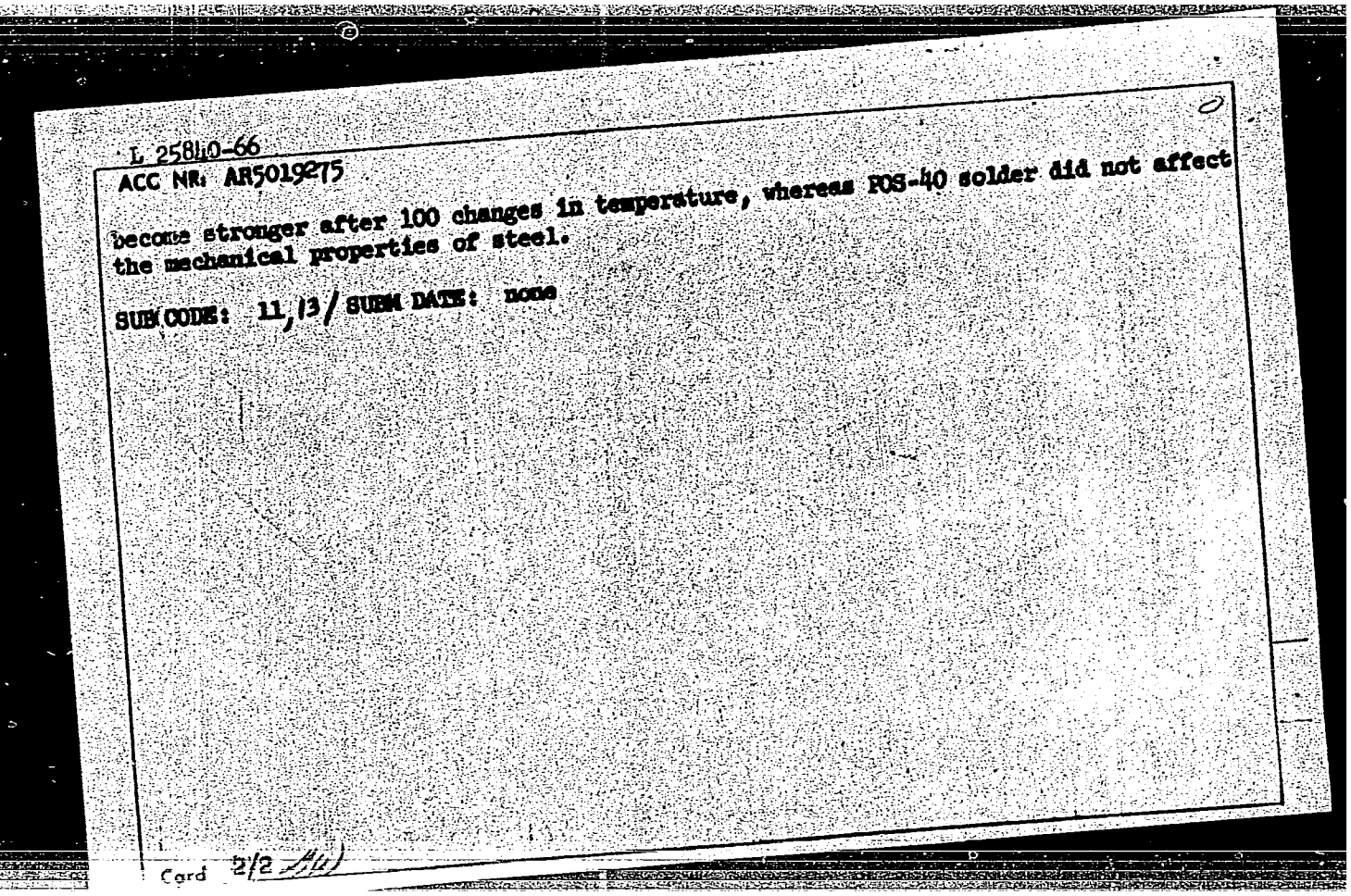
SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin, Gidroprivod. Otdel'nyy vypusk, Abs. 7.48.73

REF SOURCE: Izv. Voronezhsk. gos. ped. in-ta, v. 44, 1964, 146-149

TOPIC TAGS: steel, metal plating, bismuth, tin, cadmium, zinc, lead alloy, solid mechanical property, metallurgic testing machine

TRANSLATION: A study was made of low-melting platings (Bi, Sn, Cd, Zn and a 40% Sn + 60% Pb alloy) with regard to changes in the mechanical properties of 1 x 18H9T and Bl steels, after cyclonic thermal processings (maximum temperatures were 300, 500, 1000 and 800° with a minimum of 100°). After a certain number of temperature changes (100 and more), the samples were tested on a tensile impact testing machine of the MR-0,05 type. The effect of plating was judged by the relative decreases in the strength and ductility of the plated and non-plated samples. In all cases, plating was detrimental to the mechanical properties of 1 x 18H9T steel; Bl steel, plated with Bi and Sn,m

Card 1/2 UDC: 669.14.018.8



L 25810-66
ACC NR: AR5019275

become stronger after 100 changes in temperature, whereas POS-40 solder did not affect the mechanical properties of steel.

SUB CODE: 11,13/ SUBM DATE: none

Card 2/2 fld

MAKSIMENKO, V.P., kand.sel'skokhoz. nauk

Winter sowing of winter heat in Novosibirsk Province. Agrobiologiia no.3:458-459 My-Je '63. (MIRA 16:7)

1. Novosibirskaya oblastnaya gosudarstvennaya sel'skokhozyaystvennaya stantsiya.

(Novosibirsk Province--Wheat)

MAKSIMENKO, V.V.

Osteoma of the orbit originating in the frontal sinus. Vest.oft. 70 no.6:37-38 N-D.'57. (MIRA 11:1)

1. Zaveduyushchiy glaznym otdeleniyem 2-y Gorodskoy bol'nitsy, g. Kaliningrad.

(OSTEOMA, case reports
orbit, originating in frontal sinus)
(PARANASAL SINUSES, neoplasms
osteoma of orbit originating in frontal sinus)
(ORBIT, neoplasms
osteoma originating in frontal sinus)

MAKSIMENKO, Ya.I.

One hundred and thirtieth anniversary of the Bershad' Sugar Refinery. Sakh.prom. 30 no.8:51-52 Ag. '56. (MLRA 9:11)

1. Gaysinskiy sakharnyy zavod.
(Bershad'--Sugar industry)

MAKSIMENKO, Ye.

Hot coffee at any time. Obshchestv. pit. no.6:21 Je '61.
(MIRA 14:9)

1. Predsedatel' kulinarnogo soveta Zheleznodorozhnogo upravleniya rabochego snabzheniya Moldavskoy zheleznoy dorogi.
(Moldavia--Coffee)

LARIKOV, L.N.; MAKSIMENKO, Ye.A.

Kinetics of the anomalous growth of austenitic grains in steel.
Sbor.nauch.trud. Inst. metallofiz. AN URSR no.19:187-191 '64.
(MIRA 18:5)

ACC NR: AT6036279 (A) SOURCE CODE: UR/0000/66/000/000/0099/0104

AUTHOR: Kumok, L. M.; Larikov, L. N.; Maksimenko, Ye. A.; Yatsenko, T. K.

ORG: Institute of Metal Physics AN UkrSSR (Institut metallofiziki AN UkrSSR)

TITLE: Structural changes produced by oxidation of chromium-yttrium alloys

SOURCE: AN UkrSSR. Struktura metallicheskikh splavov (Structure of metal alloys). Kiev, Izd-vo Naukova dumka, 1966, 99-104

TOPIC TAGS: chromium yttrium alloy, metal oxidation, alloy structure, alloy oxidation rate, oxidation kinetics

ABSTRACT: The oxidation behavior at 1100--1450C of 99.9%-pure chromium and chromium-yttrium alloys containing 0.5, 1.0 or 2.0% yttrium has been studied. It was found that yttrium improves the oxidation resistance of chromium and the oxidation rate of all the alloys tested, especially that of the alloy containing 0.5% yttrium (see Fig. 1), was much lower than that of pure chromium. On all the alloys tested, a dense tightly adhering oxide layer was formed, while the oxide layer on pure chromium easily peeled off. In pure chromium, a certain quantity of chromium oxides and nitrides was formed to a depth of 650 μ in a metal oxidized at 1450C for 9 hr. In chromium-yttrium alloys, the amount of chromium oxides was much smaller

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ACC NR: AP6036279

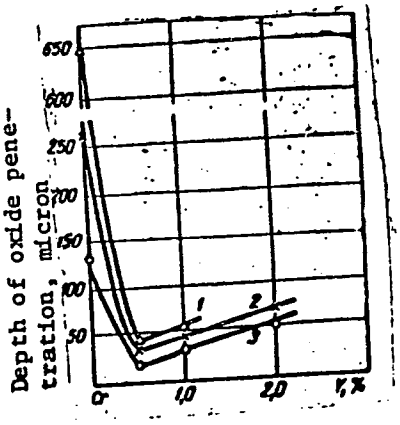

Fig. 1. Dependence of the penetration depth of oxides upon the yttrium concentration

1 —1450C for 9 hr; 2 —1400C for 20 hr; 3 —1350C for 30 hr.

and the nitrides were absent altogether. The penetration of oxygen and nitrogen into pure chromium proceeds mostly along the grain boundaries. This was not observed in the chromium-yttrium alloys. It is believed that yttrium improves the oxidation resistance of chromium primarily by a refining effect. Orig. art. has: 5 figures.

SUB CODE: 13, 11/ SUBM DATE: 11Jun65/ ORIG REF: 005/ OTH REF: 002/ ATD PRESS: 5107

Card 2/2

SOFIYAN, A.P., kand.tekhn.nauk; MAKSIMENKO, Ye.I., inzh.

Unit pressure of the track during the locomotion of a track-laying vehicle. Trakt. i sel'khozmash. 32 no.7:13-15 Jl '62. (MIRA 15:7)
(Track-laying vehicles) (Crawler tractors)

USSR / Microbiology. Microbes Pathogenic to Man and Animals. Corynebacteria. F

Abs Jour : Ref. Zhur - Biol., No. 21, 1958, No. 95208

Author : Maksimenko, Ye. S.
Inst : Odessa Scientific-Research Institute of Epidemiological and Microbiology.
Title : Materials for the Epidemiology of Diphtheria in Odessa. Report I. Analysis of Disease and Mortality Rate 1950-1955. Report II. Condition of Antitoxic Immunity in Children in 1954-1956.

Orig Pub : Tr. Odessk. n.-i in-ta epidemiol. i mikrobiol., 1957, 3, 117-127, 129-140.

Abstract : No abstract.

Card 1/1

GOLYSHEV, Georgiy Ivanovich; MESTON, Boris Leonidovich; MAKSIMENKO, Ye.V., otv.red.; PROTOPOPOV, V.S., red.; VLADIMIROV, O.G., tekhn.red.

[Fundamentals of aeronautics and aviation] Osnovy vozdukhoplavaniia i aviatsii. Leningrad, Gidrometeor.izd-vo, 1960. 289 p. (MIRA 14:1)

(Aeronautics)

MAKSIMENKO, Yu.F. (Moskva)

Some topological techniques in the study of linear structures.
Izv. AN SSSR Tekh. kib no.2:102-113 Mr-Ap'64. (MIRA 17:5)

L 24200-65 EWT(d)/EWP(k)/EWP(h)/EWP(l)/EWP(v) Pf-4

ACCESSION NR: AP5005246 S/0103/65/026/001/0188/0190

27
16

AUTHOR: Maksimenko, Yu. F.

TITLE: First all-union conference on the theory of multiloop controls

SOURCE: Avtomatika i telemekhanika, v. 26, no. 1, 1965, 188-190

TOPIC TAGS: multiloop control system, multiloop control, multiloop system synthesis, multiloop system stability, structural synthesis, multiloop control system invariance

ABSTRACT: The First All-Union Conference on the Theory of Multiloop Controls, held in Moscow on 25-28 February 1964, was attended by 284 Soviet scientists, including two Academicians, two Corresponding Members of the Ukrainian Academy of Sciences, 14 Doctors, and 41 Candidates of Sciences. Twenty-four papers and 8 notes were presented.

In his introductory remarks, Academician B. N. Petrov indicated the importance of multiloop controls in controlling complex technological processes. He stressed that multiloop controls are not a generalization

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ACCESSION NR: AP5005246

of the theory of control systems with one controlled variable, and that therefore new problems arise and new approaches are needed in the study of multiloop control systems. The largest number of papers presented at the conference dealt with problems of the structural synthesis, stability, and invariance of multiloop systems. The papers presented included the following: M. V. Meyerov: The problems of multiloop systems. L. I. Rosenoer: A variational approach to the variance problem. A. A. Krasovskiy: The entropy stability of multiloop systems. A. G. Ivakhnenko and B. A. Komorov: Undercompensation, absolute invariance, and over-compensation in automatic control systems. M. B. Ignat'yev: A method for the analytic design of multivariable automatic systems. G. M. Ulanov and Ye. B. Dudin: Combined automatic control systems with a variable structure. S. B. Yemel'yanov, V. I. Utkin, and N. Ye. Kostylyeva: A method for constructing invariant automatic control systems with a variable structure. The basic topics of discussion were problems connected with the theory of optimal processes and the invariance theory, the principle of inverse operators, and the principle of designing systems which are stable with infinitely large amplification factors. The relation of the above mentioned principles with other principles used in designing multiloop systems was also discussed.

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ACCESSION NR: AP5005246

In the resolutions of the conference, it was stressed that the theory of multiloop controls forms the theoretical basis for the automation of complex manufacturing and technological processes; it is therefore necessary to study more intensively the general principles of synthesizing multiloop systems by applying calculation methods which utilize computers. The importance of determining optimal technical means for the realization of optimal (in a certain sense) structures was also stressed.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: IE

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3171 F

Card 3/3

MAKSIMENKO, Yu.F.

Algorithm of the synthesis of multiply coupled linear automatic control systems. Trudy MINKHiGP no.52:99-119 '64.

(MIRA 18:6)

MAKSIMENKO, Z.S.

MAKSIMENKO, Z.S.

Chorioepithelioma and perforation of corpus uteri. Akush. i gin. 32 no.6:82-83 N-D '56. (MIRA 10:11)

1. Iz Odesskogo oblastnogo onkologicheskogo dispansera (glavnyy vrach N.A.Novikova, nauchnyy rukovoditel' - prof. N.I.Verkhatskiy)
(CHORIOCARCINOMA, case reports
uterus, with perf. of uterine wall)
(UTERUS NEOPLASMS, case reports
choriocarcinoma with perf. of uterine wall)

MAKSIMENKOV, A. N.

"Atlas of the Nervous and Venous Systems," 1942.