ZHURIN, R.B.; LISHENOK, O.Ye.; ABRITALIN, V.L.; SIMONOVA, N.I.

Some derivatives of 3-pyrazolidinone. Zhur.ob.khim. 31
no.8:2758-2761 Ag '61.   (MIRA 14:8)

1. Nauchno-issldeovatel'skiy institut organicheskikh polu-
produktov i krasiteley imeni K. Ye. Voroshilova; Nauchno-
issledovatel'skiy kino-fotoinstitut i Leningradskiy institut
kinoinzhenerov.
                    (Pyrazolidinone)

ABRITALIN, V.

Changing the developer components. Sov.foto 22 no.11:38
N '62.   (MIRA 16:1)
        (Photography—Developing and developers)

ABRITALIN, V.L.

Use of 1-phenyl-3-pyrazolidon (phenidone) for the development
of positive films. Trudy NIKFI no.51:120-127 '62. (MIRA 16:12)

ABRITALIN, V.L.; ZHURIN, R.B.; SIMONOVA, N.I.; SHEBERSTOV, V.I.;
       SHUL'GINA, O.Ye.

Investigating the developing properties of 1-phenyl pyrazolidone-3
and other pyrazolidone-3 derivatives. Zhur. nauch. i prikl. fot.
i kin. 10 no.5:321-329 S-O '65.   (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI),
Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i
krasiteley (NIOPiK) i Leningradskiy institut kinoinzhenerov (LIKI).

ABRITALIN, V.L.; SOLOV'YEVA, V.N.; SHEBERSTOV, V.I.

Studying the developing properties of 1-phenyl-e-pyrazolidone and its derivatives. Part 1: Superadditive effect of phenidone with various developing substances. Zhur. nauch. i prikl. fot. i kin. 9 no.5:333-336 S-O '64.

(MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI).

L 43715-65   EWT(1)/EPA(s)-2/EPF(n)-2/EPI/T-2/EPA(bb)-2   Ps-4   GS
ACCESSION NR: AT5009760   UR/0000/64/004/000/0115/0127

AUTHOR: Abritska, M. Yu., Klyavin', Ya. Ya.

TITLE: Calculation of temperature field within induction pumps with liquid cooling

SOURCE: Soveshchaniye po teoreticheskoy i prikladnoy magnitnoy gidrodinamike. 3d, Riga, 1962. Voprosy magnitnoy gidrodinamiki (Problems in magnetic hydrodynamics); doklady soveshchaniya, v. 4. Riga, Izd-vo AN LatSSSR, 1964, 115-127

TOPIC TAGS: inductor temperature field, liquid cooling induction pump, induction pump temperature, electromagnetic pump

ABSTRACT: During the design of electromagnetic induction pumps, it is necessary to calculate the average and maximum temperature excesses within operating parts. Such pumps often have liquid cooling devices, and the present paper investigates, theoretically and experimentally, the magnetic conductor back-edge cooling and the direct groove cooling with the cooling system placed between the coil and the heat insulation of the channel. The stationary temperature field distribution within the inductor of the induction pump is determined by a system of thermal conductivity. Since each particular design incorporates specified geometry, given material properties, and definite boundary conditions, the calculation of the temperature at any point of the conductor is theoretically possible. To simplify the

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L 43715-65
ACCESSION NR: AT5009760

otherwise cumbersome calculations the authors assumed 1) that the temperature distribution along the pump's length is a periodic function with a period equal to the pitch of the grooves; 2) that there is no temperature drop across the width of the inductor (the problem becomes two-dimensional); and 3) that the true heat conduction coefficients in the nonhomogeneous portions of the inductor may be replaced by some average coefficients which may be found mathematically or empirically. The results of the calculations are shown in the form of graphs and tables and are compared with experimental data. The agreement is fair, and the computation method can be used for the estimate of possible temperature influences on the operation of the inductors. "The program for the calculations was developed at the Vychislitel'nyy tsentr Latviyskogo gosudarstvennogo universiteta (Computer Center, Latvian State University) under the direction of V. E. Abolin'. Technical assistance was also received from B. B. Levi and U. I. Raytum of the Computer Center, and from G. B. Cherfas of the Institut fiziki AN Latv.SSR (Physics Institute AN Latv.SSR)." Orig. art. has: 4 formulas, 7 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 11Aug64   ENCL: 00   SUB CODE: ME

NO REF SOV: 004   OTHER: 000

Card 2/1

L-02210-00   EWT(l)/EWP(m)/EP(s)-2/EWT(m)/EPA(sp)-2/EPF(n)-2/EWG(v)/EPR/EPA(w)-2/
T-2/EWP(t)/EWP(b)/EWA(m)-2   d-1/Pe-5/Ps-4/Pt-7/Pi-4/Pu-4   IJP(c)   JD/WW/JG

ACCESSION NR: AP5014186

UR/0382/65/000/001/0129/0140

538.4 : 621.313.333

AUTHOR: Abritska, M. Yu.; Ilyavin', Ya. Ya.

TITLE: Determination of the optimum cooling method for the electromagnetic induction pump

SOURCE: Magnitnaya gidrodinamika, no. 1, 1965, 129-140

TOPIC TAGS: liquid metal pump, magnetohydrodynamics, cooling

ABSTRACT: Assessment of the effectiveness of two air- and two liquid-cooling methods for temperature control of the induction pump is presented. The methods discussed are those that are employed by the Institute of Physics, Academy of Sciences Latvian SSR. To determine the effectiveness of particular cooling method relatively simple schematics are employed ... ... the pump components. The essential point of the method is that the wrong choice of thermal losses and thermal conduction is reflected in the final results and determination of the loss input data can be adjusted by more precise computation. Data for certain pumps are presented. Some computations are given to show the effect of variation of coil

Card 1/2

SAMUOLYTE, M.; DUBICKAS, V., spets.red.; ABROMAITIENE, H., red.;
     KINDIAKOVA, O., red.; PILKAUSKAS, K., tekhn. red.

[Use of synthetic materials in tthe light industry; bibliography]
Sintetiniu medziagu panaudojimas lengvojeje pramoneje; biblio-
grafine rodykle. Primenenie sinteticheskikh materialov v legkoi
promyshlennosti; bibliograficheskii ukazatel'. Vilnius, 1962.
69 p.   (MIRA 16:2)

1. Lithuanian S.S.R.Liaudies ukio taryba. Centrine moksline-
technine biblioteka, Vilna.
          (Bibliography--Synthetic products)

ZHILEVICH, I.I., red.; KANOVICH, N., red.; ABROMAYTENE, G.
[Abromaitiene, G.], red.; LABKAUSKAS, S., red.;
URBONAS, A., tekhn. red.

[Electrophotography and magnetography; transactions of the
Scientific and Technical Conference on Problems of Electro-
graphy held in Vilnius on December 16-19, 1958] Elektrofo-
tografiia i magnitografiia; trudy. Pod red. I.I.Zhilevicha.
Vil'nius, Respublikanskii in-t nauchno-tekhn. informatsii i
propagandy, 1959. 380 p.   (MIRA 17:3)

1. Nauchno-tekhnicheskaya konferentsiya po voprosam elektro-
grafii, Vil'na, 1958. 2. Nauchno-issledovatel'skiy institut
elektrografii, Vil'nius (for Zhilevich).

Abramovici, R.

Determination of iron in clays containing large amounts of organic substances. R. Abramovici and Hortensia Curtu. Rev. chim. (Bucharest) 5, 357-60(1954).—Dissolve the clay in H₂SO₄, add several drops of H₂O₂, ppt. Fe with NH₄OH, filter, wash; dissolve ppt. in N HCl, boil, reduce with SnCl₂, and titrate with KMnO₄.   G. A.

Binding of Lime Into Calcium Hydrosilicate Under 20-3-24/59
Normal Conditions.

cium is proportional on coarse-dispersed sands of the specific
surface of the sand.In the first stage the chalk binding has a
character of the irreversible adsorption changing into a chemical
surface reaction.In the present paper the kinetics of the constant
calcium binding by the sand with better developed surfaces (up
to 2,9 m^2/g) from a saturated solution was studied by the same
method.In the case of the introduction of fine-pulverized sand
which was activated by simultaneous grinding with limestone the
strength of the productions(with a reground sand filler)was increa-
sed more and more in the course of time.The strengthening is,un-
der natural conditions,caused by two simultaneous processes:chalk
binding:1)into calcium hydrosilicate by silica and 2)by CO_2 into
calcium carbonate.Both processes take place very slowly and are ba-
sed upon a diffusion process.There are enough reasons for the as-
sumption that the chalk carbonization takes place much more slowly
than its silicatization.This is especially confirmed by the radio-
structural analysis.The line of the calcium monohydrosilicate ap-
pears after two years whereas the lines of the calcium carbonate
are still lack.There are 2 figures,2 tables,5 Slavic references.

ASSOCIATION   Institute for Physical Chemistry of the Academy of Sciences of the
               (Institut fizicheskoy khimii Akademii nauk SSSR)   USSR
AVAILABLE   Library of Congress.
Card 2/2

SOV/69-21-4-12/22

The Interaction at Ordinary Temperatures of Calcium Hydroxide With Sand
of Various Degrees of Dispersity

curves show that independently of the dispersity of the sand,
the binding process always consists of two stages: 1) chemisor-
ption, which ends within one hour after the start of the inter-
action, and 2) a very long period of chemical binding of CaO
at constant rates. The second process, evidently, is connected
with the formation of calcium hydrosilicate, the latter being
a new phase crystallized from the gradually formed supersatu-
rated solution. According to K.G. Krasil'nikov, this process
will finally result in the full binding of CaO in the hydro-
silicate, which corresponds to a final concentration of $\sim$0.006
g/l, i.e. to a hydrolytic equilibrium of the calcium silicate
in the solution. In the case of concentrated suspensions, this
process results in the development of a solid crystalline hydro-
silicate structure $\boxed{\text{reference 11}}$, as is shown by the authors'
experiments with small solid blocks of lime-sand binder. The
specific surface of finely ground sand was determined on the
basis of adsorption at low temperature. The medium values for

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The Interaction at Ordinary Temperatures of Calcium Hydroxide With Sand
of Various Degrees of Dispersity.

each dispersity served for the calculation of the space occupied by a CaO molecule (table 1). The medium value (So) of this space was found to be 10.2 Å. On the basis of the medium value S_0, and the value of CaO sorption, the authors also calculated the values S_1 of coarsely-dispersed sand, which cannot be determined on the basis of nitrogen adsorption. Both methods, i.e. the method of investigating the CaO binding process with the aid of isotope Ca^{45} and the method of determining the active specific surface of sand through chemisorption of the same isotope, permit determination of the surface of sands of any dispersity. Low-temperature adsorption of nitrogen serves only for the determination of the surface of highly-dispersed sands ($> 1 \text{ m}^2/\text{g}$). The remaining part of the study can be summarized as follows. The dependence of the rate of CaO binding on the dispersity of sand is subject to the equation of the semicubical parabola (figure 2). The hardening of lime-silica binders

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SOV/69-21-4-12/22

The Interaction at Ordinary Temperatures of Calcium Hydroxide With Sand
of Various Degrees of Dispersity.

can be intensified (by 50%) by activation processes, i.e.
by passing the limesilica binder through a vibromill. The
discovery of the mechanism of CaO binding opens new techno-
logical possibilities to increase the strength of lime-
silica products by adding substances, which increase the rate
of dissolving of silica in water. In addition to the above-
mentioned scientist, the authors mention D.S.Sominskiy and
G.S. Khodakov. There are 4 tables, 3 graphs and 16 references,
14 of which are Soviet and 2 English.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR, Moskva
              (Institute of Physical Chemistry of the AS USSR, Moscow)

SUBMITTED: 15 November, 1958

Card 4/4

LOGGINOV, G.I.; REBINDER, P.A.;ABROSENKOVA, V.F.

Interaction between calcium hydroxide and sand of various degrees
of dispersity at ordinary temperatures. Koll.zhur. 21 no.4:
442-448 Jl-Ag '59.   (MIRA 13:8)

1. Institut fizicheskoy khimii AN SSSR, Moskva.
      (Calcium hydroxide)   (Silica)

ABROSIMOV, A.

Standardization in the motorcycle industry. Za rul. 21 no.2:
3-4 F '63.   (MIRA 16:4)

1. Ekspert Gosudarstvennogo komiteta Soveta Ministrov SSSR
po avtomatizatsii i mashinostroyeniyu.

(Motorcycle industry—Standards)

ABROSIMOV, A.A., red.; KHAVIN, T.N., red.izd-va; MEDVEDEV, L.Ya., ~~~~~~~~~~~~~~~.; KORNEYEVA, V.I., tekhn.red.

[Production standards on planning and surveying operations paid for by the piece rate system; automobile roads and city transport] Normy vyrabotki na proektnye i izyskatel'skie raboty, oplachivaemye sdel'no. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. Pt.23. [Automobile roads, city transportation] Avtomobil'nye dorogi, gorodskoi transport. 1958. 29 p.   (MIRA 12:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye po stroitel'stvu avtomobil'nykh dorog.
            (Highway engineering)

ABROSIMOV, Andrey Alekseyevich; TARBOV, Aleksandr Alekseyevich;
        PETROVSKAYA, Ye.K., red.; MANINA, M.P., tekhn. red.

        [K-750, M-62 motorcycles] Mototsikly K-750, M-61, M-62.
        Moskva, Izd-vo "Fizkul'tura i sport," 1962. 204 p.
                                            (MIRA 16:7)
                (Motorcycles)

GINTSBURG, M.G.; ABROSIMOV, A.A., inzh., red.; VASIL'YEVA, I.A.,
    red.izd-va; DEMKINA, N.F., tekhn. red.

[Construction and operation of motorcycles] Ustroistvo i
obsluzhivanie mototsiklov. Izd.2., perer. Moskva, Mashgiz,
1963. 316 p.   (MIRA 16:10)
                (Motorcycles)

Ĥ B R O S I M O V, Ĥ

USSR /Chemical Technology. Chemical Products   I-14
  and Their Application

  Water treatment. Sewage water.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31735

Author : Vopilkova V., Abrosimov A.

Title   : Improved Flocculation on Coagulation as a Result
  of Muddying of the Water with Sludge.

Orig Pub: Zhil. kommun. kh-vo, 1956, No 6, 19-21

Abstract: Water of the Rybinsk reservoir has always a
  coloration of about 60 . In wintertime, with a
  transparency of 260 cm, dosages of crude
  Al (SO) (I), required for decolorization,
  amount to 180-250 mg/liter. The flocculation
  proceeds sluggishly and reaches completion on

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USSR /Chemical Technology. Chemical Products
and Their Application   I-14

Water treatment. Sewage water.

Abs Jour: Referat Zhur · Khimiya, No 9, 1957, 31735

reduce the dosage of $\underline{I}$ by 10-15% in summer and
by 40-50% in winter. Muddying with II is poss-
ible during the entire year with the exception
of the period of efflorescence.

Card 3/3

ABROSIMOV, A.I.

Calculation of the effect of the cohesive force of soil on the strength and stability of retaining walls. Trudy TIIIMSKH no.8:220-240 '57. (MIRA 15:5)
(Soil mechanics)
(Hydraulic engineering)

(*m.d.,/ /.: A.T.*)

S. N.;   KHRISTIANSEN, G. B.; ABROSIMOV, A. M.;   KHRENOV, DMITRIYEV, V. A.
...A, V. I.;   SOLOVYEV, K.I.:   BELYAYEVA,M.F.;   NECHIN, Yu. A.;   VEDENEYEV,O.N.,
...T, G. V.;   FOMIN, Yu. A.

Summary of the new data on EAS structure obtained with the aid of the complex equipment of Moscow State University.

Report submitted foe the 8th Intl. Conf. on Cosmic Rays (IUPAP) Jaipur, India,
2-11 Dec 1963

SEN, G. B.; ABROSIMOV, A. M.; KHRENOV, B. A.; ATRASHKEVICH, V. B.;
 C. V.; SOLOVIYEVA, V.I.; FOMIN, Yu. A.

smic ray primary radiation of ultra high energy.

submitted for the 8th Intl. Conf. on Cosmic Rays (IUPAP), Jaipur, India,
Dec 1963

A. I. Abrosimov, V. I. Zatsepin, V. I. Shcherbev, ...

Card 1/1   Pub. 146-18/28

Author   :   Abrosimov A. T., Bednyakov A. A., Zatsepin V. I., Nechin Yu. A.,
                Solov'yeva V. I., Khristiansen G. B. and Chikin P. S.

Title   :   Study of structure of broad atmospheric showers at sea level (Letter
                to the editor)

Periodical :   Zhur. Eksp. i Teor. Fiz., 29, No 5, 693-696, 1955

Abstract   :   A detailed study was carried out in Moscow during the summer of 1953
                of the spacial distribution of various components of broad atmos-
                pheric showers at short distances from the shower axis by using the
                method of correlated hodoscopes. The preliminary results of these
                studies are presented in graphs. Indebted to G. T. Zatsepin and N.
                A. Dobrotin for discussions and to G. V. Bogoslavskiy, B. V. Subbotin
                and M. S. Tulyankina for assistance in measurements. Five references.

Institution :   --

Submitted   :   May 3, 1955

ABROSIMOV H. T.

AUTHORS: Abrosimov, A. T., Goman'kov, V. I., Ivanovskaya, I.A. 56-5-4/46
            Sarycheva, L. I.

TITLE: The Angular Distribution of the Axes of Extensive Air Showers at
            Sea Level (Uglovoye raspredeleniye osey shirokikh atmosfernykh
            livney na urovne morya)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957,
            Vol. 33, Nr 5, pp. 1110-1115 (USSR)

ABSTRACT: By means of an equipment manufactured in 1954 and consisting of
            a cloud chamber (60 x 60 x 30cm) and 288 hodoscopic counter tubes,
            the angular distribution of the axes of extensive air showers
            was measured also.
            The extension chamber served for the determination of the orien-
            tation of the particles, for the observation of the interaction
            of the high-energetic particles with the lead atoms and for mea-
            suring of both the electron and photon energy.
            72 counters were combined in the hodoscopic points. (13 x 24
            with 330, 100 and 24 cm^2 measuring surface) permitting the measu-
            rement of the particle density in 4 points of the cross-section
            of the shower. From this the orientation of the axes of a shower
            can be determined. The angular distribution of the axes of exten-
Card 1/2   sive showers was measured in the intervals: 0 to 10°, 10 to 20°

The Angular Distribution of the Axes of Extensive Air Showers at Sea 56-5-4/46
Level.

20-30°, 3o to 40°, 4o to 5o°. If the angular distribution is re-
presented by terms of $\cos^n \theta$ the value $8,3 \pm 1,4$ is obtained for
n. There are 3 tables, 4 figures, and 4 Slavic references.

ASSOCIATION: Moscow State University, Physics Institute imeni P.N.Lebedev
of AN USSR (Moskovskiy gosudarstvennyy universitet, Fizicheskiy
institut im. P. N. Lebedeva, Akademii nauk SSSR)

SUBMITTED: May 8, 1957

AVAILABLE: Library of Congress

Card 2/2

SOV/56-34-5-4/61

AUTHORS: Abrosimov, A. T., Goryunov, Dmitriyev, Solov'yeva, V. I., Khrenov, B., Khristiansen, G. B.

TITLE: The Structure of the Extensive Atmospheric Showers at Sea Level (Struktura shirokikh atmosfernykh livney na urovne morya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1077-1089 (USSR)

ABSTRACT: This paper investigates the lateral distribution of electrons, nuclear active and nuclear passive particles in extensive air showers containing from 4.10^4 to 4.10^5 particles at sea level by means of correlated hodoscopes. These measurements were carried out from April to May of 1954 in Moscow. The authors used the hodoscopes K-6 of N. N. Korablev. At first the measuring device is discussed, which gave a sufficiently exact distribution of the density of the charged particles near the axis of any registered shower. By means of these data it is possible to determine the individual properties of the shower. - the position of its axis and the number of the particles. An zero approximation of the position of the

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The Structure of the Extensive Atmospheric Showers at Sea Level

axis the center of the region of maximal density of particle
flux was taken. Also the determination of the second approxi-
mation is discussed in a few words, but the use of this second
approximation is practically not necessary. The second char-
acteristic of the shower - the total number N of the particles,
was found after determining the position of the axis.
Therefore the total number of the particles in the central re-
gion of the shower was used as a standard of the total number
of particles. The experimental data concerning the spacial
distribution of all charged particles may be approximated
by the function $kNr^{-1}e^{-r}/R$ with $R = (60 \pm 6)$ m for the region
$2 \ll r \leqslant R(n-1)$ and by the exponential function $k_1 Nr^{-n}$ for
the region $r \gg R(n-1)$ with $n = 2.6 \pm 0.4$. The coefficients K
and k_1 are found from the normalizing conditions of the func-
tion of spacial distribution. The hodoscopic device was also
used for the determination of the number of the registered
extensive showers with a fixed number N of particles. The
energy flux of the shower is concentrated in a small region
possessing a small radius of the order of several metres
from the axis of the extensive air shower. The whole of the
experimental facts may be explained by the idea of equilibrium

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The Structure of the Extensive Atmospheric Showers at Sea Level   SOV/56-34-4-4/61

between the electron component and the nuclear active component with low energies on one hand and by the energy-flux of the nuclear avalanche (lavina) of the shower core on the other hand. There are 7 figures, 3 tables, and 20 references, 12 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR
(Physics Institute imeni P.N. Lebedev, AS USSR)
Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 3, 1957

1.Particles(Airborne)--Measurement   2.Electrons--Distribution
3.Electrons--Properties   4.Mathematics--Applications

Card 3/3

ABROSIMOV, A. T.

GENERAL DESCRIPTION OF THE MOSCOW UNIVERSITY ARRANGEMENT FOR THE STUDY OF EXTENSIVE AIR SHOWERS AND PRELIMINARY RESULTS OBTAINED BY IT

S.N. Vernov, G.B. Khristiansen, A.T. Abrosimov, N.N. Goryunov, V.A. Dmitriev, G.V. Kulikov, Yu.A. Nechin, S.P. Sokolov, V.I. Soloveva, K.I. Soloviev, Z.S. Strugalsky, B.A. Khrenov

1. In late 1957, at the Moscow State University an arrangement was put into operation for multipurpose studies of extensive air showers of cosmic rays.

2. The arrangement is a complex assembly of simultaneously operating physical instruments (some 5000 Geiger-Muller counters covering an area of over 100 m^2, and some 150 ionization chambers of various shpaes covering a total area of 13 m^2, and a diffusion chamber of area 0.64 m^2) and appropriate electronic equipment and photographic devices to record the instrument readings when an extensive air shower passes through the arrangement. Most of this equipment is located in a specially erected building. Three rooms of this building (~60 sq.m. in area each) have a light roofing of not more than 1.5 g/cm^2 and two rooms (25 m^2 and 80 m^2) are situated underground at a depth corresponding to 20 and 40 metres water equivalent.

ABROSIMOV, A. T.

A STUDY OF ULTR-HIGH-ENERGY EXTENSIVE AIR SHOWERS
A.T. Abrosimov, V.I. Solovyeva, G.B. Khristiansen

1.   The correlated hodoscope method was applied in a study of showers with
the total number of particles $5 \times 10^6 \angle N \angle 5 \times 10^7$ at sea level.
2.   The obtained spatial distribution of electrons, (which are not in equil-
ibrium with the mu-meson component) in the interval 100 m $\angle r \angle 1000$ m from the
axis, is independent of the number of particles in the shower during variation
of this number in the given interval. It is difficult to bring into agreement
the spatial distribution of electrons at large distances and the theoretical
distribution of Nishimura and Kamata for the value of parameter S, for which
agreement between experimental and theoretical distributions is observed at
small distances from the shower axis.
3.   The spatial distribution of mu-mesons obtained in the interval 300 m $\angle$
$r \angle 1000$ m is well described by the r^{-n} law (n = 2.3 - 0.23) and its form is
independent of the number of particles in the shower.
4.   The absolute intensity of a shower with the number of particles $N \geq 10^7$
amounts to $(1.36-0.2) \times 10^{-6} m^{-2} hr^{-1} sterad^{-1}$.

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

21(7)

AUTHORS: Abrosimov, A. T., Dmitriyev, V. A., Kulikov, G. V.,   SOV/56-36-3-16/71
              Massal'skiy, Ye. I., Solov'yev, K. I., Khristiansen, G. B.

TITLE: The Nuclear-Active Component of High Energy in Extensive
              Atmospheric Showers at Sea Level (Yaderno-aktivnaya komponenta
              vysokoy energii v shirokikh atmosfernykh livnyakh na urovne
              morya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
              Vol 36, Nr 3, pp 751-761 (USSR)

ABSTRACT: In the present paper the authors report about statistical
              investigations of nuclear avalanches in extensive air showers
              at sea level by means of a sensitive detector. Measurements
              were carried out in 1957 by means of a device for combined
              investigations of extensive air showers which is now in opera-
              tion at the MGU. It has 4 cylindrical pulse ionization chambers
              under a lead-graphite filter and 720 Geiger-Mueller (Geyger-
              Myuller) counters in hodoscope connection for the recording
              and energy determination of nuclear particles. The counters
              were connected in coincidence groups (total area 1320 cm^2),
              so that sixfold coinciding pulses were recorded. Figure 1

Card 1/3   gives a rough outline of the device including its dimensions.

The Nuclear-Active Component of High Energy in Extensive Atmospheric Showers at Sea Level

SOV/56-36-3-16/71

The recorded and investigated showers are divided into 4 groups according to the particle number N:

1) $1 \cdot 10^4 \leqslant N_1 < 3 \cdot 10^4$;   2) $3 \cdot 10^4 \leqslant N_2 < 1 \cdot 10^5$;

3) $1 \cdot 10^5 \leqslant N_3 < 3 \cdot 10^5$;   4) $3 \cdot 10^5 \leqslant N_4 < 2 \cdot 10^6$.

For these 4 groups table 1 gives the number of particles with energies greater than one given, and also the maximum energy of the nuclear-active particle of individual groups. For the latter the following applies:

group	R	E_{nucl}^{max}	γ	
1	3m	$4.7 \cdot 10^{12}$ ev	1.8 ± 0.5	(R = radius of the investigated shower range)
2	4m	10^{13} ev	1.0 ± 0.2	
3	5m	$1.8 \cdot 10^{13}$ ev	0.9 ± 0.3	
4	6m	$6 \cdot 10^{13}$ ev	0.7 ± 0.3	

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Figure 2 shows the course of the spectrum for the two extreme groups. Further investigations deal with the spatial distribution of the energy flux of the nuclear-active component;

The Nuclear-Active Component of High Energy in Extensive Atmospheric Showers at Sea Level

SOV/56-36-3-16/71

figure 6 shows such a diagram for 4 shower groups with particle energies of $1.10^{11} - 3.10^{11}$ev, $3.10^{11} - 1.10^{12}$, $> 1.10^{12}$, and $E > 8.10^{11}$ev. Figure 4 shows the course of energy flux density for N_1, N_2 and N_3, and figure 5 shows the distribution of the energy flux in a shower with $N = 2.10^5$. It was found that the energy of the nuclear-active component in some showers with equal N may differ considerably. Results are discussed, and in an appendix the energy distribution with respect to primary particles is investigated. The authors finally thank S. N. Vernov, G. T. Zatsepin for their help, valuable remarks, and discussions. They further thank G. V. Bogoslovskiy, V. I. Artemkin, and V. N. Sokolov for taking part in measurements. There are 6 figures, 2 tables, and 17 references, 15 of which are Soviet.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstv..lnogo universiteta (Institute for Nuclear Physics of Moscow Stat, University)

SUBMITTED: September 15, 1958

Card 3/3

ZHDANOV, G.B., glavnyy red.; IVANENKO, I.P., zam.glavnogo red.; DORMAN, L.I., otv.red.toma; TULINOV, V.F., zam. redaktora toma; GERASI- MOVA, N.M., red.; NIKISHEV, A.I., red.; ZATSEPIN, V.I., red.; KHRENOV, B.A., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.; VAVILOV, Iu.N., red.; ABROSIMOV, A.T., red.; GUS'KOV, G.G., red.izd-va; BRUZGUL', V.V., tekhn.red.

[Transactions of the International Conference on Cosmic Rays] Trudy Mezhdunarodnoi konferentsii po kosmicheskim lucham. Moskva, Izd-vo Akad.nauk SSSR. Vol.4. [Variations in the intensity of cosmic rays] Variatsii intensivnosti kosmicheskikh luchei. 1960. 362 p.

(MIRA 13:10)

1. Mezhdunarodnaya konferentsiya po kosmicheskim lucham. Moscow, 1959. 2. Magnitnaya laboratoriya AN SSSR, Moskva (for Dorman).

(Cosmic rays)

ZHDANOV, G.B., glavnyy red.; IVANENKO, I.P., zam.glavnogo red.; ZATSEPIN, V.I., otv.red.toma; KURENOV, B.A., zam.red.toma; GERASIMOVA, N.M., red.; NIKISHOV, A.I., red.; DORMAN, L.I., red.; TULINOV, V.F., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.; VAVILOV, Yu.N., red.; ABROSIMOV, A.T., red.; GURCV, K.P., red.izd-va; BERKGAUT, V.G., red.izd-va; BRUZGUL', V.V., tekhn.red.

[Extensive air showers and cascade processes] Shirokie atmosfernye livni i kaskadnye protsessy. Moskva, Izd-vo Akad.nauk SSSR, 1960. 351 p. (Trudy mezhdunarodnoy konferentsii po kosmicheskim lucham, no.2).

(MIRA 13:12)

1. International Conference of Cosmic Radiation.
(Cosmic rays)

ABROSIMOV, A.T.

Scintillation counter with a large surface area for recording particles of cosmic radiation. Prib. i tekh. eksp. no.6:48-51 N-D '60. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Cosmic rays)   (Scintillation counters)

ABROSIMOV, A. T., ATRASHKEVICH, V. J., DMITRIYEV, V. A., NECHIN, YU. A., KHRENOV, B. A.,

KULIKOV, G. U., SOLOVYEVA, V. I., KHRISTIANSEN, G. B., BELYAYEVA, J. F.

"The Structure of Extensive Air Showers at Sea Level."

report submitted for the Intl. Conf. on Cosmic Rays and Earth Storm (IUPAP)
Kyoto, Japan 4-15 Sept. 1961.

31519
S/627/60/002/000/001/027
D299/D304

$3.2410 (1559, 2205, 2705, 2805)$

AUTHORS: Vernov, S. N., Khristiansen, G.B., Abrosimov, A. T.,
               Goryunov, N. N., Dmitriyev, V. A., Kulikov, G. B.,
               Nechin, Yu. A., Sokolov, S. P. (deceased), Solov'yeva,
               V. I., Solov'yev, K. I., Strugals'kiy, Z. S., and
               Khrenov, B. A.

TITLE: General description of the setup used for studying ex-
               tensive air showers and the provisional results ob-
               tained

SOURCE: International Conference on Cosmic Radiation. Moscow,
               1959. Trudy. v. 2. Shirokiye atmosfernyye livni i kas-
               kadnyye protesessy, 5-16

TEXT: A complex experimental setup was installed at Moscow State
University, consisting of a simultaneously operating physical appa-
ratus plus the corresponding radiotechnical equipment and photo-
graphical recording devices. The setup incorporates over 5000 Gei-
ger-Müller counters (forming a hodoscope), about 150 ionization

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General description of the setup...   S/627/60/002/000/001/027
D299/D304

chambers and a large diffusion chamber. The setup is designed for a comprehensive and simultaneous investigation of all the basic components (electrons and photons, nuclear-active particles and μ-mesons) of extensive air showers at sea level. The setup was designed in 2 different configurations: the first at the end of 1957, and the second at the beginning of 1959. Below, only the results obtained by means of the first setup are considered. The setup was located in a special building and in 10 mobile laboratories. The showers were registered by the system of hodoscoped counters. Part of the counters were shielded (those for detecting the nuclearactive particles and the μ-mesons) and the other counters were not shielded. The ionization chambers served to determine the lateral distribution of the electron-photon component and of the nuclearactive component. The microstructure of the electron component was studied by means of the diffusion chamber. Special measures were taken to ensure continuous and prolonged operation of the setup. The main units of the setup were automatically controlled, in particular the supply units and the photography system. The operation of the setup (as a whole) was controlled (triggered) by a selection system; in parti-

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General description of the setup ...

cular, the showers were selected in accordance with the density of the electron flow and of the μ-mesons. The setup was in operation for about 2500 hours, yielding a large amount of experimental data which are still being processed. The probability theory (Baye's theorem) was used for determining the (x, y)-axes and the number of particles N of the shower; in addition the distribution function $f(r)$ as well as other distribution functions were determined (r denoting distance). The values of x, y and N were found by means of a special electronic simulator. The density distribution of electrons and mesons was determined by means of formula

$$W(\rho) = \prod_i \left[1 - \exp(-\rho \sigma_i)\right]^{m_i} \cdot \exp\left[-\rho \sigma_i (n_i - m_i)\right]$$

where m_i is the number of counters which operate over an area σ_i, and n_i — the overall number of such counters. The energy E of the electron-photon component was determined by means of ionization

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General description of the setup ...   S/627/60/002/000/001/027
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chambers, shielded with lead (up to 6 cm thick). A very comprehensive picture of the particles and energies was obtained for showers whose axes fell within the system of 128 cubic detection chambers. The setup permits observing the central part of an atmospheric shower, whereby its several layers are simultaneously observed; this corresponds to the individual observation of the electron-photon, nuclearactive and μ-meson components. The processed material already yielded a fairly detailed picture of the structure of extensive air showers at sea level. Thus, the lateral distribution of particle flow in the individual showers was ascertained. It was found that the lateral distribution varies (in the 1 to 25 m range) from shower to shower; the average distribution is, in the range of 5 cm to 100 m, as follows:

$$\rho(r) = \begin{cases} \dfrac{K_1 N}{r^{0,6}} & K_1 = 3,3 \cdot 10^{-3}, \quad 0,05 < r < 0,3 \text{ m} \end{cases}$$

(cont'd)

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General description of the setup ...   31519
S/627/60/002/000/001/027
D299/D304

$$\left| \frac{K_2 N}{r} \cdot e^{-\frac{r}{60}} \right. , \ K_2 = 2 \cdot 10^{-3}, \ 0,3 < r < 100 \text{ m}$$

The lateral distribution of the electron-photon components also fluctuates from shower to shower. At distances smaller than 1.5 m, these fluctuations are particularly sharp. The nuclearactive components also exhibits considerable energy fluctuations. The fluctuations in the high-energy μ-mesons were not yet analyzed. The energy of the electron-photon component E_{eph} was calculated for a shower with number of particles equal to $(2.7 \pm 0.2) \cdot N\beta$, where β is the critical energy for air (72 Mev). The above value was obtained with an accuracy of appr. 30%. It was found that the energy of the nuclearactive component $E_n \simeq (0.5 \text{ to } 1.0) E_{eph}$. This value is, however, subject to considerable fluctuations and the experimental data are as yet insufficient to determine the contribution of the

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General description of the setup...

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D299/D304

nuclearactive component in showers. In addition, the above-mentioned fluctuations severely delimit the choice of a theoretical model for the development of showers. Particular attention was devoted to the structure of the shower in the immediate vicinity of its axis, where the particles of highest (for the particular shower) energy should be concentrated. This led to the discovery of a new effect: Groups of particles (from 4 to 20) travel in narrow beams (not exceeding 8 cm in diameter) in the neighborhood of the axis (or along the axis itself), whereby their lateral distribution shows that the beams are not due to Poisson fluctuations. The new effect can be explained as follows: Either the beam is the core of a "young" electron-photon shower which originates from a high-energy π^0-meson at a certain distance from the apparatus, or the beam consists of μ-mesons. These two possibilities are discussed. The observed irregularity in the lateral distribution of μ-mesons in the vicinity of the shower axis might be related to the new effect. There are 6 figures and 2 tables.

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31519

General description of the setup ...   S/627/60/002/000/001/027
                                         D299/D304

ASSOCIATION: Nauchno-issledovatl'skiy institut yadernoy fiziki
               MGU, Moskva (Scientific Research Institute of Nucle-
               ar Physics Moscow State University, Moscow)

Card 7/7

31523
S/627/60/002/000/005/027
D299/D304

AUTHORS: Abrosimov, A. T., Basilevskaya, G. A., Solov"yeva, V.I.,
            and Khristiansen, G. B.

TITLE: Study of extensive air showers of ultrahigh energies

SOURCE: International Conference on Cosmic Radiation. Moscow,
            1959. Trudy. v. 2. Shirokiye atmosfernyye livni i kas-
            kadnyye protsessy, 92-100

TEXT: Showers with number of particles ranging from 10^6 to 10^8,
were investigated by the apparatus of Moscow State University. It
is noted that the experiments conducted by the authors yielded,
in conjunction with the experiments conducted by V. A. Dmitriyev
et al. (Ref. 9: ZhETF, 36, 992, 1959), several new results con-
cerning the energy characteristics of the electron-photon and μ-
meson components (Ref. 10: ZhETF, in print). The apparatus con-
sisted of 10 mobile laboratories with 2 types of detectors: of
charged- and of penetrating particles; it permitted determining
the position of the axis and the number of particles of the shower,

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Study of extensive air ...

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D299/D304

provided the axis fell within the limits of the apparatus and the number of particles was sufficiently large. After the axis was found, the number of particles N was determined by the formula

$$N = \frac{1}{n} \sum_{i=1}^{n} N_i$$

where

$$N_i = \rho(r_i) \, \varphi(r_i)$$

$$\varphi(r_i) = r_i e^{\frac{r_i}{60}} / 2 \cdot 10^{-3}; \quad r_i \leqslant 96 \text{ m}$$

$$\varphi(r_i) = r_i^{2,6} / 0,6; \quad r_i > 96 \text{ m}$$

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Study of extensive air ...

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$\rho(r_i)$ being the density at the i-th observation point (at a dis-
tance r from the axis).   J apparatus recorded 1000 showers during
a period of operation of 1420 hours, For showers with $N \geqslant 1 \cdot 10^7$, the
probability of recording was nearly 100%. During 1484 hours of ope-
ration, 75 showers with $N \geqslant 10^7$ and 8 showers with $N \geqslant 3 \cdot 10^7$ were re-
corded over an area of $7 \cdot 10^4 m^2$; this yielded the following absolute
intensity values:

$$I(\geqslant 10^7) = (1.36 \pm 0.2) \cdot 10^{-6} m^{-2} hour^{-1} sterad^{-1}$$

$$I(\geqslant 3 \cdot 10^7) = (1.24 \pm 0.43) \cdot 10^{-7} m^{-2} hour^{-1} sterad^{-1}$$

On this basis, the exponent γ of the number spectrum was calcula-
ted, $\gamma = 2.0 \pm 0.35$. For constructing the lateral distribution

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Study of extensive air ...

function, 200 of the more dense showers were used, with $N \geqslant 5 \cdot 10^7$; the lateral-distribution functions of the electron and meson components were constructed. The values for the absolute intensity of showers, obtained by the authors, agree with the results obtained by T. E. Cranshaw et al. (Ref. 5: Phil. Mag., 3, 377, 1958) and by G. Clark et al. (Ref. 7: Nature, 180, 406, 353, 1957; Nuovo Cim. Suppl., 8, 623, 1958). The authors compared the experimental lateral-distribution functions of electrons with the theoretical values obtained on the basis of cascade shower theory. After modifying the values of the constants B and t_c (entering the formulas

of cascade theory), good agreement was found between theoretical and experimental values. The authors conclude that in ultrahigh-energy showers either no equilibrium exists between the electron-photon and the nuclearactive components in the lower atmospheric layers, or that the lateral distribution of electrons is not only determined by Coulomb scattering, but also by angular deviations of particles during the nuclear-cascade processes. There are 5 figures and 17 references: 8 Soviet-bloc and 9 non-Soviet-bloc. The

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Study of extensive air ...

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S/627/60/002/000/005/027
D299/D304

4 most recent references to the English-language publications read as follows: T. E. Cranshaw, J. F. de Beer, W. Galbraith, N. A. Porter, Phil. Mag., 3, 377, 1958; T. E. Cranshaw, J. F. de Beer, W. Galbraith, A. M. Hillas. Phil. Mag., 3, 811, 1958; J. Nichimura, K. Kamata, Progr. Theor. Phys., 6, 1958; T. E. Cranshaw, W. Galbraith, Phil. Mag., 2, 797, 804, 1957.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebendeva AN SSSR (Physics Institute im. P. N. Lebedev AS USSR); Moskovskiy gosudarstvenny universitet (Moscow State University)

Card 5/5

ZHDANOV, G.B., glav. red.; IVANENKO, I.P., pom. glav. red.; GERASIMOVA,
N.M., red. toma; NIKISHOV, A.I., pom. red. toma; ZATSEPIN, V.I.,
red.; KHRENOV, V.A., red.; DORMAN, L.I., red.; TULINOV, V.F.,
red.; SYROVATSKIY,S.I., red.; FEDOROV, V.M., red.; VAVILOV, Yu.N.,
red.; ABROSIMOV, A.T., red.;

Proceedings of the Moscow Cosmic Ray Conference. July 6-11,
1959. Moscow. Vol.1. 1960. 333 p.
(No subject heading)

ZHDANOV, G.B., glav. red.; IVANENKO, I.P., pom. glav. red.; ZATSEPIN,
        V.I., red. toma; KHRENOV, V.A., pom. red. toma; GERASIMOVA,
        N.M., red.; NIKISHOV, A.I., red.; DORMAN, L.I., red.; TULINOV,
        V.F., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.;
        VAVILOV, Yu.N., red.; ABROSIMOV, A.T., red.

        Proceedings of the Moscow Cosmic Ray Conference,July 6-11,1959. Moscow.
        Vol.2. Extensive air showers and cascades process. 1960. 331 p.
                        (No subject heading)

ZHDANOV, G.B., glav. red.; IVANENKO, I.P., pom. glav. red.; DORMAN,
L.I., red. toma; TULINOV, V.F., pom. red. toma; GERASIMOVA,
N.M., red.; NIKISHOV, A.I., red.; ZATSEPIN, V.I., red.;
KHRENOV, V.A., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M.,
red.; VAVILOV, Yu.N., red.; ABROSIMOV, A.T., red.

Proceedings of the Moscow Cosmic Ray Conference, July 6-11,
1959. Moscow. Vol.14. Variations of cosmic-ray intensity.
1960. 365 p.
                    (No subject heading)

ACCESSION NR: AT3012813   ·   S/2961/63/000/005/0171/0177

AUTHOR: Abrosimov, A. T.

TITLE: Manufacture of large plastic scintillators based on poly-
styrene

SOURCE: AN SSSR. Mezhduvedomst. geofizich. komitet. 7 razdel pro-
gram. MGG: Kosmicheskiye luchi. Sb. statey, no. 5, 1963, 171-177

TOPIC TAGS: scintillator, plastic scintillator, polystyrene scin-
tillator, scintillation counter, plastic scintillator technology

ABSTRACT: A technique is described for continuous production of
plastic scintillators, using the UPPS/ULS-1 installation (installa-
tion for the manufacture of plastic scintillators for luminescent
counter arrays) developed and tried successfully at the Laboratory
for Ultrahigh Energy Particles of NIIYaF MGU, and based on thermal
polymerization of large volumes of monomers in bulk. The use of a

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ACCESSION NR: AT3012813

continuous method increases the rate of production of scintillation
counters by approximately 10 times. The prospects for producing
new types of scintillators and further advancing the scintillator
production technology are also discussed. It is pointed out that
the art of producing equipment for large scale production of plastic
scintillators is still lagging. Some of the latest trends in the
development of plastic scintillators reported in the literature are
described. "The author is deeply grateful to G. B. Khristiansen
for guidance of the work." Orig. art. has: 2 figures.

ASSOCIATION: None

SUBMITTED: 00   DATE ACQ: 22Oct63   ENCL: 00

SUB CODE: PH, MA   NO REF SOV: 011   OTHER: 006

Card 2/2

ACCESSION NR: AT3012814

S/2961/63/000/005/0178/0203

AUTHORS: Abrosimov, A. T.; Blokh, Ya. L.

TITLE: Proposed installation for continuous registration of inclined extensive air showers and the common component of cosmic radiation

SOURCE: AN SSSR. Mezhduvedomst. geofizich. komitet. 7 razdel program. MGG: Kosmicheskiye luchi. Sb. statey, no. 5, 1963, 178-203

TOPIC TAGS: cosmic rays, cosmic ray measurement, luminescent counter, cosmic ray variation, cosmic ray arrival time, counter directivity pattern, cosmic ray common component, origin of cosmic rays

ABSTRACT: An array of luminescent counters is described, designed for continuous measurement and automatic registration of densities of particle fluxes and inclination angles of cosmic rays in inclined

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ACCESSION NR: AT3012814

extensive air showers. The apparatus is aimed also at eliminating
many difficulties inherent in the determination of the sidereal-
diurnal variations of cosmic rays. The use of scintillation coun-
ters in lieu of Geiger-Müller counters extends the possible range
of measurements. Measurements of relative times of the arrival of
cosmic ray particles and studies of short-period variations are pro-
posed. The article describes the detectors and their manufacture,
the counters and their calibration, the differential spectrum of
the pulses from a luminescent counter, the directivity pattern of
a single luminescent counter, the individual units of the array,
and problems involved in combined operation of the photomultipliers
and vacuum tube amplifiers, the coaxial lines, the power supply to
the photomultiplier, the registration of the common cosmic-ray com-
ponent, and the reliability of the apparatus. It is claimed that
the equipment uncovers new possibilities in the study of a number
of vital problems connected with the research and composition of the
primary spectrum of cosmic rays, cosmic-ray variations, and the ori-

Card   2/3

ACCESSION NR: AT3012814

gin of cosmic rays and interactions between high energy particles and matter. "The authors are deeply grateful to G. B. Khristiansen for guidance in the work." Orig. art. has: 9 figures and 2 formulas.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 22Oct63

ENCL: 00

SUB CODE: PH, AS

NO REF SOV: 037

OTHER: 036

Card   3/3

ACCESSION NR: AT3012815   S/2961/63/000/005/0219/0223

AUTHORS: Abrosimov, A. T.; Blokh, Ya. L.

TITLE: Operating stability of photomultipliers in scintillation counters

SOURCE: AN SSSR. Mezhduvedomst. geofizich. komitet. 7 razdel program. MGG: Kosmicheskiye luchi. Sb. statey, no. 5, 1963, 219-223

TOPIC TAGS: photomultiplier, photoelectronic multiplier, scintillation counter, operating stability, cosmic rays, primary cosmic ray component, focusing electrode photomultiplier

ABSTRACT: The equipment tested is intended for continuous registration of the primary cosmic ray component. Several Soviet-make photomultipliers were tested and the results compared. The suitability of the different photomultipliers for different operating conditions is evaluated. It is shown that the most stable photo-

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ACCESSION NR: AT3012815

multipliers are those with focusing electrodes. "The authors are deeply grateful to G. B. Khristiansen for guidance of the work, to G. B. Bogoslovskiy and V. N. Aleksandrov for help with the experiments, and to I. Khrest'yaninov for help with the reduction of the experimental data. Orig. art. has: 3 figures and 1 formula.

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: PH, AS

DATE ACQ: 22Oct63

NO REF SOV: 010

ENCL: 01

OTHER: 002

Card   2/β 2

AUTHOR: Khristiansen, G. B.; Abrosimov, A. T.; Atrashkevich, V. B.;
Kulikov, G. V.; Solov'yeva, V. I.; Fomin, Yu. A.; Khrenov, B. A.

TITLE: Primary cosmic radiation of superhigh energy

TOPIC TAGS: atmospheric shower, shower spectrum, primary energy
spectrum, cosmic ray, atomic number, µ meson, cosmic ray diffusion,
magnetic field, magnetic rigidity, proton, nucleus, diffusion coeffi-
cient

ABSTRACT: The spectrum investigation of large atmospheric showers may
be made by means of the number of particles which is possible to study
using a complex large-scale facility. The spectrum of large atmosphe-
showers near sea level changes its form sharply with the change in
the total number N of particles. The transition of cosmic radiation
from the shower spectrum to the primary energy spectrum is performed
using a model of the development of atmospheric showers. The develop-

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L 23402-65

ACCESSION NR: AP5002095

ment depends upon the number of particles and their atomic number A. These parameters were obtained by analyzing the fluctuations of μ-meson flux measured in the complex facility. The distribution of the meson number depends upon the form of the primary energy spectrum, which is characterized by the exponent γ. Acceleration and diffusion of cosmic rays occur when both a change in the energy spectrum and a change in the composition of rays take place simultaneously. The diffusion of cosmic rays takes place in a magnetic field where the diffusion coefficient is specified by magnetic rigidity, which is equal to $2\varepsilon/300H$ for nuclei and $\varepsilon/300H$ for protons (ε is the energy of a nucleon). A table in the original article contains the percentage of galactic cosmic radiation of various energies. This table shows that the increase of energy causes an increase of heavy nuclei in cosmic radiation of the Galaxy. A decrease in the percentage of light nuclei α and L with the increase in energy is caused by the higher diffusion coefficient. The number of μ-mesons computed theoretically agreed with experimental data of the energy of the primary particles. At energies greater than 10^{17} ev, the experimental data showed more protons and light nuclei than the theory purports. Orig. art. has: 4 figures, 2 tables, and 12 formulas.   [EG]

Card 2/3

L 21189-65   EWG(j)/EWT(m)/FCC/T   IJP(c)   6/0048/64/028/012/2087/2092
ACCESSION NR: AP5002109

AUTHOR: Vernov,S.N.; Khristiansen,G.B.; Abrosimov,A.T.; Atrashkevich,V.B.; Belya-
yeva,I.F.; Vedeneyev,O.V.; Dmitriyev,V.A.

TITLE: Description of the modernized complex installation for study of extensive
air showers /Report, All-Union Conference on the Physics of Cosmic Rays held in
Moscow 4-10 Oct 1963/

SOURCE: AN SSSR. Izvestiya, Seriya fizicheskaya, v.28, no.12, 1964, 2087-2092

TOPIC TAGS: cosmic ray measurement

ABSTRACT: During the past two years the installation for comprehensiv investiga-
tion of extensive air showers and high-energy muons has been greatly improved. The
installation is located at Moscow State University and covers an area of about 4
hectares (about 10 acres); it consists of a large number of stationary and mobile
"laboratories". The general layout is shown in the Figure (see Enclosure). In the
mobile "laboratories" (Nos.7 through 16 in the figure) and in the stationary "la-
boratories" (1,2 & 3) in the main building the old system of hodoscopic counters
has been supplemented by an array of 20 scintillation counters with an area of

1/3

L 21189-65
ACCESSION NR: AP5002109 O

0.5 m^2 each, which make it possible to determine the strength of a shower and the orientation of its axis in space. In the underground laboratory the area of the muon detector has been increased from 6 to 43 m^2 and there has been installed a new system of 240 ionization chambers shielded by an absorber, intended for statistical measurements of the energy of muon fluxes. The paper gives diagrams of some of the counter and chamber arrays and describes some of the specific design features of the detectors and associated electronic equipment. A few typical curves are reproduced. The underground installation is characterized by an exceptionally large area, good continuity and a high resolution. Orig.art.has: 1 table and 9 figures.

ASSOCIATION: none

SUBMITTED: 00   ENCL: 01

SUB CODE: AA   NR REF SOV: 002   OTHER: 002

2/3

ACCESSION NR: AP5012318   UR/0048/64/028/011/1886/1893

AUTHOR: Vernov, S. N.; Khristiansen, G. B.; Atrosimov, A. T.; Belyayeva, I. F.;
Dmitriyev, V. A.; Kulikov, G. V.; Nechin, Yu. A.; Solov'yeva, V. I.; Khrenov, B.A.

TITLE: New data on the study of broad atmospheric showers using a complex
apparatus /Report of All-Union Meeting on Cosmic Rays Physics, held in Moscow
from October 4 to 10, 1963./
SOURCE: AN SSSR. Izvestija. Seriya fizicheskaya, v. 28, no. 11, 1964, 1886-1893

TOPIC TAGS: cosmic ray shower, nuclear particle, nuclear physics apparatus

ABSTRACT: Experiments are described that were conducted at Moscow State University
on a complex apparatus for the study of broad atmospheric showers and the mu-
meson component of cosmic rays. The apparatus gave simultaneous information on the
electron-photon, mu-meson, and nuclear-active components of broad atmospheric
showers in each individually recorded shower. Orig. art. has: 9 graphs, 3 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo
gosudarstvennogo universiteta im. M. V. Lomonosova (Scientific Research Institute
of Nuclear Physics, Moscow State University)

SUBMITTED: 00
NO REF SOV: 003   ENCL: 00   SUB CODE: AA, NP
                                   OTHER: 006   JPRS

Card 1/1

L 47083-65   EWG(j)/EWT(m)/FCC/T/EWP(j)/EWA(h)/EWA(l)   Pc-4/Peb   IJP(c)   RM

ACCESSION NR: AP5001027   S/0120/65/000/001/0069/0076

AUTHOR: Khristiansen, G. B.; Abrosimov, A. T.; Bogoslovskiy, G. V.;
Boytsov, V. I.; Solov'yev, K. I.

TITLE: Outfit for investigating extensive showers by means of a set of
scintillation counters

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1965, 69-76

TOPIC TAGS: extensive shower, scintillation counter

ABSTRACT: The addition of 20 scintillation counters in 1962 to the Moscow
University outfit for extensive-shower recording is reported. Plastic (poly-
styrene with 1% PPP + 0.04% POPOP) rectangular $707 \times 707 \times 65$-mm scintillation
counters have a total area of $10 \ m^2$. The counters and the electronic equipment
permit a wide-range recording of stream densities and the relative arrival times
of cosmic particles. Curves of the differential spectrum of pulse heights, of

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L 47083-65

ACCESSION NR: AP5007027

height-channel calibration, and of counter nonuniformity depending on the particle travel are presented. The principal circuits of preamplifiers, amplifiers, pulse-delay measuring devices, and pulse recorders are supplied. In conclusion, the authors wish to thank S. N. Vernov for directing the work. and V. B. Arrashkevich, Ya. L. Blokh, V. Kh. Leonov, and D. I. Protasov for their help." Orig. art. has. 8 figures and 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 03Dec63   ENCL: 00   SUB CODE: NP

NO REF SOV: 007   OTHER: 000

Card 2/2

L 4511-66   EWT(1)/EWT(m)/FCC/T/EWA(h)   IJP(c)   GS/GW

ACCESSION NR: AT5022837   UR/0000/65/000/000/0257/0266

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

TITLE: The study of short-period variations and microvariations of cosmic ray intensity using single scintillation counters

SOURCE: Vsesoyuznoye soveshchaniye po kosmofizicheskomu napravleniyu issledovaniy kosmicheskikh luchev, 1st, Yakutsk, 1962. Kosmicheskiye luchi i problemy kosmofiziki (Cosmic rays and problems in cosmophysics); trudy soveshchaniya. Novosibirsk, Redizdat Sib. otd. AN SSSR, 1965, 257-266

TOPIC TAGS: cosmic ray intensity, cosmic radiation composition, scintillation counter

ABSTRACT: Prior to the IGY all cosmic ray intensity variations were classified into two groups only: the long range (a few years or more) and the short range group. Recent investigations uncovered a considerable amount of fine structure in the short range group. On the basis of 41 references, the authors survey this new field, define the so-called microvariations, outline the methodology for the study of short-period and microvariations, discuss the demands imposed on photoelectric multipliers, describe devices for the study of the stability of operation of photoelectric multipliers, summarize the results of such studies, discuss the stabilization of the operation of complete scintillation counters, and stress the need for the development of new devices for the study of cosmic ray variations.
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L 4511-66

ACCESSION NR: AT5022837

Orig. art. has: 1 formula and 2 figures.

ASSOCIATION: Institut zemnogo magnetizma ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, the Ionosphere, and Radio Wave Propagation, AN SSSR); Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific-Research Institute of Nuclear Physics, MGU)

SUBMITTED: 29Oct64   ENCL: 00   SUB CODE: AA, OP

NO REF SOV: 026   OTHER: 015

Card 2/2

ACC NR: AP5024632   SOURCE CODE: UR/0048/65/029/009/1676/1681

AUTHOR: Vernov, S.N.; Khristiansen, G.B.; Abrosimov, A.T.; Atrashkevich, V.B.;
Belyayeva, I.F.; Vedeneyev, O.V.; Kulikov, G.V.; Fomin, Yu. A.; Nechin, Yu. A.;
Solov'yeva, V.I.; Khrenov, B.A.

ORG: none

TITLE: Investigations of fluctuations in the development of extensive air showers
with a fixed total number of charged particles and a fixed total number of muons /Re-
port, 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, 1676-1681

TOPIC TAGS: cosmic ray shower, muon, charged particle, extensive air shower, particle
distributic particle distribution

ABSTRACT: The authors have employed the modernized installation at Moscow State Uni-
versity, described elsewhere (S.N.Vernov et al., Izv. AN SSSR Ser. fiz., 28, 2087,
1964), to investigate the simultaneous distribution of total number N of charged par-
ticles, total number M of muons, and age parameter S in extensive air showers. Show-
ers were selected for which the zenith angle of the axis was less than 30°. M was de-
termined from the number of muons recorded by the muon detector and the perpendicular
distance of the muon detector from the shower axis with the aid of the known lateral
distribution of muons. The relative error in determining M did not exceed 35 %. The

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L 4528-66

ACC NR: AP5024632

error in determining S was estimated to be 0.02 by processing "artificial" showers of known age, calculated by Monte Carlo methods. The data presented were derived from some 300 showers with total numbers of charged particles ranging from 10^5 to 4×10^6. Histograms are given showing the distribution of showers with respect to N with fixed M, with respect to M with fixed N, with respect to S with fixed N, and with respect to S with fixed M, and scatter plots are given for N versus S with fixed M and for M versus S with fixed N. The correlation coefficient of S with M for fixed N ranged between 0.62 and 0.72; the correlation coefficient of S with N for fixed M was -0.67. Orig. art. has: 10 formulas, 4 figures, and 1 table.

SUB CODE: NP/ SUBM DATE: 00/   ORIG REF: 005/ OTH REF: 001

Card   2/2

VERNOV, S.N.; KHRISTIANSEN, G.B.; ABROSIMOV, A.T.; ATRASHKEVICH, V.B.;
    BELYAYEVA, I.F.; KULIKOV, G.V.; SOLOV'YEVA, V.I.; FOMIN, Yu.A.;
    KHRENOV, B.A.

    Ultrahigh-energy primary cosmic radiation according to data on
    extensive air showers. Izv. AN SSSR.Ser.fiz. 29 no.10:1876-1880
    O '65.
                                                              (MIRA 18:10)

    1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo
    gosudarstvennogo universiteta im. M.V.Lomonosova.

L 16017-66   EWT(1)/EWT(m)/FCC/EWA(h)   GW

ACC NR: AT6003530

SOURCE CODE: UR/3184/65/000/007/0226/0239

AUTHOR: Abrosimov, A. T.

ORG: none

TITLE: Scintillation counter equipment for studying cosmic rays

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. Kosmicheskiye luchi, no. 7, 1965, 226-239

TOPIC TAGS: scintillation counter, cosmic ray telescope, particle detector

ABSTRACT: The author describes scintillation counters installed at Moscow State University in 1962 for studying showers of cosmic rays. The total area of the counters was 10 m². The following circuits in the scintillation telescope are described: 1. time analysis channels for determining the relative delays in pulses; 2. amplitude analysis channels with units for amplification and logarithmic conversion; 3. a master assembly connected with the other units of the installation including event recording indicators; 4. a unit for monitoring the operation of all pickups in the installation and the control system; 5. a device for simultaneous electronic calibration of the time channels using vertical shower simulation, and for calibrating

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L 16017-66

ACC NR: AT6003530

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the amplitude channels using graduated pulses; 6. a device for calibrating the am-
plitude channels with respect to the signal from a single relativistic charged par-
ticle using a μ-meson telescope. Additional instruments are described which were
used only for control experiments or for periodic graduation measurements made for
verification. In conclusion the author is sincerely grateful to the director of the
work, G. B. Khristiansen and to G. V. Bogoslovskiy, V. I. Boytsov, V. Kh. Leonov, K.
I. Solov'yev, V. B. Atrashkevich and D. I. Protasov for assistance with the work.
Orig. art. has: 22 figures.

SUB CODE: 18 SUBM DATE: 00/ ORIG REF: 009/ OTH REF: 002

Card 2/2

L 16020-66   EWT(1)/EWT(m)/FCC/EWA(h)   GW
ACC NR: AT6003531
SOURCE CODE: UR/3184/65/000/007/0240/0250

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

ORG: none

TITLE: Use of scintillation counters in cosmic ray detectors

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. Kosmicheskiye luchi, no. 7, 1965, 240-250

TOPIC TAGS: scintillation counter, scintillator, cosmic ray, particle detector

ABSTRACT: In a brief survey of the literature, the authors consider various problems associated with the use of scintillation counters in cosmic ray detection equipment. Counters are discussed with respect to design characteristics, materials used and purpose. The methods used for collecting the light emitted during scintillations onto the photomultiplier cathode are divided into two categories: those using light guides, and those in which a portion of the light falls directly on the photomultiplier from an auxiliary space filled with scattered and reflected light. The amplitude characteristics of various counters are analyzed. Several experiments are

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ACC NR: AT6003531

suggested for determining the principal parameters of the luminophors and of the scintillation counters as a whole.

SUB CODE: 04 /SUBM DATE: 00/ ORIG REF: 019/ OTH REF: 043

Card 2/2

L 16019-66   EWT(1)/FCC/EWA(h)   GW

ACC NR: AT6003532

SOURCE CODE: UR/3184/65/000/007/0251/0259

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

ORG: none

37

B+1

TITLE: Using new instruments to study short periodic variations and microfluctuations in the intensity of cosmic rays

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. Kosmicheskiye luchi, no. 7, 1965, 251-259

TOPIC TAGS: cosmic radiation, cosmic ray telescope, cosmic ray measurement

ABSTRACT: This paper is a review of the IGY and IQSY literature on short periodic variations and fluctuations in the intensity of cosmic rays measured in hours. These newly discovered phenomena are attributable mainly to the fine structure of the Forbush effect and to bursts of cosmic rays. It is pointed out that the investigation of these phenomena requires the use of supersensitive instruments (neutron monitors, cubic and azimuthal telescopes, underground telescopes and other detectors) for reliably recording various secondary components of cosmic rays. This

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ACC NR: AT6003532

equipment may be used for studying microfluctuations with periods measured in min-
utes. The problems involved in using scintillation counters with photomultipliers
for studying these phenomena are considered.

SUB CODE: 04/18 SUBM DATE: 00/ ORIG REF: 021/ OTH REF: 018

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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.

ORG: none

TITLE: Liquid scintillation detectors with large dimensions

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

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L 16021-66

ACC NR: AT6003533   0

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

SUB CODE: /8 SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 061

Card 2/2

ACC NR: AP6016360   SOURCE CODE: UR/0048/65/029/010/1876/1880

AUTHOR: Vernov, S. N.; Khristiansen, G. B.; Abrosimov, A. T.; Atrashkevich, V. B.; Belyayeva, I. F.; Kulikov, G. V.; Solov'yeva, V. I.; Fomin, Yu. A.; Khrenov, B. A.

ORG: Scientific Research Institute of Nuclear Physics, Moscow State University im. M. V. Lomonosov (Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta)

TITLE: Primary superhigh-energy cosmic radiation according to data on extensive atmospheric showers

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 10, 1965, 1876-1880

TOPIC TAGS: cosmic radiation, muon

ABSTRACT: Of interest in the investigation of the primary energy spectrum of cosmic rays and their composition is the knowledge of the spectrum of extensive atmospheric showers (e.a.s.) with respect to the total number N_μ of high energy muons ($E_\mu \gtrsim 10^{10}$ eV) and the distribution of e.a.s. over the total number of the particles N_e for a given N_μ. In this connection the authors analyze the primary energy spectrum of cosmic rays on the basis of experimental data obtained with a special device for investigating e.a.s. recorded with a probability of $W \gtrsim 0.95$. This device makes it possible to determine the total number of charged particles in an e.a.s.

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ACC NR: AP6016380

at the observation level. An averaged function ρ_μ (R) is plotted to determine the spatial distribution N_μ of the muons, and, thus, the total number of these muons is determined. The distribution of N_e for a given N_μ is evaluated on the basis of data on an e.a.s. with $N_\mu = (1-2) \cdot 10^4$. The experimental findings are found to be in satisfactory agreement with theory. Thus, on the basis of the complex whole of the experimental findings, it may be concluded that the composition of primary cosmic rays in the superhigh-energy region apparently does not significantly differ from the composition in the low-energy region, and the γ-index of the primary energy spectrum is variable rather than constant. Orig. art. has: 5 figures. [JPRS]

SUB CODE: 20, 04 / SUBM DATE: none / ORIG REF: 009 / OTH REF: 002

Card 2/2   C C

ACC NR: AP7007081

SOURCE CODE: UR/0048/66/030/010/1685/1689

AUTHOR: Vernov, S. N.; Khristiansen, G. B.; Abrosimov, A. T.; Atrashkevich, V. B.; Belyayeva, I. F.; Vedeneyev, O. V.; Kulikov, G. B.; Nechin, Yu. A.; Solov'yeva, V. I.; Fomin, Yu. A.; Khrenov, B. A.

ORG: none

TITLE: Phenomenological characteristics of broad atmospheric showers with a fixed number of μ-mesons and electrons /Paper presented at the All-Union Conference on Cosmic Radiation Physics, Moscow, 15-20 Nov 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 10, 1965, 1685-1689

TOPIC TAGS: mu meson, cosmic radiation

SUB CODE: 20

ABSTRACT: In an earlier work by Vernov et al (Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 29, 1676, 1965), results obtained in a study at an installation of Moscow State University on broad atmospheric showers with zenith angles of 0-30° were reported. These results included the distribution of showers with a fixed number of electrons N_e with respect to the number of high-energy mesons N_μ and the age parameter S, distribution of showers with a fixed N_μ with respect to N_e and S, and the coefficients of the correlation between S and the fluxes of electrons and μ-mesons. In the work reported in this instance, the same relations were determined for broad atmospheric showers with zenith angles of 30-45°. The fluctuations of N_μ, S, and N_e, observed for an effective atmospheric depth of 1240 g/cm^2, were the same as those for vertical showers established in the earlier work. To determine the differences due to an increase in

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ACC NR: AP7007081

the effective atmospheric depth of 200 g/cm^2, calculations must be carried out with greater statistical precision. When results of the theoretical calculations on characteristics of broad atmospheric showers at 1240 g/cm become available, the experimental data reported will be useful for the determination of the composition of primary cosmic radiation in the superhigh-energy range.
Orig. art. has 5 figures, 2 formulas and 1 table. [JPRS: 39,658]

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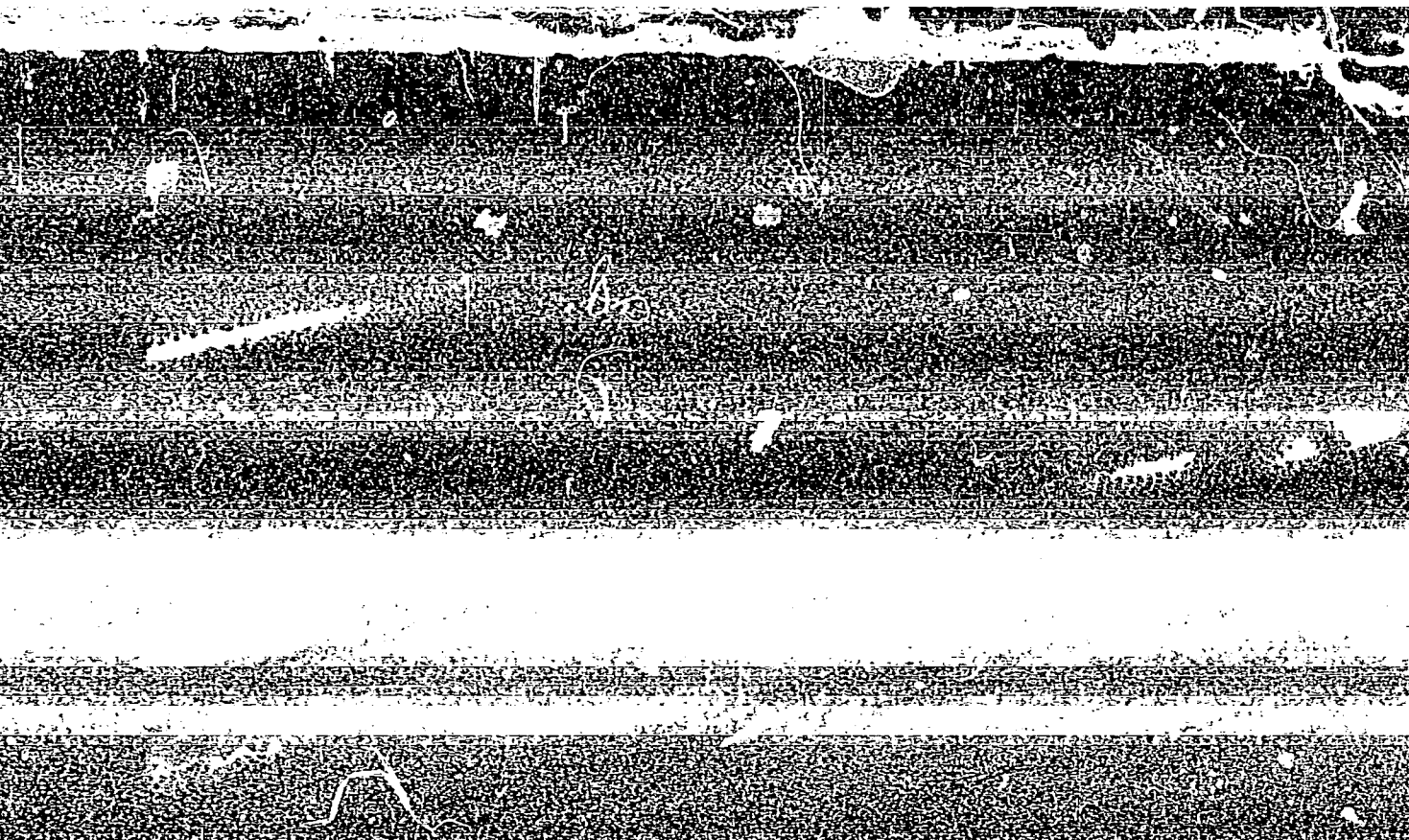
TITLE: Vertical electrolyzer with bipolar mercury electrode for the electrolytic refining
of mercury

TOPIC TAGS: vertical electrolyzer, bipolar mercury electrode, electrolytic mercury
refining, electropositive impurity, electronegative impurity

ABSTRACT: A new labor-saving apparatus for the refining of Hg is described and illustra-
ted. The electrodes are vertically arranged, each section representing one step in the
electrolytic process, the mixers attached to the shaft so as to form a compact unit. The
hydrogen evolved is removed by tubes. Various electrolytes were tried, but the best
results were obtained with perchlorates and nitrates. A mixture of $HgClO_4$ and $HClO_4$
was introduced into the first (anode) and second section, while the third and fourth (cathode)
section received $Hg_2(NO_3)_2$ and HNO_3. Upon closing the circuit, impurities with higher
electronegativity dissolved in the electrolyte, while the more electropositive ones

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ACCESSION NR: AT5001027

remained with the Hg anode. This continued throughout the sections, so that no electro-positive impurities could be detected at the third bipolar electrode with the usual analytic methods. Under these conditions, only Hg ions will carry the current from anode to cathode. Preliminary treatment of the apparatus and electrolytes and the actual refining process are described. A table shows the results of colorimetric analysis of the refined Hg with known starter impurities. The end product was 99.999% pure. Orig. art. has: 1 table and 1 figure.

ASSOCIATION: Institut khimicheskikh nauk, Akademiya nauk Kazakhskoy SSR (Institute of Chemical Sciences, Academy of Sciences of the Kazakh SSR)

SUBMITTED: 00   ENCL: 00   SUB CODE: MM, GC

NO REF SOV: 012   OTHER: 002

Card 2/2

KOZIN, L.F.; ABROSIMOV, A.V.; BUNIN, G N.

Use of electromagnetic pumps in electrolyzers for amalgam metallurgy.
Trudy Inst. khim. nauk AN Kazakh.SSR 12:200-206 '64.

(MIRA 18:2)

GLIKMAN, L.S.; BOCHAROV, I.V.; VIKHMAN, G.L.; APROSIMOV, B.Z.; KIRILC\,
Ye.A.; MEL'NIKOV, S.M.; AGAFONOV, A.V.; SOSKIND, D.M.

Rebuilding catalytic cracking units with a combined reactor-re generator.
Khim. i tekh. topl. i masel 6 no.11:6-10 N '61.   (MIRA 14:11)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut
neftyanogo mashinostroyeniya.
                    (Cracking process)

ALEKSANDROV, I.A.; SHEYNMAN, V.I.; ABROSIMOV, B.Z.; VOL'SHONOK, Yu.A.

Concurrent spray plates, Khim. i tekh. topl. i masel 8 no.4:
44-51 Ap '63.   (MIRA 16:6)

(Plate towers)

ABROSIMOV, E.A.; RYLOVA, N.A.

Precision meter of active resistances and conductances. Izm.tekh. no.8:
50-53 Ag '64.   (MIRA 17:12)

ABROSIMOV, G. [Abrosymov, H.]

Supply center of the interfarm building organization. Bud.mat.
i konstr. 4 no.6:46-50 N-D '62.   (MIRA 15:12)

1. Zamestitel' glavnogo inzhenera Ukrainskogo nauchno-issledo-
vatel'skogo i proyektnogo instituta sel'skogo khozyaystva.
        (Collective farms—Interfarm cooperation)
        (Ukraine—Construction industry)

ABROSIMOV, G.S.; KATSNEL'SON, S.M.; ni____N, M.__, _____; ABULADZE,
     M.A.

Letters to the editor. Put' _____, _____ '65.
                                                                (MIRA 18:8)

1. Starshiy n_____ stan___ _____,
Sverdlovskoy dorogi (for Ab_____). 2. Gla___y spetsialist
tekhnicheskogo otdela "_____", Tbilisi (for Katsnel'___).
3. Stantsiya Kirovabad, Zakav___ ___ dorogi (for khlynin).
4. Nachal'nik rel'sosvarochnogo poyezda, _tantsiya Orsha, Belorus-
skoy dorogi (for Abuladze).

L 11052-65   EWT(1)/EWA(h)   Peb   A/ETR/RAEM(c)/AFET R/RAEMC

ACCESSION NR: AP4046256   S/0213/64/000/003/0075/0080

AUTHORS: Abrosimov, I. L.; Aleskerov, S. A.

TITLE: Investigation of the amplitudes of pulses from a shaper with a transistorized shock-excitation circuit

SOURCE: AN AzerbSSR. Izvestiya. Seriya fiziko-tekhnicheskikh i matematicheskikh nauk, no. 3, 1964, 75-80

TOPIC TAGS: pulse amplitude, signal shaping, shock excitation, transistorized circuit, transistor transfer function, transient response

ABSTRACT: The authors consider a pulse shaping circuit using a transistorized shock-excitation network, and propose formulas for the calculation of the pulse amplitude. A diagram of the pulse shaping network is shown in Fig. 1a of the enclosure. Most published articles deal with vacuum tube shock excitation circuits rather than

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ACCESSION NR: AP4046256   O

transistorized ones. The calculations are based on standard circuit
equations in the time domain, and on the use of h-parameters for
the transistor. It is assumed that the transients in the transis-
tor are much more rapid than the pulse-shaping time. Orig. art.
has: 2 figures and 9 formulas.

ASSOCIATION: None

SUBMITTED: 00   ENCL: 01

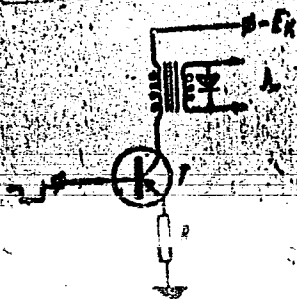SUB CODE: EC   NR REF SOV: 005   OTHER: 000

Card   2/3

Fig. 1.   Transistorized pulse shaper

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