POMANSKIY, A. A., DANILOVA, T. V., DENISOV, Ye. V. and NIKOLSKIY, S. I.

"Nuclear-Active Particles in Showers with Different Number of Particles"

Report presented at the International Conference on Cosmic Rays and Earth Storm, 4-15 September 1961, Kyoto, Japan.

P. N. Lebedev Institute of Physics, Moscow, USSR

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342030003-5"

A.A. Pomanskiy

DIFFERENT CHARACTERISTICS OF EXTENSIVE AIR SHOWERS AS FUNCTIONS OF THE TOTAL OF SHOWER PARTICLES

S.I.Nikolskiy, A.A.Pomanskiy

I. Using composite apparatus, a general description of which was given at the cosmic ray conference at Varenna, a study was made (at 3860 m altitude) of the obsorption of the total particle flux of extensive air showers in a dense material close to air in its means atomic number.

The number of particles under the absorbor was measured by means of ionization chambers. Showers were registered with the total number of particles from 10^4 to 10^6.

2. An analysis has been made of the absorption of flux of shower particles in showers with different number of particles. Experimental data indicated that particle material in showers with the number of particales from 10^5 to 5×10^5 is absorbed in a dense material more intensively that particles. This more rapid absorption of particle flux in showers with the total number of particles ranging from 10^5 to 5×10^5 may be due to the relatively small number of nuclear-active particles in showers with the number of particles lyigy in this range.

This was noted in earlier experiments.

3. A number of other shower characteristics are considered. The spatial distribution both of all the charged particles and the electrons in the shower is found to be only slightly sensitive to the number of particles in the shower. According to the cascade theory and the nuclear-cascade scheme of the development of extensive air showers one might expect that with an increase in the number of particles in the shower, the function of spatial destribution would manifest a peak (parameter S would diminish).

Experimental data point to the opposite. The spatial distribution and energy spectrum of -mesons are independent of the number of particles in the shower within the range of the total number of particles 10^4 - 10^6. However, a comparison of different investigations shows that the dependence of the number of mu-mesons in the shower of the total number of particles varies slightly when passing from showers with the number of particles to a larger showers.

4. The experimental data are compared with calculations of nuclear-cascade avalanches caused by primary nucleons of energy 10^{12} -10^{16} ev.

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

L 16886-63 EPF(n)-2/EWT(m)/BDS AFFTC/ASD/SSD Pu-4

ACCESSION NR: AP3005278 S/0056/63/045/002/0268/0278

64
59

AUTHOR: Dovshenko, O. I.; Pomanskiy, A. A.

TITLE: Radiation units and critical energies for various substances

19

SOURCE: Zhur. eksper. i teoret. fiz., v. 45, no. 2, 1963, 268-278

TOPIC TAGS: radiation t-unit , bremsstrahlung, pair production, critical energy, electron-photon cascade

ABSTRACT: The values of the radiation units and critical energies are derived on the basis of current theoretical and experimental notions, and the reasons for discrepancies between the values of the radiation units and the critical energies corresponding to the most accurate current data are analyzed. The various to reconcile the calculations in the Hartree-Fock, Thomas-Fermi and Thomas-Fermi-Dirac, and Kirpichev-Pomeranchuk models are described, followed by various attempts to take into account the radiation processes occur-

Card 1/2

L 16386-63

ACCESSION NR: AP3005278

5

ring in the field of the atomic electrons. The authors' own calculated t-units for several elements are then tabulated and their assumptions compared with those of other investigators. The authors are grateful to G. T. Zatsepin, S. I. Nikol'skiy, Ye. I. Tukish, and Yé. L. Feynberg for useful discussions. Orig. art. has: 2 figures, 18 formulas, and 2 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva, Akademii nauk SSSR (P. N. Lebedev Physics Inst. Acad. Sci. SSSR)

SUBMITTED: 26Jan63 DATE ACQ: 06Sep63 ENCL: 02

SUB CODE: PH NO REF SOV: 009 OTHER: 027

Card 2/4

21 (8)

AUTHORS: Zatsepin, G. T., Nikol'skiy, S. I., Pomanskiy, A. A. SOV/56-37-1-31/64

TITLE: Decay Processes in the Development of Nuclear Cascades in the Atmosphere (Raspadnyye protsessy pri razvitii yadernykh kaskadov v atmosfere)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1(7), pp 197 - 201 (USSR)

ABSTRACT: As the energy of the primary particle is not directly measured in experiments on atmospheric showers, the development of avalanches must also be considered by giving the initial conditions in the depth of the atmosphere. The usual method of successive generations is not suitable for the solution of such problems. Nucleons and pions are assumed to participate in the nuclear cascade process. The effective cross section of nuclear collisions is assumed to be equally large for nucleons and pions. The initial conditions are assumed to be given in the depth x_0: $N(E,x_0)dE$ and $\pi(E,x_0)dE$, respectively, are assumed to denote the number of nucleons and $\pi^{\pm}$-mesons, respectively, with an energy

Card 1/4

of E, E + dE in the depth x_0. The kinetic equations are written down in the form $\frac{\partial N(E,x)}{\partial x} = -N(E,x) + \int_0^\infty \left[N(E',x)W_{NN}(E',E) + \right.$ $\left. + \Pi(E',x)W_{\pi N}(E',E)\right]dE'$, $\frac{\partial \Pi(E,x)}{\partial x} = -\Pi(E,x)(1+\frac{E_\pi}{Ex}) + \int_0^\infty \left[N(E',x)W_{N\pi}\right.$ $\left.(E',E) + \Pi(E',x)W_{\pi\pi}(E',E)\right]dE'$. W_{NN}, $W_{N\pi}$, $W_{\pi N}$, $W_{\pi\pi}$ denote the energy spectra of the particles corresponding to the second index which originate in the nuclear collision of a particle with the energy E' (which is designated by the first index). $E_\pi = Mcz_0/\tau_0\rho(z_0) = 1.4.10^{11}$ eV denotes the critical energy of the π^{+-}-mesons, at which the probabilities of nuclear collision and of decay in the depth x=1 are equal to each other; $\rho(z_0)$ denotes the density of air in g/cm^3 in the depth z_0. The solution is written in the form of series $N(E,x) = e^{-(x-x_0)}\sum_{i=0}^{\infty} Ni(E,x)$, $\Pi(E,x) = e^{-(x-x_0)}\sum_{i=0}^{\infty} \Pi_i(E,x)$. The series resulting by substi-

Card 2/4

tuting these series into the above-mentioned kinetic equations are represented step by step. In the special case $x_0 = 0$, the solutions pass over into the known solution of the method of successive approximations. In the present solution, all terms of the series are positive, and the series is always convergent if the total energy of particles at x_0 is finite. The solution is, however, more extensive than in the case $x_0 = 0$. In some cases important for the interpretation of the experimental data, the role of the decay process can be considered in a much simpler way. The authors estimate which portion of the energy of the nuclear-active component (which is present in the showers at the altitude of the Pamir station) is consumed for the formation of muons and neutrinos in the further passage through the atmosphere. According to these calculations, at an energy spectrum of the type $E^{-2}dE$ of the nuclear-active component of showers at the altitude of the Pamir, about 50% of its energy must be used up for the generation of muons and neutrinos, thus,

being missing for the development of cascades. This conclusion is almost independent of the mechanism of the elementary process of nuclear collisions. There are 1 table and 6 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: February 7, 1959

DOVZHENKO, O.I.; POMANSKIY, A.A.

Cascade units and critical energies for various substances.
Zhur. eksp. i teor. fiz. 45 no.2:268-278 Ag '63. (MIRA 16:9)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Bremsstrahlung) (Electrons)

DOVZHENKO, O.I.; POMANSKIY, A.A.

Cascade units and critical energies for various substances.
Zhur. eksp. i teor. fiz. 45 no.2:268-278 Ag '63. (MIRA 16:9)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Bremsstrahlung) (Electrons)

POMANSKIY, A.A.

The study of cosmic rays; a congress in Moscow. Vest. AN SSSR 33 no.12:83-85 D '63. (MIRA 17:1)

POMANSKY, A. A.

FLUCTUATIONS IN FLUX DENSITIES OF MU-MESONS IN AIR SHOWERS AT 3860mABOVE SEA LEVEL
S.I. Nikolsky, A.A. Pomansky, E.A. Tuknish

1. Fluctuations in the density of nu-mesons have been studied by the statistical method in the interval of 20-60 m from the axes of extensive air showers with the total number of particles $\geq 10^5$. Discharge coincidences were registered in three groups of counters placed under a filter made of 25 cm of lead and 2 cm of iron. Each group was $\sim$0.8 m^2 in area. The position of the axis and the total number of Particles in extensive air showers accompanying triple coincidences were determined by means of hodoscope counters placed in 9 points.
2. A comparison of the observed spectrum of extensive air showers that accompany triple coincidences produced by mu-mesons (and nuclear-active particles), with the spectrum calculated with account taken of the statistical fluctuations in the number of mu-mesons in extessive showers with the number of particles $> 3 \times 10^5$.

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

20451
S/056/61/040/002/004/047
B113/B214

9.9843

AUTHORS: Denisov, Ye. V., Zatsepin, V. I., Nikol'skiy, S. I., Pomanskiy, A. A., Subbotin, B. V., Tukish, Ye. I., Yakovlev, V. I.

TITLE: Observation of nuclear-active particles and electron-photon avalanches with energies greater than 10^{12} ev at a height of 3860 m above sea level

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 2, 1961, 419-425

TEXT: The nuclear-active and electron-photon component of high-energy cosmic radiation were studied to obtain additional data on the nature of nuclear interaction at energies $\geqslant 10^{13}$ ev. The observations were made in 1959 on the Pamir. The detector consisted of four rows of ionization chambers between which were placed lead and carbon, and over which were 10 hodoscope groups containing 12 counters (330 cm^2 each). Besides, two cylindrical chambers were placed at a distance of 7 m from the middle of this setup, a hodoscopic point and detector of the energy density of the

Card 1/3

Observation of nuclear-active...

electron-photon component were at a distance of 18 m from the center and served to study the fluctuations of the particle flux. If the axis of the extensive atmospheric shower hits the recording area of the detector, the number of particles in the shower may be determined from the formula $N = 1000\ \varrho$, where ϱ is the effective particle density of the particle flux per m^2. Assuming that in every event, nucleons and pions impart 1/3 of their energy to the new resulting pions, the energy of the nuclear-active particles was found to be given by $E \sim 2.3 \cdot 10^8 N^{1.04}$ ev which holds for the range 10^{11} ev $\leq E \leq 5 \cdot 10^{14}$ ev. In this energy range, the nuclear interaction cross section does not decrease with the increasing energy of the nucleons involved. From a comparison with the experimental data of other papers, the integral energy spectrum of the nuclear-active particles in the range $10^{12} \div 10^{13}$ ev can be expressed in the form $f(E) \sim E^{-n}$, where $n = 1.57 \pm 0.1$. For energies of nuclear-active particles $< 10^{13}$ ev, the energy spectra are determined from the spectral form of the primary particles with the help of the mean free path for nucleon interaction and the value of the inelasticity coefficient. In the intermediate range, the

Card 2/3

energy spectrum is not an exponential function, and is determined from the fluctuation in the number of collision events and in the value of the inelasticity coefficient, and also from the accuracy of energy measurement in each individual event of the recording of nuclear-active particles. Professors N. A. Dobrotin and G. T. Zatsepin are thanked for discussions; G. Ya. Goryacheva, G. V. Grishina, G. V. Minayeva, L. A. Miroshnichenko, A. M. Mozhayev, N. M. Nesterova, V. I. Sokolovskiy, and A.Ye.Subbotina are thanked for participation in the work. There are 4 figures and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc.

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

SUBMITTED: July 12, 1960

NIKOL'SKIY, S.I.; POMANSKIY, A.A.

Calculating the mean characteristics of wide atmospheric showers of cosmic rays. Zhur.eksp.i teor.fiz. 39 no.5:1339-1346 N '60. (MIRA 14:4)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Cosmic rays)

26706
S/056/61/041/005/021/038
B102/B108

24.6700

AUTHOR: Pomanskiy, A. A.

TITLE: Some characteristics of extensive air showers

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 5(11), 1961, 1556-1561

TEXT: The present paper is a continuation of previous investigations (S. I. Nikol'skiy. Ref. 1: A. A. Pomanskiy. Tr. Mezhdunarod. konf. po kosmich. lucham, t. 2, 1960, str. 235; Ref. 2: ZhETF, 39, 1339, 1960) in which good agreement was found between calculation and experiment for the electron-photon component of extensive air showers. However, this agreement was not found for the nuclear-active component with $N \geq 10^5$ at mountain level. The divergence concerned the energy fluxes carried by this component and was due to assumptions on inelastic nucleon scattering and the number of non-pionic secondary particles. These facts, as well as latest experimental results, are now taken into account. The new photo-emulsion results by Zh. Koba and Sh. Takagi (UFN, 70, 287, 1960) and the fact that nucleons, antinucleons and pions are produced in the inter-

Card 1/4

Some characteristics of extensive...

mountain levels refer to the Pamir (3860 m). A comparison with the results of Ref. 2 shows that in most cases the latter agree better with the experiments. The results show that the decrease of the fraction of energy imparted to a pion with increasing E_0 does not agree with experimental data concerning the dependence of extensive air showers on altitude. The number of nuclear-active particles in such showers depends considerably on the fraction of baryons among the secondary particles produced in an elementary nuclear interaction event. The author thanks S. I. Nikol'skiy, G. T. Zatsepin and Ye. I. Tukish for discussions. E. V. Gedalin (ZhETF, 40, 178, 1961) is mentioned. There are 4 figures, 2 tables, and 12 references: 9 Soviet and 3 non-Soviet. The reference to the English-language publication reads as follows: A. Ueda, C. B. A. McCasker. Nucl. Phys., 26, 35, 1961.

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

SUBMITTED: May 19, 1961

POMANSKIY, A.A.

Some characteristics of extensive air showers. Zhur. eksp. i teor. fiz. 41 no.5:1556-1561 N '61. (MIRA 14:12)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.
(Cosmic rays)

86906

S/056/60/039/005/023/051
B006/B077

9.9843

AUTHORS: Nikol'skiy, S. I., Pomanskiy, A. A.

TITLE: Calculation of the Averaged Characteristics of Extensive Atmospheric Cosmic Ray Showers

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 5(11), pp. 1339-1346

TEXT: The present paper deals with a calculation of nuclear-cascade showers containing a given number of electrons at the observation level and also with a study of the distribution of the production altitude of extensive air showers containing total numbers of particles of 10^4, 10^5, and 10^6 at sea level (Moscow) and at an altitude of 3860 m (Pamir). The primary particles of such showers have an energy of 10^{12} to 10^{16} ev. The calculations are based on the following assumptions: The nuclear cascade consists of nucleons and charged pions which cause, in nuclear interactions, the production of neutral pions; the number of charged pions is also decreased because of $\pi \to \mu$ decay. Other nuclear particles are

Card 1/4

Calculation of the Averaged Characteristics of Extensive Atmospheric Cosmic Ray Showers

supposed not to be produced. The elementary event of nuclear interaction of primary particles with $E_0 > 10^{13}$ ev is considered by means of the hydrodynamic model, travelling waves being taken into account. The relations used for describing nuclear interaction events of nucleons with $E_0 < 10^{13}$ ev differ from those for $E_0 > 10^{13}$ ev only by an additional assumption on the particles corresponding to the travelling wave: they are supposed to be nucleons. For charged-pion interactions with $E_0 < 10^{13}$ ev the same hydrodynamic model is used, but without travelling waves being taken into account. The mean free path for nuclear interactions in air is taken to be 75 g/cm^2. $3.7 \cdot 10^9$ ev is taken as the minimum energy of particles involved in nuclear-cascade processes. A number of characteristics of these showers are averaged over various production altitudes and compared with the corresponding experimental data: The theoretical values are within the statistical limit of error of the latter. Considerations and comparisons are discussed by using diagrams and tables. Fig. 3 shows, e.g., the probability W that one shower observed at Pamir (the two upper diagrams)

or Moscow (the two lower diagrams) with a given number of particles N is produced at a certain depth of the atmosphere. Fig. 4 shows the production probability of a shower with $N = 10^5$ as a function of E_0. The authors thank Professor G. T. Zatsepin for discussions and G. Ya. Goryacheva for computations. N. L. Grigorov and V. Ya. Shestoperov are mentioned. There are 5 figures, 4 tables, and 19 references: 16 Soviet, 2 US, and 1 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: June 3, 1960

Legend to Table 3: 1) Altitude, 2) Energy of the nuclear shower component, 3) calculated, 4) experimental.
Legend to Table 4): 1) Altitude, 2) Energy of the electron-photon component of the shower, 3) calculated, 4) experimental, 5) mean total energy carried away by nuclear particles of a shower of N particles at the observation level x_0.

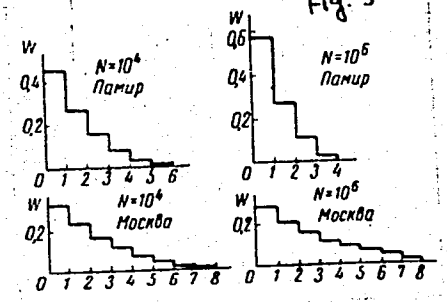
86906

S/056/60/039/005/023/051
B006/B077

Таблица 3

N	1 Высота, м	2 Энергия ядерно-активной компоненты ливня, eV: 3 расчет	4 опыт
10^4	3860	$6 \cdot 10^{12}$	$\sim 4{,}4 \cdot 10^{12}$
	0	$8{,}8 \cdot 10^{12}$	$> 1{,}7 \cdot 10^{12}$
10^5	3860	$4{,}6 \cdot 10^{13}$	$\geqslant 1{,}1 \cdot 10^{13}$
	0	$7{,}7 \cdot 10^{13}$	$> 2 \cdot 10^{13}$
10^6	3860	$4 \cdot 10^{14}$	$\sim 2{,}3 \cdot 10^{14}$
	0	$8{,}2 \cdot 10^{14}$	$\geqslant 1{,}2 \cdot 10^{14}$

Fig. 3



Card 4/4

Таблица 4

N	1 Высота, м	2 Энергия электронно-фотонной компоненты ливня, eV: 3 расчет	4 опыт	$\bar{\varepsilon}(N, x_0)$, eV 5
10^4	3860	$2{,}8 \cdot 10^{13}$	$2{,}3 \cdot 10^{12}$	$4{,}1 \cdot 10^{12}$
	0	$2{,}3 \cdot 10^{12}$	$2 \cdot 10^{12}$	$3{,}5 \cdot 10^{12}$
10^5	3860	$3{,}2 \cdot 10^{13}$	$2{,}3 \cdot 10^{13}$	$3{,}8 \cdot 10^{13}$
	0	$2{,}4 \cdot 10^{13}$	$2 \cdot 10^{13}$	$3{,}5 \cdot 10^{13}$
10^6	3860	$3{,}4 \cdot 10^{14}$	$2{,}2 \cdot 10^{14}$	$4{,}1 \cdot 10^{14}$
	0	$2{,}5 \cdot 10^{14}$	$2 \cdot 10^{14}$	$3{,}5 \cdot 10^{14}$

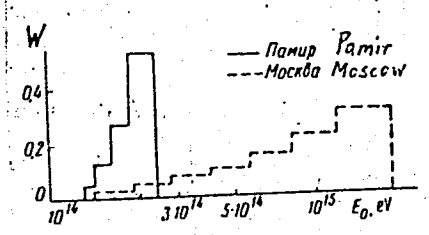


Рис. 4

L 21779-65 EEC-4/EWG(j)/EWG(v)/EWA(h)/EWT(l)/EWT(m)/EEC(t)/FCC/T/EWA(d) Pe-5/
Pi-4/Po-4/Pq-4/Pac-4/Pae-2/Peb IJP(c)/SSD/AFWL/AFMDC/AFETR/ESD(t) Pb-4
GW/WS

ACCESSION NR: AP5004253 S/0030/64/000/011/0104/0107

AUTHOR: Pomanskiy, A. A.

TITLE: Conference on cosmic rays

SOURCE: AN SSSR. Vestnik, no. 11, 1964, 104-107

TOPIC TAGS: cosmic ray, cosmic ray conference, neutrino physics, terrestrial radiation belt

ABSTRACT: The annual conference on cosmic rays, organized this year by the Kola Branch of the Academy of Sciences SSR, was held in Apatity, 24-29 August 1964. It was noted that the Polar Geophysical Institute of the Kola Branch has been active in high-altitude cosmic ray research for some time and is now working in cooperation with French scientists in recording cosmic rays at magnetically conjugate points. New continual-operation instrumentation has been developed which will be especially useful in investigating cosmic ray variations. Listed below are some of the contributors, together with the subjects of their reports. B. M. Pontecorvo and G. T. Zatsepin. Neutrino physics, including detection methods and prospects in neutrino astronomy. G. Ye. Kocharov and V. A. Kuz'min. Relationship

Card 1/2

L 21779-65

ACCESSION NR: AP5004253

12

between solar neutrino radiation and the temperature and state of matter in the interior of the sun. Ye. V. Gorchakov. Terrestrial radiation belts. A. N. Charakhch'yan and L. I. Dorman. Solar cosmic rays. V. L. Ginzburg and S. I. Syrovatskiy. Origin of cosmic rays. A. K. Lavrukhina. Formation of radioactive isotopes in meteoritic matter under the influence of cosmic rays, with special reference to the lunar surface. V. S. Murzin. Effect of errors in the determination of the energy of a primary particle on the measurement of various characteristics of nuclear interactions in cosmic rays. N. N. Roynishvili and I. V. Mandritskaya. Analysis of experimental data subject to distributions of the $x^{m}dx$ type.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: AA

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3160-F

Card 2/2

2c

L 27825-65 EWG(j)/EWT(m)/FCC/T IJP(c)
ACCESSION NR: AT4049951 S/2504/64/026/000/0017/0117

AUTHOR: Vavilov, Yu.N.; Dovzhenko, O.I.; Nesterova, N.M.; Nikol'skiy, S.I.; Pomanskiy, A.A.; Tukish, Ye.I.; Yakovlev, V. I.

62
14
B+1

TITLE: Extensive cosmic ray air showers 19

SOURCE: AN SSSR. Fizicheskiy institut. Trudy*, v. 26, 1964. Kosmicheskiye luchi (Cosmic rays), 17-117

TOPIC TAGS: air shower, cosmic radiation, pi meson, secondary particle, nuclear cascade, nucleon, hodoscopic counter, Wilson chamber, ionization chamber, Cerenkov radiation, cosmic ray burst, air shower core, mu meson

ABSTRACT: The question of air showers is treated at length on the basis of work done from 1952 to 1959. Pp. 18-39 deal with methods of studying extensive air showers. The method used by the 1952 Pamir expedition is described. Individual sections deal with each of the following: the method of correlated hodoscopes used in the measurement of shower particle flux at the observation level; hodoscope detectors of μ-mesons and nuclear-active particles; the use of ionization chambers for the study of air showers; observation of Cerenkov radiation in extensive showers; and the use of the Wilson cloud chamber and scintillation counters in the study of air showers. Pp. 39-72 deal with the composition of extensive air showers.

Card 1/3

L 27825-65

ACCESSION NR: AT4049951

Individual sections are devoted to: radial distribution of charged particles; shower spectra with regard to number of particles at observation height (3860 meters); energy spectra of electron-photon components; energy flux of electron-photon components; radial distribution of nuclear-active particles and their number in showers with various numbers of charged particles at observation level; energy and composition of active particles; radial distribution of μ-mesons and their number in extensive air showers with various numbers of charged particles; μ-meson energy spectra; radial distribution of Cerenkov radiation; energy expended by particles at observation level; and fluctuation of Cerenkov bursts. Pp. 73-92 deal with air-shower cores and high-energy nuclear-active particles with individual sections devoted to: core structure; high-energy nuclear-active particles; fluctuations in energy flux in air-shower cores; and primary cosmic radiation. Pp 92-107 deal with the development of nuclear-cascade avalanches in the atmosphere, with sections devoted to: the nuclear-cascade process and method of evaluating an avalanche; results of calculating shower characteristics (electron-photon component and nuclear-active component); and tracking high-energy particles. Two interpretations of phenomena corresponding to primary cosmic radiation in the 10^{14} to 10^{15} ev energy range are offered: 1) an attempt may be made to explain the change in characteristics of an extensive air shower with a total number of charged particles $N \approx 5^{10}$ by a change in the electrical spectrum and composition of primary cosmic radiation in the corresponding energy interval; 2) either a change

Card 2/3

L 27825-65

ACCESSION NR: AT4049951

27

in or appearance of new auxiliary elementary processes during collision of $10^{14} - 10^{15}$ ev nucleons may be postulated. "Yu. Vavilov, O. Dovzhenko, I. Ivanovskaya, S. Nikol'skiy, Yu. Prokhorov, V. Sarantsev, Ye. Tukish, L. Bilibin, L. Vasil'ev, V. Grishin, B. Zhurkin, V. Kologrivov, A. Kuznetsov, G. Ly*mar', Yu. Plotnikov, A. Smagin and V. Filonov participated in making the measurements in the Pamirs in 1952. The measurements in 1955 and 1957 were carried out by A. Ye. Chudakov, N.M. Nesterova, V.I. Zatsepin, P.V. Vakulov, Ye. I. Tukish, Yu. N. Konovalov and V. Ya. Markov (members of the FIAN), as well as Yu. D. Volkov, Yu. V. Galaktionov, V.L. Dadykin, A.S. Korolev, V.L. Makarevich and other students at Moscow State University. The Cerenkov radiation of extensive atmospheric showers at sea level was measured by members of FIAN and MGU under the guidance of V.I. Zatsepin. The energy of nuclear active particles was calculated by Ye. A. Murzina, while Ye. P. Yudin took part in the calculation of the A2 variant." Orig. art. has: 55 figures, 13 tables and 7 formulas.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: AA

NO REF SOV: 094 OTHER: 040

Card 3/3

L 24815-65 EWT(m) DIAAP

ACCESSION NR: AT4049954 S/2504/64/026/000/0166/0191

AUTHOR: Dovzhenko, O.I.; Pomanskiy, A.A.

TITLE: Radiation units of length and critical energies

SOURCE: AN SSSR. Fizicheskiy institut. Trudy*, v. 26, 1964. Kosmicheskiye luchi (Cosmic rays), 166-191

TOPIC TAGS: electron photon cascade, pair production, screening, stopping cross section, radiation braking, radiation loss, shower unit, Born approximation, Heitler unit, bremsstrahlung

ABSTRACT: A detailed analysis is made of disagreements in values for the shower unit derived by various authors; values for shower units are given which best agree with up-to-date theoretical and experimental concepts. Individual sections are devoted to the following: 1. radiation logarithm; 2. bremsstrahlung and the formation of electron-photon pairs in a field of atomic electrons; 3. correction for error in the Born approximation; 4. limits of applicability of the Bethe-Heithler formulas; 5. ionization losses of electrons to the radiation unit in various substances (critical energy). As shown in Table 1 of the Enclosure, the values for radiation length and critical energy do not differ

Card 1/3

L 24815-65
ACCESSION NR: AT4049954 O

greatly from those obtained earlier (only for heavy elements like lead does the difference amount to about 20%); nevertheless, the revised experimental techniques of recent years and the shift from a qualitative interpretation of experiment results to rigorous quantitative evaluations require more accurate information about the passage of high-energy electrons and photons through matter. Values for t-unit and critical energy are obtained on the basis of modern theoretical concepts regarding radiation stopping cross section and pair production which have been varified by numerous experimental efforts. Orig. art. has: 57 formulas, 7 figures and 3 tables.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 00 ENCL: 01 SUB CODE: AA

NO REF SOV: 007 OTHER: 060

Card 2/3

L 24815-65

ACCESSION NR: AT4049954

ENCLOSURE: 01

element	Z	t	ε (δ=0)	ε (δ>0)
H	1	62,8	350	
He	2	93,1	250	
Li	3	83,3	180	138
Be	4	60,0	141	110
B	5	53,6	115	91
C	6	43,3	97	77
N	7	38,6	85	
O	8	34,6	75	
F	9	33,4	67,5	
Ne	11	28,2	55,5	46,5
Al	13	24,3	47	40
Si	14	22,2	44	37,5
Cl	17	19,5	36	
Ar	18	19,7	34	
K	19	17,4	31,7	27,8
Ca	20	16,3	30,4	26,7
Fe	26	13,9	23,3	20,7
Cu	29	13,0	20,9	18,8
Br	35	11,5	17,2	15,7
Ag	47	9,0	12,7	11,9
J	53	8,5	11,3	10,7
Xe	54	8,5	11,0	
W	74	6,8	8,3	8,1
Pb	82	6,4	7,5	7,4

Fig. 1. Values of t - units (in g/cm^2) and critical energies $\mathcal{E}$ (in Mev) for various elements.

Card 3/3

VAVILOV, Yu.N.; [illegible], G.I.; [illegible], I.M.; NIKOL'SKIY, S.I.; POMANSKIY, A.A.; TUKISH, Ye.I.; YAKOVLEV, V.I.

Extensive air showers of cosmic rays. Trudy Fiz. inst. 32: 17-117 '64. (MIRA 17:10)

DOVZHENKO, O.I.; POMANSKIY, A.A.

Radiation units of length and the critical energies. Trudy Fiz. Inst. 26:166-191 '64. (MIRA 17:10)

POMANSKIY, A.A.

Penetration of high-energy electrons and photons through condensed media. Izv. AN SSSR. Ser. fiz. 28 no.11:1826-1828 N '64. (MIRA 17:12)

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

POMANSKIY, A.A.

Study of cosmic rays; conference in Apatity. Vest. AN SSSR 34 no.11:104-107 N '64. (MIRA 17:12)

L 16021-66 EWT(1)/EWT(m)/FCC/EWA(h) GW
ACC NR: AT6003533 SOURCE CODE: UR/3184/65/000/007/0260/0279

AUTHOR: Abrosimov, A. T.; Blokh, Ya. L.; Pomanskiy, A. A. 31

ORG: none

TITLE: Liquid scintillation detectors with large dimensions B+1

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. Kosmicheskiye luchi, no. 7, 1965, 260-279

TOPIC TAGS: scintillation detector, scintillator

ABSTRACT: The authors point out the various advantages of liquid scintillators over crystals, gases and plastics for measurements in nuclear physics. One of the unique features of liquid scintillators is the fact that their shape is determined by that of the container. The dimensions of liquid scintillation counters may be made as large as several cubic meters. The limiting factor with respect to size is the mean free path of the scintillation light. The literature is briefly reviewed on the properties of primary and secondary soluble scintillators. Applications for various promising solvents in scintillation solutions are discussed. The factors affecting

Card 1/2

L 16021-66

ACC NR: AT6003533

the efficiency of liquid scintillators are analyzed and prospects for developing truly gigantic scintillation counters are considered.

SUB CODE: 18 SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 061

Card 2/2

L 26602-66 EWT(1)/FSS-2/FCC/EWA(d)/EWA(h) TT/GW

ACC NR: AP6012866 SOURCE CODE: UR/0030/66/000/003/0163/0166

AUTHOR: Pomanskiy, A. A.

ORG: none

TITLE: Physics of cosmic rays

SOURCE: AN SSSR. Vestnik, no. 3, 1966, 163-166

TOPIC TAGS: cosmic ray, particle interaction, primary cosmic ray, scientific satellite, nucleon interaction, nucleon, proton interaction, physics conference, K meson, mu meson, pi meson, ionization chamber, geomagnetic field, photon/Proton-1 scientific satellite

ABSTRACT: The All-Union Conference on Cosmic Ray Physics held in Moscow on 15—20 November 1965 was divided into two sections, cosmophysical investigations and nuclear investigations. The conference was primarily concerned with two subjects; the first was the launching of the scientific station "Proton-1," which yielded experimental data on the nuclear interactions of high-energy particles. Reports included results of experiments carried out by the second cosmic station "Proton-2." Data of the "Proton-1" investigations are associated with the energy spectrum of primary cosmic rays. The "Proton-1" data differ from those obtained by ground observations. The spectrum of the primary cosmic rays measured by "Proton-1," starting from particles with energy of 10^{12} ev, changes more rapidly than that obtained by shower observations.

Card 1/3

L 26602-66

ACC NR: AP6012866

Effective sections of interactions of protons with carbon atom nuclei with energies up to 10^{12} ev were discussed. "Proton-1" data show an increase of the section with growing nuclear energy, and the increase reached 50% when the energy of the colliding nucleus was $5 \cdot 10^{11}$ ev. Particle flow with energies greater than 300 Mev was found to be very intense. The "Proton-1" data on the chemical compounds of primary cosmic rays agree with those found earlier, although the intensity of nuclei of C, N, O, and heavier nuclei differs from the earlier measurements.

The second subject covered was nuclear interactions at energy levels greater than 10^{11} ev. Experimental data obtained with various detectors disagree. Concerning these discrepancies, S. I. Nikol'skiy hypothesized that a supplementary process exists in which nucleons with energies greater than 10^{13} ev deliver the majority of their energy to the electron-photon component with an effective section of 10—20 mbarns per nucleon without ionization. Nikol'skiy's resembles N. L. Grigorov's case on the formation of π^0-mesons which carry off a great deal of the energy of primary particles.

Another hypothesis was proposed by Yu. A. Smorodin. According to this hypothesis, a nucleon interacting with the nucleus of an air atom or any other matter acquires a passive state in which it remains $\tau = \tau_0 E_0$ time. $\tau_0 = 10^{-10}$ sec and E_0 is the energy of a nucleon related to its inertial mass. A nucleon with energy $E_0 = 10^{11}$ ev passes any matter without interactions with a path equal to 1.8 m.

Card 2/3

L 26602-66

ACC NR: AP6012866

S. N. Vernov and G. B. Khristiansen explained discrepancies on the basis of experiments carried out at the Scientific Research Institute of Nuclear Physics at Moscow State University studying shock spectra in an ionization chamber when cosmic rays with penetration ability of 40 and 20 m of water equivalent passed through the chamber. The spectrum of penetrating particles could not be explained by a μ-meson flow formed during decomposition of K- and π-mesons in the atmosphere, Khristiansen hypothesized that an interaction of particles whose energy is higher than 10^{13} ev causes a more rapid generation of μ-mesons than the decomposition of K- and π-mesons. Vernov hypothesized that the nucleon loses its virtual π-mesons during peripheral interactions. Heavy cosmic ray particles also lose their π-meson cloud during interactions, but their energy loss is less than that of nucleons. All hypotheses were criticized. U. S. Murzin reported on nucleophysical investigations in which he found a difference in the energy delivered from charged particles to neutral ones during interactions. In Murzin's opinion, π-mesons deliver almost all energy to photons.

Studies of the radiation zones obtained new data on the asymmetry of the geomagnetic field. The lifetime of particles in the radiation zone lasts several years. [ATD PRESS: 4234-F]

SUB CODE: 22 / SUBM DATE: none

Card 3/3 VBL C

POMANSKIY, A.A.; YUDIN, Ye.P.

Calculation of some characteristics of extensive air showers at various mean free paths for nuclear interaction. Izv. AN SSSR. Ser. fiz. 28 no.11:1904-1906 N '64. (MIRA 17:12)

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

Pomanskiy, A. N.

Category: USSR

B-9

Abs Jour: Zh--Kh, No 3, 1957, 7547

Author : Blyumberg, E. A., Pomanskiy, A. N., and Emanuel, N. M.
Inst : Academy of Sciences USSR
Title : Concentration Limits for Flame Propagation in Mixtures of Hydrogen and Oxides of Nitrogen

Orig Pub: Izv. AN SSSR, Section on Chemical Sciences, 1956, No 7, 764-770

Abstract: The region of flame propagation in mixtures of H_2 and oxides of N_2 and N_2 has been determined and is presented graphically; the mixtures were ignited by a spark. The lower concentration limit (percent H_2, first number) and the amount of N_2 (percent in mixture) required to render the mixture completely insensitive were found to be as follows: for N_2O, 5.0, 86.0, 75.0; for NO, 11.4, 60.0, 40.0; for an equilibrium mixture $2NO_2 \rightleftarrows N_2O_4$, 24.0, 87.6, 60.0. The region of flame propagation in mixtures of H_2-$N_2$0-NO has also been determined.

Card : 1/1

POMANSKIY, A.N.

Biblio
Chem

The concentration limits for propagation of a flame in mixtures of hydrogen with the nitrogen oxides. B. A. Biyumberg, A. N. Pomanskii, and N. M. Emanuel. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 779-85(English translation).—See *C.A.* 51, 4103*f*. B. M. R.

SINEGUB-LAVRENKO, A., kandidat tekhnicheskikh nauk; FRIDMAN, N, tekhnolog; POMANSKIY, B., inzhener-tekhnolog.

Textile printing by means of a photographic pattern. Prom.koop no.1:19-20 Ja '56. (MLRA 9:6)
(Textile printing)

Pomanskii, Boris A.

POMANSKIY, Boris Aleksandrovich [deceased]; FRIDMAN, Naum Yakovlevich; ALEKSAKHINA, Tat'yana Yur'yevna; TRIFONOVA, Natal'ya Vasil'yevna; BYAL'SKIY, A.L., red.; KVELCH, N.Ye., red.; BONDAREV, M.S., tekhn.red.

[Producing design on cloth; a manual for artists and masters] Tekhnologiia rospisi tkanei; posobie dlia khudozhnikov i masterov. Pod obshchi red. A.L.Bial'skogo. Moskva, Vses.koop.izd-vo, 1957. 160 p. (MIRA 11:1)

(Textile design)

POMANSKIY, B.A.

BETEKHTIN, G.A.; ZUBOVA, L.K.; POMANSKIY, B.A.; LYUBINSKAYA, A., redaktor; NATAPOV, M., tekhnicheskiy redaktor

[Technology of Russian rug making] Tekhnologiia kovrodeliia RSFSR. Moskva, Vses. kooperativnoe izd-vo, 1955. 229 p. (MLRA 8:7)
(Rugs)

POMANSKIY,N.

Standards for expenditures of budget-financed enterprises. Fin.SSSR 16 no.8:24-32 Ag'55. (MLRA 8:12)
(Finance)

ROTSHTEYN, Lev Abramovich. Prinimal uchastiye POMANSKIY, N.A..
KISMAN, N., otv.red.; FILIPPOVA, E., red.izd-va; TELEGINA,
T., tekhn.red.

[Financial planning of regional economic councils] Finansovoe planirovanie v sovnarkhozakh. Moskva, Gosfinizdat, 1959.
205 p. (MIRA 13:2)
(Finance)

POMANSKIY, N.S., inzh.

Mechanizing the unloading of frozen loose materials from open railroad cars. Mekh.i avtom.proizv. 14 no.3:35-37 Mr '60. (MIRA 13:6)

(Railroads--Technological innovations)

REMEZOV, Nil Petrovich, prof.; MAKAROV, Vasiliy Timofeyevich, prof.; POMALEN'KAYA, O.T., red.; GEORGIYEVA, G.I., tekhn. red.

[Soil science with the fundamentals of agriculture] Pochvovedenie s osnovami zemledeliia. Moskva, Izd-vo Mosk. univ. 1963. 475 p. (MIRA 16:7)
(Soil science) (Agriculture)

ZEMSKIY, Vyacheslav Alekseyevich; KLEYNENBERG, S.Ye., otv. red.; POMALEN'-KAYA, O.T., red.; GEORGIYEVA, G.I., tekhn. red.

[Animal world of Antarctica; animals and birds] Zhivotnyi mir Antarktiki; zveri i ptitsy. Moskva, Izd-vo Mosk. univ., 1960. 179 p. (Moskovskoe obshchestvo ispytatelei prirody. Sredi prirody, no.51) (MIRA 14:10)

(Antarctic regions—Zoology)

31532
S/627/60/002/000/015/027
D299/D304

3,2410 (1559, 2205, 2805)

AUTHORS: Kalachev, B. V., Nikol'skiy, S. I., Pomanskiy, A. A., and Tukish, Ye. I.

TITLE: On fluctuations in the number of μ-mesons in extensive air showers

SOURCE: International Conference on Cosmic Radiation. Moscow, 1959. Trudy. v. 2. Shirokiye atmosfernyy livni i kaskadnyye protsessy, 166-168

TEXT: The results are given of experiments for detecting fluctuations in the number of mesons and electrons in showers with number of particles $10^5 < N < 2 \cdot 10^6$. The experiments were conducted at an altitude of 3860 m (Pamir), in the fall of 1957. The apparatus consisted of hodoscoped counters, placed at 9 observation points. No fluctuations were observed which would have an appreciable effect on the mean values of the investigated quantities. The computed integral number-spectra were compared with the experimental spectra

4

Card 1/3

On fluctuations in the ...

for various distances from the shower axis. A larger number of showers with number of particles $N \lesssim 10^6$ were observed than was to be expected by the computations. This may be due either to a considerable contribution of showers, in which the density of the μ-meson component exceeds by many times the mean density as determined by Yu. N. Vavilov et al. (Ref. 2: ZhETF, 32, 6, 1319, 1957), or to the mean density having been underestimated. The second possibility is considered in more detail. Denoting the mean number of μ-mesons in the shower by $\bar{N}_\mu = \alpha N^\beta$, one obtains (in the first approximation) the formula

$$\frac{\Delta C}{C} = \left(n - \frac{\gamma}{\beta}\right)\frac{\Delta\alpha}{\alpha}$$

for $N \lesssim 10^6$; the left-hand side of the formula expresses the relative change in the number of recorded showers, and $\Delta\alpha/\alpha$ expresses the relative error in determining α. For distances of 40-50 m (as well

Card 2/3

On fluctuations in the ...

as for other distances), the quantity $\Delta C/C \simeq 0.3$, hence $\Delta\alpha/\alpha \simeq 20\%$, which does not exceed the limits of statistical error. Hence no fluctuations were observed in the experiments conducted, so as to effect the mean values of the quantities. There are 2 figures and 2 Soviet-bloc references.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute P. N. Lebedev AS USSR)

4

Card 3/3

POMANSKIY, N.S., inzh.

Unit for unloading loose and frozen goods. Makh. i avt.proizv. 18 no.8:13-16 Ag '64. (MIRA 17:10)

21537
S/627/60/002/000/020/027
D299/D304

3.2410 (2205, 2705, 2805)

AUTHORS: Nikol'skiy, S. I., and Pomanskiy, A. A.

TITLE: Dependence of various characteristics of extensive air showers on the total number of particles

SOURCE: International Conference on Cosmic Radiation. Moscow, 1959. Trudy. v. 2. Shirokiye atmosfernyye livni i kaskadnyye protsessy, 235-241

TEXT: Showers with number of particles N ranging from 10^4 to 10^6 were investigated. The showers were divided into 7 groups (according to the number of particles). It was found that the absorption of showers with $N_o > 10^5$ essentially differs from the absorption of showers with $N_o < 10^5$ (N_o denoting the total number of particles in a shower of a certain group). It was found that the nuclearactive particles, too, are not monotonically varying in the case of showers with $N \sim 10^5$. The dependence of the number of μ-mesons on the

Card 1/3

Dependence of various ...

total number of particles is more regular, yet showers with $N \sim 10^5$ exhibit a somewhat particular behavior in this respect, too. A qualitative study of these irregularities led to the conclusion of a change in the nature of elementary nuclear interactions for particle energies $E \gtrsim 10^{14}$ ev. Some quantitative results are given which would elucidate this change. A particle was considered, corresponding to a traveling wave in a hydrodynamic system. Its energy was set equal to approximately $0.8\ E_0(E_c/\mu c^2)^{1/15}$. The energy spectrum of the secondary particles was selected in accordance with statistical theory; the nucleonic component was assumed as 0.27. The method of successive generations was used for calculating the absolute intensity of extensive air showers with $N = 10^4$, 10^5 and 10^6 respectively, the energy spectrum of primary particles, the number and energy of nuclearactive particles, and shower absorption in the atnosphere, After additional computations, the authors arrived at the following conclusions: Various irregularities were

4

Dependence of various...

observed for showers with $N \sim 10^5$. These irregularities can be explained in two ways: a)In nuclear interactions, a sharp increase in the fragmentation of energy between secondary particles takes place, starting from energies of 10^{14} to $3 \cdot 10^{14}$ ev.; thereby it is necessary to assume that the elementary events called forth by π^--mesons differ from those due to the nucleons, or to postulate the appearance of some new particles; b) in collisions of nucleons with energies higher than 10^{15} ev., it is possible that a considerable energy-fraction is transmitted to the electron-photon component. These two assumptions would also explain the experimental results. There are 7 figures, 1 table and 11 references: 9 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: G. Cocconi, V. Cocconi-Tangiorgi, K. Greisen. Phys. Rev., 75, 1063, 1949.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute im. P. N. Lebedev AS USSR)

Card 3/3

POMANSKAYA, L. A. (Tula oblast Sanitation Epidemiological Station)

"Length of preservation of Listeria on environmental objects."

Veterinariya, Vol. 38, No. 12, December 1961, P. 21.

POMARANOV, SERAFIM FEDOROVICH

SAD POD ZASHCHITOY LESA (ORCHARDS PROTECTED BY FORESTS) GOR'KIY, GOR'KOVSKOYE KNIZHNOYE IZD-VO, 1955.

162 p. ILLUS., DIAGRS., GRAPHS, TABLES.

BIBLIOGRAPHICAL FOOTNOTES.

POMARANOV, Serafim Fedorovich

[Orchard with a windbreak] Sad pod zashchitoi lesa. [Gor'kii] Gor'kovskoe kn-vo, 1955. 162 p. (MIRA 9:10)

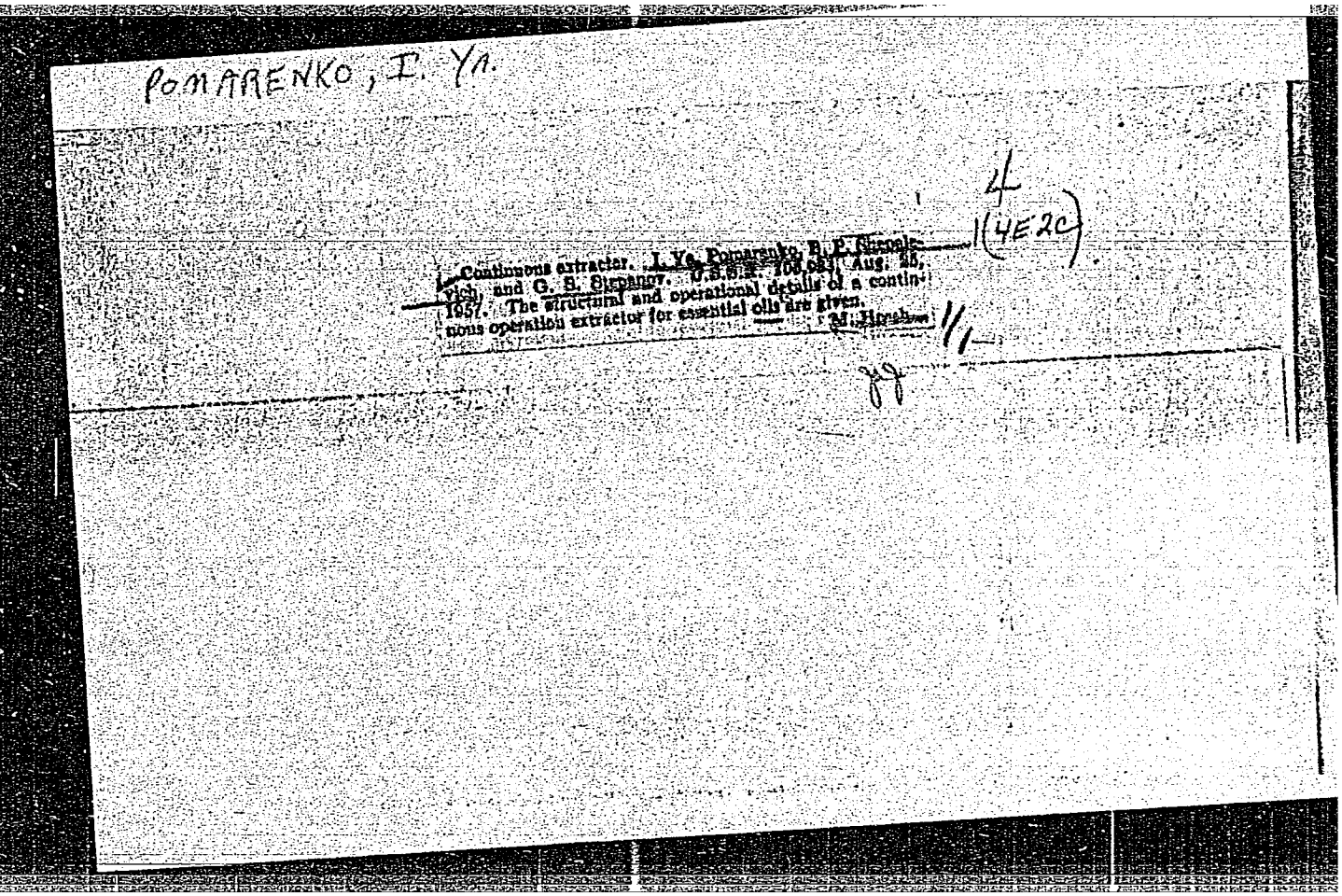
(Windbreaks, shelterbelts, etc.)
(Fruit culture)

POMARNACKI, L.; KRYSZTOFIK, E.

Bird protection in young forests as a means of strenghthening the biological resistance of forests. p. 29.

SYLWAN. (Wydzial Nauk Rolniczych i Lesnych Polskiej Akademii Nauk i Polskie Towarzystwo Lesne) Warszawa, Poland Vol. 101, no. 8, Aug. 1957

Monthly list of East European Accessions Index (EEAI), LC, Vol. 8, no. 6, June 1959
uncla.



POMARENKO, I. Ya.

4
1(4E2C)

Continuous extractor. I. Ye. Pomarenko, B. P. Shmanenkovich, and G. S. Stepanov. U.S.S.R. 108 081, Aug. 25, 1957. The structural and operational details of a continuous operation extractor for essential oils are given. M. Hrushow

11

POMARNACKI, L.

Return of the red deer to the Kielce region. Wszechswiat no.6:161-162 Je '62.

POMARNACKI, L.

Bison in Smardzewice. Wszechswiat no.3:77-78 Mr '62.

POMARNACKI, L.

"Living Places of Philomachus Pugnax in the Kielce Voivodeship," P.46. (CHRONMY PRZYRODE OJCZYSTA, Vol. 9, No. 6, Nov./Dec. 1953. Krakow, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955 Uncl.

POMARNACKI, Leopold (Radom)

From the biology of Streptopelia decaocto Friv. Wszechswiat no.4:83-86 Ap '64.

POMARNACKI, L.

Birds in the municipal part of Radom. p. 41

CHRONMY PRZYRODE OJCZYSTA. (Panstwowa Rada Ochrony Przyrody)
Krakow. Vol. 15, no. 1, Jan./Feb. 1959
Poland

Monthly List of East European Index (EEAI), LC, Vol. 8, no. 6, June 1959
Uncl.

POMARNACKI, L.

Muscardinus avellanarius L. Wszechswiat no. 1:21 Ja '64.

POMARNACKI, L.

The sandpiper, Tringa tottanus L. Wszechswiat no. 7/8:192-193 Jl-Ag '63.

POMARNACKI L.

The ortolan. Wszechswiat no.2:49-50 F '65.

POMARNATSKIY, M.A.

Geothermal characteristics of the salt dome region in the Caspian Lowland. Trudy VNIGRI no.220. Geol. sbor. no.8: 246-259 '63. (MIRA 17:3)

TORGOVANOVA, V.B.; DUBROVA, N.V.; KRUGLIKOV, N.M.; LOZOVSKIY, M.R.; POMARNATSKIY, M.A.; KROTOVA, V.A.; nauchnyy red.; DOLMATOV, P.S., vedushchiy red.; YASHCHURZHINSKAYA, A.B., tekhn.red.

[Paleozoic and Mesozoic waters and gases in Western Siberia] Vody i gazy paleozoiskikh i mesozoiskikh otlozhenii Zapadnoi Sibiri. Leningrad, Gos.nauchn.-tekhn.izd-vo neft. i gorno-topl. lit-ry leningr. otd-nie, 1960. 459p. (Leningrad, Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no. 159) (MIRA 14:3)

(Siberia, Western—Water, Underground)
(Siberia, Western--Gas, Natural)

POMASKA, W.

Journal of Applied Chemistry
April 1954
Industrial Inorganic Chemistry

Influence of flame-cleaning on properties of steels. H. Kemper and W. Pomaska (*Schweisser u. Schneiden*, 1953, 5, 201—209, 256—267; *J. Iron Steel Inst.*, 1954, 176, 148).—The effects of gases, dusts, and vapours, and the amount of rust encountered during flame-cleaning are discussed. The influence of temp. on the structure and strength of the steel under static stress and on ageing was investigated and a method developed for determining stresses in flame-cleaned material. The sample cut into sections and each section is examined individually with strain gauges. The crystal structure was examined by *X*-rays; stresses are highest at right-angles to the flame path. Tests were carried out on high-tensile steels to determine the effect of flame-cleaning on fatigue. The fatigue strength decreases slightly. Corrosion tests were carried out. Flame-cleaning is an effective method of rust removal. Brief mention is made of a new method of protection in which flame-cleaning is combined with a thermo-chemical treatment.

R. B. CLARKE

BR

ACCESSION NR: AP4039546 P/0048/64/000/002/0018/0019

AUTHOR: Pomaski, Jerzy

TITLE: Does radiation imperil astronauts?

SOURCE: Astronautyka, no. 2, 1964, 18-19

TOPIC TAGS: Radiation effect, ionizing cosmic radiation, biological radiation effect, radiation drug, relative biological effectiveness, maximum permissible radiation dose

ABSTRACT: The article gives a general discussion of the nature and biological effects of ionizing cosmic radiation. The major part of such radiation is constituted by corpuscular rays, chiefly protons. Other particles are heavier nuclides such as the nuclei of carbon, nitrogen, oxygen, iron, and other elements. Protons are also present in the radiation belts surrounding the earth; calculations show that of the total number of protons in the inner radiation belt, 2×10^4 particles /cm^2/sec have energies in excess of 40 Mev. During solar flares, this number may increase, and the energy of individual

Card 1/2

POMASKI, J.

"The Surveyor's Part in Building Settlement." p. 188 (Przeglad Geodezyjny. Vol. 9, no. 7 July 1953 Warszawa.)

Vol. 3, no. 6

SO: Monthly List of East European Accessions./Library of Congress, June 1954, Uncl.

VAULIN, V.A.; POMAZAN, I.F.; ANOSHKIN, A.M.; POPKOV, Yu.L.

Using deep holes in breaking ores in shrinkage stoping.
Biul.tekh.-ekon.inform. no.8:5-7 '59. (MIRA 13:1)
(Stoping(Mining))

POMASKIN, V.A.

POMASKIN, V.A. (Moskva)

Bronchial asthma. Med.sestra 16 no.12:10-14 D '57. (MIRA 11:1)
(ASTHMA)

POMASKINA, A. N. (USSR)

"Content of Fibrinogen in Human and Animal Blood."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 Aug 1961

KOTLYAROV, I. I.; POMASKINA, A. N.

Content of fibrinogen and labile globulins in the blood of patients with pulmonary tuberculosis. Probl. tub. no.7:103-107 '61. (MIRA 14:12)

1. Iz kafedry biokhimii (zav. - prof. I. I. Kotlyarov) Krasnoyarskogo meditsinskogo instituta (dir. - kandidat meditsinskikh nauk P. G. Podzolkov, zam. dir. po nauchnoy chasti - prof. M. A. Dmitriyev)

(TUBERCULOSIS) (FIBRINOGEN) (GLOBULIN)

POMASKINA, A. N.

Cand Biol Sci - (diss) "Content of fibrinogen in whole blood of people and animals." Irkutsk, 1961. 12 pp with diagrams; (Irkutsk State Medical Inst); 200 copies; price not given; (KL, 10-61 sup, 211)

POMASKOVA, Z. S.

Cand Tec Sci, Diss -- "Experimental and theoretical principles in the development of jet pump equipment for breaking sand plugs in oil wells". Baku, 1961. 21 pp, 21 cm (Joint Council of the Azerbaydzhan Inst of Petroleum and Chem imeni M. Azizbekov and inst and installations of the Acad Sci AzSSR on the petroleum industry and petroleum-mechanical branches of science), 250 copies, No charge (KL, No 9, 1961, p 183, No 24361). [61-54857]

POMAZAN, D.A., inzh.

Dependence of readings of the yield point of pipe metal on the shape of the piece. Stroi.truboprov. 6 no.11:5-6 N '61. (MIRA 15:4)

1. Chelyabinskiy truboprokatnyy zavod.
(Pipe—Testing)

POMAZAN, D.A.

New design of universal testing machines. Biul. TSNIICHM no.6:47-48 '58. (MIRA 11:5)

1. Chelyabinskiy truboprokatnyy zavod.
(Testing machines)

ACC NR: AT6022301 SOURCE CODE: UR/0000/66/000/000/0003/0013

AUTHOR: Pomazan, V. M.

ORG: none

TITLE: The methods for estimating the noise immunity and the effectiveness of remote control address systems with answer back

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya telemekhaniki. Doklady. Moscow, 1966, 3-13

TOPIC TAGS: command and control system, control statistics, ~~system~~ reliability, remote control system

ABSTRACT: Remote control systems are analyzed in which the reliability of received actuating commands is increased by using answer-back signals which either permit or forbid the execution of that command. The analysis assumes that the noise in the forward and return channels is equal. The probabilities of occurrence of various events arising in these systems are calculated. The author calculates the general case in which a single undetected error probability may be minimized by a corresponding selection of the code length and the method enabling command decoding. The curves exhibiting the respective reliability of systems with and without feedback indicate the relative advantage of the latter. Orig. art. has: 11 formulas, 1 table, and 4 figures. /7/

SUB CODE: 09/ SUBM DATE: 24Mar66/ ORIG REF: 004/ OTH REF: 001

Card 1/1

45751

S/194/62/000/012/025/101
D201/D308

9,8300

AUTHOR: Pomazan, V. M.

TITLE: Interference-killing properties of time telemetering systems with memory and integration

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1962, 60, abstract 12-2-120 d (In collection: Avtomat. regulirovaniye i upr., M., AN SSSR, 1962, 386-391)

TEXT: The methods of signal reception (storage and integration) in telemetering (TM) PAM-AM and PLM-AM systems in the presence of both weak and strong fluctuating noise, are analyszed. In most real receivers the error is a random quantity, with a nearly normal distribution. In this case it is convenient to express it by its reduced mean and rms values. On the basis of papers on interference-killing properties of TM it is possible to determine the reduced rms error for a single-channel transmission of PLM measurement in the presence of fluctuating noise in the transmission channel. The determination results in

Card 1/4

Interference-killing properties ...

theorem, then such a system is called a system with memory, because the measured parameter is determined over the period T only once and is stored until the next cycle. The rms error is considered for the case when the pulse repetition period is decreased N times. If the input pass-band remains unchanged at the same time, then the ratio Γ_{fN}/T_N increases proportionally and so in consequence does the error resulting in the telemetering system from the instability of the threshold and signal amplitude. Formulas for the rms error at Δf = const and τ_f/T_N = const are given. It is pointed out that the errors can be reduced by connecting an integrating circuit with time constant T in front of the indicating instrument. Such a system is called an integration system since it integrates over the period T all values of the transmitted parameter. The figure shows the graphs of Δ ΣPLM-AM $f(\Delta f)$ illustrating the variation of error in a storage or integrating system for the case ($u_{s\ eff}/u_{n\ eff}$) f x 100 - 4.6 and for various values of N (from 1 to 4). Continuous thin lines on the graph denote errors for Γ_{fN}/T = const and

Card 3/4

55

POMAZAN, V. M.

PHASE I BOOK EXPLOITATION SOV/6012

Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

Avtomaticheskoye regulirovaniye i upravleniye (Automatic Regulation and Control) Moscow, Izd-vo AN SSSR, 1962. 526 p. Errata slip inserted. 9000 copies printed.

Resp. Ed.: Ya. Z. Tsypkin, Professor, Doctor of Technical Sciences; Ed. of Publishing House: Ye. M. Grigor'yev; Tech. Ed.: I. M. Dorokhina.

PURPOSE: This book is intended for scientific research workers and engineers concerned with automation.

COVERAGE: The book is a collection of articles consisting of papers delivered at the 7th Conference of Junior Scientists of the Institute of Automation and Telemechanics, Academy of Sciences USSR, held in March 1960. A wide range of scientific and technical questions relating to automatic regulation and control is covered.

Card 1/12

53

Automatic Regulation (Cont.) SOV/6012

The articles are organized in seven sections, including automatic control systems, automatic process control, computing and decision-making devices, automation components and devices, statistical methods in automation, theory of relay circuits and finite automatic systems, and automated electric drives. No personalities are mentioned. References are given at the end of each article.

TABLE OF CONTENTS:

Card 2/12

ACC NR: AT6022306

can be represented by a certain random error probability which is constant during the duration of the poor state but which varies from state to state and lies within P_{1min}-P_{1max}. The density of probable values of P_1 lying within these limits may also be given; in the special case this density may be constant. In the case in which P_{1min}-P_{1max} = h the proposed mathematical model may become a Hilbert model. A limited delay in the data transmission is characteristic in telemechanics. This delay may be several times shorter than the duration of a single poor state of the transmission channel. Under these conditions a special requirement is imposed on data transmission which stipulates that the probability of occurrence of certain errors, e.g., undetected errors, must be low for the worst state of the channel. The dependence of the probability of occurrence of a most dangerous error in P_1 is investigated, and the worst value of P_1 as well as the worst maximum value of a probable undetected error are determined from this viewpoint. A more interference-free code will be a code in which the maximum of the error is minimum, e.g., minimax $P_{undetected\ error}$. Such a criterion for estimating the stability of the code is termed minimas. Orig. art. has: 1 table and 4 figures.

SUB CODE: 13/ SUBM DATE: 24Mar66/ ORIG REF: 006/ OTH REF: 007

Card 2/2

POMAZANOV, A.I.; BALUKOVA, A.A.; RACHEVA, V.Yu.

New technological procedure and outlook for the organization of a continuous mechanized line in the manufacture of black beichao tea. Biokhim. chain. proizv. no.8:161-169 '60. (MIRA 14:1)

1. Krasnodarskiy nauchno-issledovatel'skiy institut pishchevoy promushlennosti, Krasnodar.
(Adler--Tea)

POMAZANOV, P.V.

Recreation area on the Stroginskii flats of the Moskva River. Gor. khoz. Mosk. 36 no.5:34-36 My '62. (MIRA 15:7)
(Moskva Valley--Recreation areas)

POMAZANOV, P.V., arkhitektor; TOBILEVICH, B.P.

Planning for popular recreation. Gor. khoz. Mosk. 35 no. 3:22-27 Mr '61. (MIRA 14:5)

(Moscow region--Recreation areas)

POMAZANOV, S.I.

Determination method of the industrial ensembles and the diagram of their characteristics of production. Analele geol geogr 17 no.3:118-128 Jl-S '63.

POMAZANOV, S.I.

Theoretical problems in economic and regional geography. Izv.AN SSSR. Ser.geog. no.3:96-105 My-Je '61. (MIRA 14:5)
(Geography)

POMAZANOVSKIY, Yu.; SLIN'KO, I.

Load the cutter-loader fully. Sov. shakht. 12 no.6:10-11 Je '63. (MIRA 16:9)

(Donets Basin—Coal mining machinery)

MARGASINSKI, Z.; DANIELAK, R.; NIMAZANSKI, T.; RAFALOWSKA, H.

Separation of mixtures of phenothiazine derivatives using thin-layer chromatography. II. Acta Pol. pharm. 21 no.3: 253-256 '64

1. Z Zakladu Chemii Analitycznej Instytutu Lekow (Kierownik: doc. mgr. inz. Z. Margasinski).

POMAZKIN, V.A. (Moscow)

Use of cortisone in treating bronchial asthma. Med.sestra 17 no.6:48 Je '58 (MIRA 11:6)
(CORTISONE)
(ASTHMA)