Nobel Prize Papers SOV/4393

Frank, I. M. Optics of Light Sources Moving in Refractive Media 35

Supplement. Bolotovskiy, B. M. Soviet Scientists, Winners of the 1958 Nobel Prize in Physics 64

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10-20-60

GORBUNOV, A.N.; SPIRIDONOV, V.M. [deceased]; CHERENKOV, P.A.

Comments on the existence of particles with masses of $2m_e$ $25m_e$. Zhur. eksp. i teor. fiz. 38 no.1:69-73 Jan '60. (MIRA 14:9)

1. Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR.
(Particles (Nuclear physics))

FABRIKANT, Valentin Aleksandrovich, prof., doktor fiziko-matem. nauk; CHERENKOV, Pavel Alekseyevich, prof., doktor fiziko-matem. nauk, laureat Nobelevskoy premii; GALANIN, Mikhail Dmitriyevich, prof., doktor fiziko-matem. nauk; KUZNETSOV, Ivan Vasil'yevich; TOLSTOY, Nikitia Alekseyevich, prof., doktor fiziko-matem. nauk; VINTER, Aleksandr Vasil'yevich, akademik [deceased]; BARDIN, Ivan Pavlovich, akademik [deceased]; BAZHENOV, A.I., FAINBOYM, I.B., red.; RAKITIN, I.T., tekhn. red.

Sergei Ivanovich Vavilov; sbornik. Moskva, Izd-vo "Znanie," 1961. 43 p. (Vsesoyuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.9, Fizika i khimiia, no.10) (MIRA 14:7)

(Vavilov, Sergei Ivanovich, 1891-1951)

33092

S/638/61/001/000/015/056
B101/B102

24.6300

AUTHORS: Denisov, F. P., Kosareva, K. V., Cherenkov, P. A.

TITLE: Mechanism of emission of nuclear fragments

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 117-126

TEXT: A mechanism of the separation of a fragment from the nucleus in the process of a nucleonic cascade is suggested. The nucleus is assumed to be structured and to contain nucleon groups connected with the nuclear residue by few nucleons. In the nucleonic cascade these binding nucleons can be knocked out, and the fragment is emitted. The probability of fragment separation from the nucleus is given by

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$$P(n_1, n_2, n_3, N_1, N_2, N_3, P_1, P_2, P_3) = \frac{(1+a)\,n!}{n_1!\,n_2!\,n_3!}\,P_1^{n_1}(n)\left[1-\frac{n_1-1}{2N_1}\right]^{n_1}\prod_{i=1}^{N_2}P_2(n)\left[P_2(n)-\sum_{k=1}^{i}p(k_2,n)\right]P_2^{n_2}(n)\left[1-\frac{n_2-1}{2N_2}\right]^{n_2}\left[1-\frac{n-1}{2N}\right]^{-a}. \quad (1)$$

N_1 is the number of nucleons in the fragment, N_2 is the number of nucleons binding the fragment to the nucleus, N_3 is the number of the remaining nuclear nucleons. n_1, $n_2 = N_2$, and n_3 are the numbers of nucleons knocked out of the fragment, from the bonds, and from the nucleus, respectively. $P_m(n) = N_m p_m(n) = \sum_{i_m} p(i_m,n)/n$, where $p(i_m,n)$ is

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Mechanism of emission of nuclear ...

the probability of the nucleon i_m being knocked out in a cascade during which n nucleons are knocked out of the nucleus ($n = n_1 + n_2 + n_3$), and $m = 1, 2, 3$. The correction coefficient α is negligibly small. The experiments were conducted at 660 Mev with target nuclei of N = 95, $R = 3 \cdot 10^{-13}$ cm. 15 cascades with 5 - 15 knocked-out nucleons were examined. A rise at $\theta = 180^\circ$ and a dip at $\theta = 0^\circ$ are characteristic of the reduced probability. The capture of a fragment by a nucleus is examined on the basis of drop models: assumption of a bond between fragment and nucleus (variant A); assumption of the fragment forming a surface wave on the nucleus (variant B). The probability, $P_2(p_{10}, \overline{P}_2)$, of the emission of a fragment drops with an increase of θ (Fig. 4). The model provides good agreement with the experiment regarding angular distribution and energy spectrum of the fragments with an energy near the Coulomb barrier, but does not explain the emission of fragments with higher energies. The N(Z) distribution of the emitted fragments calculated from Eq. (1), provides agreement with the experiment, excepting

$Z \geqslant 8$ (Fig. 8). The total fragmentation cross section was calculated from $\sigma_f = \sum_{N_1} \sum_{n_r} \nu(N_1) P(N_1, N_2, n_r) \sigma(n_r)$. $\nu(N_1)$ is the number of N_1 fragments coexisting in the nucleus; $P(N_1, N_2, n_r)$ is the probability for the emission of an N_1 fragment with N_2 bonds in an n_r radiant star; $\sigma(n_r)$ is the effective cross section for the formation of an n_r pronged star. The calculation of $\nu(N_1)$ yields good agreement with experiment at $N_2 \leqslant 2$ and $N_1 = 10 - 12$. It is concluded that the cascade model will provide further data on the steric structure of the nucleus. O. V. Lozhkin and N. A. Perfilov (ZhETF, 1956, 31, 913) are mentioned. There are 9 figures, 1 table, and 19 references: 8 Soviet and 11 non-Soviet. The four most recent references to English-language publications read as follows: Nakagawa S. et al., Journ. of Phys. Soc. Japan, 12, 7, 747, 1957; Goldsack S. I. et al. Phil. Mag., 2, 14, 149, 1957; Metropolis N. et al., Phys. Rev., 110, 185, 1958; Hofstadter R., Phys. Rev., 28, 214, 1956.

Card 4/5

Mechanism of emission of nuclear ...

ASSOCIATION: Leningradskiy fizicheskiy institut im. P. N. Lebedeva AN SSSR (Leningrad Physics Institute P. N. Lebedev, AS USSR)

Fig. 4. Probability of emission of a fragment as a function of the separating angle θ, for a fragment with $N_1 = 9$, $N_2 = 2$. (1) $p_{10} = 7$ Mev$^{1/2}$, variant A; (2) idem, variant B; (3) $p_{10} = 5$ Mev$^{1/2}$, variant A; (4) idem, variant B. (4) in absolute units, (1) to (3) normalized between 0 and 30°.

Fig. 8. Distribution N(Z) of emitted fragments as a function of Z. (I) according to Eq. (1); (II) N(Z)/Z.

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CHERENKOV, P. A.

33095
S/638/61/001/000/018/056
B104/B138

24.6700
AUTHORS: Gerasimov, A. G., Gorbunov, A. N., Dubrovina, V. A., Kaipov, D., Kuvatov, K., Orlova, A. I., Osipova, V. A., Sakovich, V. A., Silayeva, V. S., Fomin, Yu. A., Cherenkov, P. A.

TITLE: Study of photodisintegration of nitrogen, oxygen, and neon

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 134 - 153

TEXT: The photodisintegration of N_7^{14}, O_8^{16}, and N_{10}^{20} was studied by means of a Wilson chamber in a magnetic field acting directly on the bremsstrahlung beam. In order to be able to distinguish reactions (γ, p) and (γ, pn), and record the recoil nuclei, the Wilson chamber was filled with a mixture consisting of the gas to be investigated (nitrogen or neon) and hydrogen. Reduced pressure was used in experiments with oxygen. In experiments with nitrogen, oxygen, and neon, the stopping power for protons was 0.65, 0.31, and 0.50 relative to air. The mean energy of the photo-

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S/638/61/001/000/018/056
B104/B138

Study of photodisintegration ...

protons from γpn reactions was lower than that from γp reactions. The effective cross sections were calculated; their shape indicates the importance of transitions in the residual nuclei. The proton angular distribution from γpn reactions is nearly isotropic for low proton energies. For high proton energies (>20 Mev), it is very similar to that in deuteron photodisintegration. The proton angular distribution from γp reactions is approximately isotropic for N_7^{14} and O_8^{16} at low energies. In the expression $d\sigma/d\Omega \sim A(1+B/A\sin^2\theta+C/A\sin^2\theta\cos\theta+D/A\cos\theta)$, the effect of the last three terms in parentheses increases for higher energies. The isotropic part of the angular distribution is greater for N_{10}^{20} than for the two other isotopes. An abnormally high yield of the γpn reaction was found for N_7^{14}; it is attributed to interaction of a photon with a pair of "valency" nucleons in the outer shell, which are in the $1p_{1/2}$ state with parallel spins. During photon absorption, the electric dipole absorption plays an essential part in N and O nuclei. The logarithmic moments of the photon-absorption cross sections are in good agreement with results obtained on the basis of an independent-particle model. Yu. K. Khokhlov

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33095

Study of photodisintegration ... S/638/61/001/000/018/056
B104/B138

(DAN. SSSR, 1954, 97, 239; ZhETF, 1957, 32, 124) and A. B. Migdal (ZhETF, 1945, 15, 81) are mentioned. There are 9 figures, 7 tables, and 22 references: 8 Soviet and 14 non-Soviet. The four most recent references to English-language publications read as follows: Livesey D. L. Canad. Journ. Phys., 35, 9, 1957; Rhodes, Stephens W. E. Phys. Rev., 110, 1415, 1958; Elliot, Flowers B. H. Proc. Roy. Soc., A. 242, 57, 1957; Svantesson N. L. Nucl. Phys., 3, 273, 1957.

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

Card 3/4

X

CHERENKOV, P.A.

S/056/62/042/003/017/049
B102/B138

AUTHORS: Gorbunov, A. N., Dubrovina, V. A., Osipova, V. A., Silnyova, V. S., Cherenkov, P. A.

TITLE: Investigation of the photoeffect on light nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 747 - 757

TEXT: A cloud chamber with a field of $10.5 \cdot 10^3$ oe was used to measure the yields from photonuclear reactions with nitrogen, oxygen and neon and the cross sections $\sigma_0 = \int \sigma(E)dE$, $\sigma_{-1} = \int \sigma(E)E^{-1}dE$, and $\sigma_{-2} = \int \sigma(E)E^{-2}dE$, where $\sigma(E)$ is the total photon absorption cross section. The maximum bremsstrahlung used was $E_{\gamma max} = 170$ Mev. Besides the photonuclear reactions given in Table 1, some 3 - 6 pronged stars were observed but not identified. The following results were obtained from 5300 (N), 8500 (O) and 8500 frames (Ne) taken in these experiments: The ratios of the yields of the (γ,pn) and (γ, p) reactions on the "α-nuclei" O^{16} and Ne^{20} are almost equal and amount to ~20%. For a free α-particle this value equals

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Investigation of the ...

17%. For N^{14} this ratio is many times higher, being 1.90±0.07. This indicates that (γ, pn) is the main reaction for N^{14}, though its threshold is higher than that of (γ, p) and (γ, n). This fact is attributed to the low thresholds of emission of the valent nucleons from N^{13} and C^{13}. The yield of (γ, pn 3α) reaction on N exceeds those for O and Ne by a factor of 3.5. It is attributed to the decay of a highly excited C^{12} nucleus due to a (γ, pn) reaction. The yield of three-pronged Ne stars is also high due mainly to (γ,pα) reactions. Apparently the $N^{20}(\gamma, p\alpha)N^{15}$ reaction is the result of an α-emission of excited F^{19} produced in a (γ, p) reaction. The (γ,α) reactions were small for all nuclei. The cross sections have been measured separately for all reaction types. When these separate values are summed up, the following is obtained for N^{14}, O^{16} and Ne respectively: $\sum\sigma_0$: 347, 438, 600 Mev.mb; $\sum\sigma_{-1}$: 12.5, 12.8, 18.0 mb; $\sum\sigma_{-2}$: 0.46, 0.43, 0.60 mb/Mev. The theoretical values obtained with $\sigma_0 = 60(NZ/A)$, Mev.mb $\sigma_{-1} = 0.36A^{4/3}$ mb, and $\sigma_{-2} = 2.25A^{5/3}$ mb/Mev are,

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Investigation of the ...

except for σ_{-1}, lower. The experimental values can be explained by the ... summation rule. The integral cross sections agree with calculations for electrical dipole absorption when exchange forces are taken into account. The small difference between the (γ, p) and (γ, n) reactions and the very small one between the (γ,α) reactions of the nuclei agree with the conception of the charge independence of nuclear forces. A. G. Gerasimov, A. I. Orlova, N. Pluzhnikova, V. A. Sakovich, Yu. A. Fomin, and V. Ye. Yakushkin are thanked for assistance. There are 3 figures, 5 tables, and 36 references: 11 Soviet and 25 non-Soviet. The four most recent references to English-language publications read as follows: D. Balfour, D. C. Menzies. Proc. Phys. Soc. 75, 543, 1960; J. S. Levinger. Nuclear Photodisintegration, Oxford, University press, 1960. G. Brown, M. Bolsterli. Phys. Rev. Lett 3, 472, 1959; K. Okamoto. Phys. Rev. 116, 428. 1959.

SUBMITTED: October 28, 1961

Card 3/4

33429
S/048/62/026/001/002/018
B125/B104

24.6720

AUTHOR: Cherenkov, P. A.

TITLE: Emission from charged particles moving at a velocity greater than that of light and its use in the physics of high-energy particles

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 1, 1962, 14-20

TEXT: S. I. Vavilov made an important contribution to the interpretation of the radiation of fast charged particles, which was discovered about thirty years ago (P. A. Cherenkov, Dokl. AN SSSR, 2, 451 (1934); S. I. Vavilov, Dokl. AN SSSR, 2, 457 (1934)). A photograph taken by V. P. Zrelov on a 660-Mev proton beam at OIYaI, Dubna, shows a ring produced by a conical proton beam on the photoemulsion. Because of the energy threshold resulting from $\beta > 1/n$, it takes extremely fast particles to emit this Cherenkov radiation. The aperture angle of the radiation cone widens with increasing particle velocity and reaches a maximum at θ_{max} = arc cos $1/n$, provided $\beta \sim 1$ and n = const. In the borderline case

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Emission from charged particles...

$\beta = 1/n$, the above angle of aperture is vanishing, and no Cherenkov radiation is emitted any longer. The extremely sensitive photomultipliers available (the entire apparatus consists of a transparent medium in solid, liquid, or gaseous state, an optical condensor, a photomultiplier, and an electronic circuit) can be used for measuring even very small amounts of light emitted from Cherenkov particles. A counter for particles moving at velocities greater than that of light is able to record only particles with a definite minimum energy, moving toward the photomultiplier. Such counters have a very high time resolution. In recent years, they have been used at the 260-Mev synchrotron of FIAN for studying the production of neutral pions by photons. L. V. Kurnosova et al. (Sb. Iskusstvennyye sputniki Zemli, vyp. 5, Izd. AN SSSR, 1960) studied the nuclear component of cosmic radiation, especially its composition as a function of Z, using data from the Cherenkov threshold counters of Lunik II. Valuable results were found for the flux of cosmic particles for different Z in the energy range of 1.3 Bev/nucleon. The distinct directivity of the Cherenkov radiation permits the selection of particles according to their velocity. The usability of such counters was confirmed in the discovery of the antiproton. Difficult though it is, also the energy of an individual particle moving at

Emission from charged particles...

a velocity greater than that of light can be determined from the Cherenkov radiation. Considering that the refractive index can be changed by a simple change of the gas pressure in a counter adjusted to an angle Θ, the mass distribution of beam particles with equal momentum is easy to determine. The production of a sufficiently intense light flash in the beam requires a counter of 2.5 m length and 3 t weight and a fairly high pressure in it. There are 5 figures and 7 references: 5 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Chamberlain O., Segrè E., Wiegand C., Ypsilantis T., Phys. Rev., 100, 947 (1955); Hutchinson G. W., Progr. Nucl. Phys., 8, 197 (1960).

Card 3/3

S/903/62/000/000/032/044
B102/B234

AUTHORS: Denisov, F. P., Kosareva, K. V., Tel'nov, Yu. Ya., Cherenkov, P. A.

TITLE: Angular distribution and energy spectrum of the C^{11} nuclei of the $C^{12}(\gamma,n)C^{11}$ reaction

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960 g. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 474-478

TEXT: In view of the lack of data on the C^{12} photonuclear reaction at gamma energies above 23 Mev the authors measured the energy and angular distributions of the C_6^{11} recoil nuclei of such reactions induced by gammas with $E_{\gamma max}$ = 260 Mev. The recoil nuclei were recorded with the help of a method described in PTE, 3, 34, 1957 which is free from the disadvantages of the usual methods operating with cloud or bubble chambers or counters. The measurements were made with the FIAN synchrotron bremsstrahlung and a polystyrene film as target, collecting and control films used for recording

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and or determining the background. The recoil nuclei were identified according to their 20.2-min β^+ activity. Corrections were made for selfabsorption and decay. The C^{11} yield was measured at the angles 30, 45, 60, 90, 120, 135 and 150° to the γ-ray at air pressures of 0, 1.7, 3.4, 4.7, and 9.5 mm Hg, what was in correspondence to C^{11} energies above 0.05, 0.28, 0.44 and 1.7 Mev. The recoil nucleus angular distribution measured was compared against theoretical curves calculated with different parameters for $\nu(\theta') = 1 + \alpha \sin^2\theta'$, a distribution satisfied both by quasideuteron and direct-photoeffect models. Agreement is best when the C^{11} nucleus is assumed in the ground state and $\alpha = 2$. The C^{11} yield at $E > 0.3$ Mev amounts to 30% of the total C^{11} yield, that with $E > 1.7$ Mev amounts to only $3 \pm 2\%$. This disagrees with the calculations made by Barber et al. (Phys. Rev. 98, 73, 1951) but is, in its conclusions, in close agreement with results obtained by Bogdankevich et al. (ZhETF, 31, 3(9), 405, 1956). There is 1 figure.

ASSOCIATION: Institut fiziki im. P. N. Lebedeva AN SSSR (Institute of Physics imeni P. N. Lebedev AS USSR)

B/089/63/014/004/003/019
A066/A126

AUTHORS: Belovintsev, K.A., Belyak, A.Ya., Gromov, A.M., Moroz, Ye.M., Cherenkov, P.A.

TITLE: A 6.5 Mev microtron for electron injection into a synchrotron

PERIODICAL: Atomnaya energiya, v. 14, no. 4, 1963, 359 - 363

TEXT: It is first pointed out that the relatively high intensity of the electron beam attained in conventional microtrons, the simple design of the device, the escape of a relatively large amount of electrons from the accelerator, the great similarity of the electron energies, the small divergence angle of the electrons, and other facts indicate that the microtron may also serve as a synchrotron injector. These assumptions were checked by the authors on the 280 Mev synchrotron of the Fizicheskiy institut im. P.N. Lebedeva AN SSSR (Institute of Physics imeni P.N. Lebedev, AS USSR) with the aid of their 6.5 Mev microtron. The number of electrons retained during acceleration when a magnetron is used as a synchrotron injector is estimated at about $2.5 \cdot 10^{10}$. It is thus proved that modern accelerators of this type are very efficient already now, and further de-

A 6.5 Mev microtron for electron injection ....

velopment will make magnetrons even more suitable for this purpose. The magnetic poles and the sheets are made of Ст.3 (St.3) steel. The magnetic poles are 600 mm in diameter, and the diameter of the operating area is 500 mm approximately. The magnet requires 450 w, and the supply of energy is stabilized with an error of about 0.03%. The pressure in the chamber is about $2 \cdot 10^{-6}$ mm Hg. There are 3 figures.

SUBMITTED: June 27, 1962

Card 2/2

L 11297-63 EWT(m)/BDS/ES(w)-2--AFFTC/ASD/ESD-3/SSD--Pab-4--DM
ACCESSION NR: AP3003978 S/0089/63/015/001/0062/0062

AUTHOR: Belovintsev, K. A.; Belyak, A. Ya.; Gridasov, V. I.; Cherenkov, P. A. 65 64

TITLE: On new possibilities of increasing the efficiency of a microtron 19

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 62

TOPIC TAGS: microtron, ferrite isolator, magnetron, automatic bias

ABSTRACT: A ferrite isolator, serving as a matching and decoupling element between a magnetron oscillator and an accelerating resonator was substituted for the conventional water-load system and the phase shifter in a microtron. As a result of this improvement, the power loss in the microtron waveguide was reduced, microtron efficiency was increased by a factor of approximately two and the stability of the h-f channel was increased markedly due to decoupling between the magnetron oscillator and the load. Through reduction of waveguide length and the number of joints in the waveguide it was possible to make the system hermetic, thus increasing considerably its electric strength. Since the ferrite isolator functions simultaneously as a matching element, attenuator, and phase shifter, the adjustment procedure and control of the microtron were considerably simplified.

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L 11297-63
ACCESSION NR: AP3003978

A further increase in efficiency can be obtained by increasing coefficient k, which is the ratio of the number of electrons in the beam to the number of injected electrons. The k can be increased by applying a positive bias to the microtron injected cathode. Smooth adjustment of the bias is effected by changing the internal resistance of the high-voltage triode located between the microtron cathode and the ground. It was shown in experiments, that k is a linear function of the positive bias in the first approximation. The value of the linearity coefficient depends on the dimensions of the resonator injector aperture and on the location of the cathode. Thus, it was possible to increase k by 10% at a positive bias of approximately 2—3 kv, and to increase the pulsed current of accelerated electrons in the microtron up to approximately 110 mamp at an energy of 6.5 Mev. Orig. art. has: 1 formula.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva, AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 250ct62 DATE ACQ: 08Aug63 ENCL: 00

SUB CODE: SD NO REF SOV: 002 OTHER: 000

Card 2/2

L 34474-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pab-10/Pt-10 IJP(c) DM

ACCESSION NR: AP5005798 S/0089/65/018/002/0104/0107

AUTHOR: Ado, Yu. M.; Bessonov, Ye. G.; Cherenkov, P. A.

TITLE: Experiments on the accumulation of electrons in a synchrotron

SOURCE: Atomnaya energiya, v. 18, no. 2, 1965, 104-107

TOPIC TAGS: synchrotron, storage ring, electron storage, electron lifetime, electron scattering, particle accelerator

ABSTRACT: This is a continuation of earlier experimental work on this subject by the author [Trudy Mezhdunarodnoy konferentsii po uskoritelyam [Transactions of International Conference on Accelerators], N. Atomizdat, 1964, p. 355; Atomnaya Energiya v. 12, 54, 1962). In the present article the authors report an experimentally obtained relation between the lifetime of electrons in a synchrotron storage ring and the pressure of the residual gas, the accelerating voltage, and the particle energy. The work was done on the 280-Mev FIAN (Physics Institute, Academy of Sciences) synchrotron. The experimental procedure and the apparatus were described in the earlier paper. The number of particles in the orbit was determined from the intensity of the synchrotron radiation and recorded with a loop oscillo-

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L 34474-65

ACCESSION NR: AP5005798

scope. Plots were obtained of the particle lifetime against the amplitude of the high-frequency accelerating field, the degree of vacuum, the particle energy, and the depth of amplitude modulation of the high-frequency accelerating voltage. Factors contributing to a decrease in the lifetime and to a loss of particles are evaluated. The lifetime increases with increasing accelerating voltage and with particle energy, and decreases with depth of modulation. An analysis of the data shows that at low density of the accumulated particles, the lifetime of the particle is governed essentially by single scattering of electrons by atoms of the residual gas. Orig. art. has: 5 figures and 9 formulas. [02]

ASSOCIATION: none

SUBMITTED: 24Feb64 ENCL: 00 SUB CODE: NP

NO REF SOV: 005 OTHER: 000 ATD PRESS: 3213

Card 2/2

L 28820-65 EWT(m) IJP(c) GD

ACC NR: AT6013168 SOURCE CODE: UR/0000/65/000/000/0118/0125

AUTHOR: Belovintsev, K. A.; Cherenkov, P. A. 29 B+1

ORG: Physics Institute im. P. N. Lebedev AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: A positron microtron 19

SOURCE: AN SSSR. Mikrotron (Microtron); sbornik statey, 1944-1965 gg. Moscow, VINITI, 1965, 118-125

TOPIC TAGS: particle accelerator, electron accelerator, positron, synchrotron

ABSTRACT: The authors consider the possibility of using a microtron as a general-purpose injector for a synchrotron storage ring. Methods for producing, accelerating, and extracting positrons from the microtron are discussed. If a beam of electrons from the last orbit is directed at the positron converter K located on the wall of resonator P of the microtron (see Fig. 1), the angular coefficient for capture of positrons leaving the converter with low energies will be considerably higher than in the case of direct conversion on the storage ring target due to the high electric field strength in the resonator (about 400 kv/cm). Spatial displacement of the electron beam toward the converter is accomplished by using two magnetic channels l_1 and l_2 with a difference in length which determines the amount of displacement Δl. An approximate expression is given for determining the length of the magnetic channels.

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L 28820-66

ACC NR: AT6013168

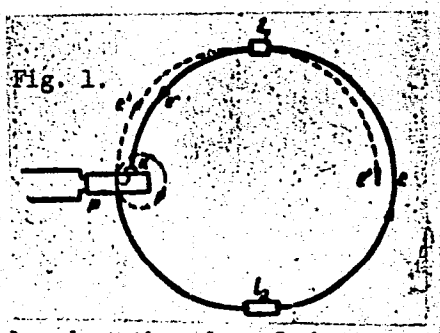

Fig. 1.

Diagrams are given showing the regions of positron capture for various initial velocities and phases in the horizontal and vertical planes. The proposed method for positron acceleration was checked out on the microtron at the photomeson laboratory in the Physics Institute im. P. N. Lebedev AN SSSR with an electron-to-positron beam conversion coefficient of 10^{-5} to 10^{-6}. Experimental work on improving the method is still in progress. A second method is proposed for positron emission in a microtron where the converter is placed at the edge of the resonator opening. Insufficient data on the important parameters which characterize this method make it difficult to compare it with the first method. A design is proposed for a universal microtron injector with two electron injectors and a positron converter. This system uses a single magnetic channel for simultaneously directing the electron beam to the converter and deflecting the positron beam. The installation may be easily adjusted for production of two electron beams when necessary. Orig. art. has: 4 figures. [14]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ ATD PRESS: 4262

Card 2/2 CC

L 39836-66 EWT(m)/T GD-2
ACC NR: AP6018851 SOURCE CODE: UR/0367/65/002/006/1042/1048

AUTHOR: Denisov, F. P.; Milovanov, V. P.; Latypova, R. A.; Cherenkov, P. A. / 2 B

ORG: Physics Institute im. P. N. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Distribution of knocked-out nucleons with respect to the nuclear volume and excitation energies and momentum distributions of nuclei in the cascade process [This paper was given at the 14th Annual Conference on Nuclear Spectroscopy, Tbilisi, February 1964]

SOURCE: Yadernaya fizika, v. 2, no. 6, 1965, 1042-1048

TOPIC TAGS: nucleon, excitation energy

ABSTRACT: The discussion of the results of calculations described in a previous paper (Journal of Nuclear Physics, Vol 1, p. 329, 1965) is continued. This discussion concerns the distribution of the knocked-out nucleons in the volume of the nucleus, the excitation energies of the residual nuclei, and the momentum distribution of the recoil nuclei. Orig. art. has: 7 figures and 3 tables. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 20 / SUBM DATE: 06Apr65 / ORIG REF: 006 / OTH REF: 002

Card 1/1 0 5

CHERENKOV, P. O.

Radiation of faster-than-light particles and some of its applications in experimental physics. Des. such. fiz. no.6: 134-144 '62. (MIRA 16:1)

(Radiation)

SOV/180-59-3-39/43

AUTHOR: Cherenkov, P.V. (Moscow)

TITLE: On the Accuracy and Correlation of Various Methods of Determining the Concentration of Aerozole

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 184-186(USSR)

ABSTRACT: The accuracy of the optical and counting methods of determining the concentration of an aerozole are discussed. It is shown on an example of coal dust that the determination of the weight concentration of particles by the optical method is more accurate than the counting method (the maximum error ± 15-45% as against ± 35-60%). However, both methods are more accurate when only finer fractions are measured. The correlation between the counting and optical methods, i.e. the correlation between the specific number of particles per mg of aerozole (α) and specific surface area of particles (Cm^2/mg - β) is shown in Fig 1 and the dependence of dispersiometric characteristics (α and β) of aerozole on its particle size (λ) in Fig 2. It can be seen that the sensitivity of the methods sharply

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On the Accuracy and Correlation of Various Methods of Determining the Concentration of Aerozole

decreases with increasing particle size. There are 2 figures and 3 Soviet references.

SUBMITTED: April 4, 1958

Card 2/2

Cherenkov, S.

USSR/ Electronics - Radio receivers

Card 1/1 Pub. 89 - 8/21

Authors : Slutskiy, M., and Cherenkov, S.

Title : The radio receiver "NEVA-55"

Periodical : Radio 7, 21 - 22, Jul 1955

Abstract : The structural and circuit characteristics of a new and modernized radio receiver "NEVA-55" manufactured by the Leningrad Metal Goods Plant are described. The difference between the new Neva-55 and the 9-tube Neva-52 is demonstrated. The effective ranges of the receiver are: long wave 415-150 kc (723-2000 m); medium wave - 160-520 kc (187-578 m) and short wave - 12.1 - 9.2 c (24.8 - 76 m). The sensitivity of the receivers on all wave lengths is said to be no less than 80 μ v. Tables; circuit diagram, illustrations.

Institution : .....

Submitted : .....

CHERENKOV, V., inzh.

A "Saturn ring" around the earth. Isobr.i rats. no.2:36-39 F '60. (MIRA 13:8)
(Solar energy)

37675

S/179/62/000/002/004/012
E032/E514

26.2311
24.6710

AUTHORS: Cherenkov, V.B., Sevast'yanov, O.Yu. and Lukoyanov, Yu.M. (Moscow)

TITLE: Determination of the average velocity and the concentration of particles in a high velocity stream of rarefied plasma

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, no.2, 1962, 25-29

TEXT: The method now described can be used to measure the plasma stream velocity in the range between a few and a few hundred km/sec and the concentration in the range 10^8-10^{15} cm^{-3}. Both these parameters may be measured directly in situ. In addition, the force acting on a body placed in the way of the stream can also be determined. The above parameters are calculated from the expressions $dn/dt = NvS_1$ and $F = c_x NmS_2v^2/2g$, where S_1 is the area of the entrance aperture, S_2 is the cross-sectional area of the intercepting body, N and v are the

Card 1/3

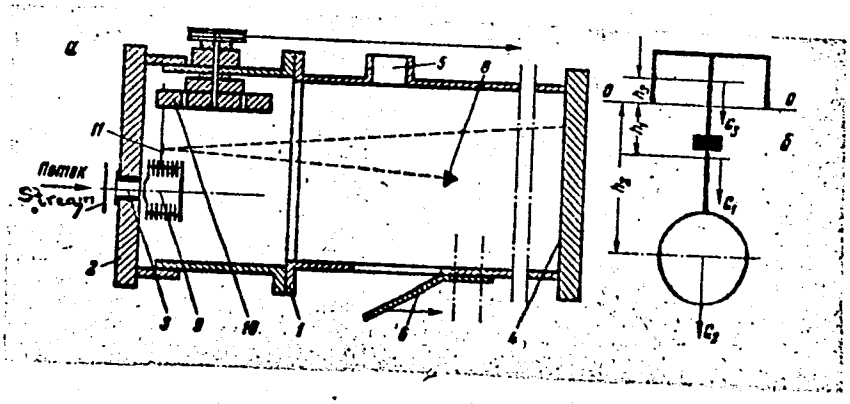
concentration and velocity of the particles, respectively, m is the particle mass, g is the gravitational acceleration, c_x is the "impedance coefficient" of the body and F is the force on the body. Thus, in order to obtain v and N it is necessary to measure F and dn/dt and to know c_x. These quantities were in fact measured with the apparatus shown in Fig.1 (1 - chamber, 2 - front flange, 3 - entrance aperture, 4 - rear flange, 5 - connection to manometer, 6 - gas escape valve, 7 - shutter, 8 - illuminator, 9 - momentum trap, 10 - rotatable disc, 11 - mirror). The whole device can be moved laterally across the beam. The force F can be determined by measuring the deflection of the trap 9 when the beam is let into the chamber. This is done by reflecting a beam of light off the mirror 11. In order to reduce back-flow, there is an escape valve 6. To ensure that $c_x = 2$ (inelastic collisions), the trap 9 consists of a sequence of thin metal discs containing apertures at their centres except for the last disc. The quantity dn/dt is measured by determining the rate at which the chamber 1 (whose volume is known) is filled with the gas and this is done by means of an ionization manometer. The device has been used with argon,

Determination of the average ... S/179/62/000/002/004/012
E032/E514

nitrogen and helium as the working gases. There are 6 figures and 1 table.

SUBMITTED: December 29, 1961

Fig.1



Card 3/3

CHERKASHKOV, V.I.

Improving the flushing repair of locomotives. Zhel.dor.transp.37 no.10:68-69 O '55. (MLRA 9:1)

1.Nachal'nik sluzhby lokomotivnogo khozyaystva Krasnoyarskoy dorogi, Krasnoyarsk.
(Locomotives--Repairs)

CHERENKOV, V.I., inzh.

First results of the operation of a.c.electric locomotives on the Krasnoyarsk Railroad. Zhel.dor.transp. 43 no.4:68-70 Ap '61. (MIRA 14:3)

1. Nachal'nik sluzhby lokomotivnogo khozyaystva, g. Krasnoyarsk. (Electric locomotives)

CHERENKOV, V.P. assistent

Methods of experimental investigations of dynamic loads in construction tower cranes. Sbor.trud. MISI no.31:167-176 '60. (MIRA14:3)

(Cranes, derricks, etc.)

CHERENKOV, V.P., st. prepodavatel'

[Abstracts of lectures in the course "Machine parts"] Konspekt lektsii po kursu "Detali mashin." Moskva, Pt.1-2, 1964. (MIRA 18:5)

1. Moscow. Universitet druzhby narodov. Kafedra "Konstruktsii detaley, uzlov mashin i mekhanizmov."

CHERENKOV, V.P., assistent

Experimental investigation of the spring-mounted turning gear of the T-128 construction tower crane. Sbor.trud. MISI no.31:177-183 '60. (MIRA 14:3)

(Cranes, derricks, etc.)

LUGOVSKIY, S.I., prof., doktor tekhn. nauk; [illegible], Yu.A.; CHERENKOV, V.S.

Mining thin deposits with variable elements of deposition.
Sbor. nauch. trud. VGRI no.23&17-23 '63 (MIRA 17:8)

PISARCHIK, G.; CHERENKOV, Ye.; MATVEYEV, B.

In the struggle for the title of the enterprise of communist labor. Muk.-elev. prom. 29 no.11:5-6 N '63. (MIRA 17:2)

1. Starshiy agronom Upravleniya elevatornoskladskogo khozyaystva Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktov UkrSSR (for Pisarchik). 2. Nachal'nik Nikolayevskogo upravleniya khleboproduktov (for Cherenkov). 3. Zaveduyushchiy otdelom truda i zarabotnoy platy Vinnitskogo oblastnogo komiteta professional'nogo soyuza rabochikh i sluzhashchikh sel'skogo khozyaystva i zagotovok (for Matveyev).

AMOSOV, A., inzh.; KHOLYAVA, V., inzh.; CHERENKOV, Yu., inzh.; MOGIL'NIKOV, I.

The "Neva-2" transistor radio. Radio no.4:34-36 Ap '65.
(MIRA 18:5)

L 15572-66 EWT(d)/FSS-2 SOURCE CODE: UR/0107/65/000/004/0034/0036
ACC NR: AP6008229
AUTHOR: Amosov, A. (Engineer); Kholyava, V. (Engineer); Cherenkov, Yu. (Engineer); Mogil'nikov, I.

ORG: none

39
B

TITLE: Transistorized radio receiver 'Neva-2'

SOURCE: Radio, no. 4, 1965, 34-36

TOPIC TAGS: radio receiver, transistorized circuit, circuit design, radio engineering

ABSTRACT: The article gives an overall technical description of the "Neva-2" model. It is first compared to the previous "Neva" model which it excels in terms of electro-acoustic performance and operating reliability. The "Neva-2" is designed on the super-heterodyne principle with a set of transistors and one crystal diode. It operates on battery supply and its frequency range extends over long waves and medium waves. The basic components of this receiver are a frequency converter, a two-stage intermediate-frequency amplifier, a sharp-selection filter for adjacent-channel selectivity, a detector, automatic gain control and a two-stage low-frequency amplifier. Capacitors are used for neutralization and interstage coupling, except for the second stage of the l-f amplifier where negative feedback is effected through a resistance-capacitance circuit for the purpose of reducing non-linear distortions, and

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L 15572-66
ACC NR: AP6008229

for the frequency converter which has an inductive feedback. The receiver delivers nominally 50 mw power, the maximum non-linear audio distortion is 12%, it operates satisfactorily down to 7.2 V but will still work at 5.6 V battery supply. The dimensions of the receiver are 150 x 95 x 35 mm, its weight is 450 grams. The built-in magnetic antenna is mounted to the printed-circuit chassis. The loudspeaker is mounted under the top of the case. Station tuning is done with a variable capacitor rotated through a 1:6 reduction gear. The overall complete circuit diagram of the receiver is shown, also the wiring diagram and transistor-amplifier details. Orig. art. has: 4 figures and 2 tables. [JPRS]

SUB CODE: 09 / SUBM DATE: none

Card 2/2 mc

CHERNIKOVA, A.F. (Brest)

Work of the council of nurses. Med.sestra 17 no.7:46-47 Jl'58 (MIRA 11:7)

(NURSES AND NURSING)

CHERENKOVA, A.F.

Some changes in laboratory service. Med. sestra 19 no.9:43 S '60.
(MIRA 13:9)

1. Starshaya meditsinskaya sestra Brestkoy oblastnoy bol'nitsy.
(NURSES AND NURSING)

CHERENKOVA, E. P.

CHERENKOVA, Y. [illegible] : "Blood-yeast agar and its utilisation to prepare a reserve medium fo[illegible]steriological diagnosis of dysentery." Min Health RSFSR. Leningrad Sanitary-Hygiene Medical Inst. Leningrad, 1956. (Dissertation for The Degree of Candidate in Biological Sciences)

Knizhnaya letopis', No 39, 1956, Moscow.

CHERENKOVA, E.P.

USSR /Microbiology. Medical and Veterinary Microbiology. F-6

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35664

Author : Cherenkova, E.P.

Title : The Use of Blood-Yeast Agar For the Bacteriological Diagnostics of Dysentery

Orig Pub: Tr. Leningr. san.-gigien. med. in-ta, 1956, 3, 41-45

Abstract: Proposed is a new neutritive medium of blood clots digested with the proteolytic ferments of beer yeast. The recipe of the medium: 200g. of blood clots, 400g. of beer yeast, 1 liter of tap water. Twenty-four hours in a thermostat at 55-60 degrees, then boil thoroughly and allow

Card 1/4

Chair Microbiology, Leningrad Sani.-Hyg. Med. Inst

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35664

to stand; filter through a cotton-gauze filter, dilute with water two times, add 5% NaCl and 2% agar, to establish a pH of 7.4. To every 100 ml. of agar add 5 ml. of a 30% water solution of lactose, 4 ml. of a 5% water solution of Congo red, and 3 ml. of sterile oxgall, sterilize with live steam for 20-30 minutes. In a parallel sowing of 304 tests of feces on bacto-agar Zh bacteria dysentery was discovered in 16.4% and on the proposed medium in 14.1% of the cases. The best results were obtained with a modified medium to which the ingredients of Muller's medium -hyposulfite and iodine were added. To 100 ml. of Congo-blood-yeast agar,

USSR /Microbiology, Medical and Veterinary Microbiology. F-6

Abs Jour: Referat. Zh.-Biol, No. 9, 1957, 35664

there was added sterilely 3 ml. of buffer solution (7.5 g. KH_2PO_4, 7.5 g. K_2HPO_4, 155 ml. distilled water), 6 ml. 50% of water hyposulfite, and 1.2 ml. of a solution of iodine in potassium iodine. On the modified agar were sown 209 tests of feces parallel with a sowing on the Ploskirev agar. In the latter, positive results were obtained in 29.1% of the cases and on the modified Congo-blood-yeast agar in 29.7%. At the same time, 15 of the 77 cultures were obtained only on the Ploskirev agar (19.5%) and 16 (20.8%) only on the modified medium. Cooerespondence of results was observed in 46 cases (60%). By such a means, the parallel

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USSR /Microbiology, Medical and Veterinary Microbiology. F-6

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35664

sowing on the Ploskirev and modified agars increases the plantings from 29.1% to 36.8%.

Card 4/4

Cherenkova, E.R.

USSR / Radiophysics I

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 10009

Author : Cherenkova, E.R.
Inst : Not given
Title : Modern Ideas Concerning the Propagation of Meter Waves by Scattering in the Ionosphere

Orig Pub : Elektrosvyaz', 1956, No 10, 22-28

Abstract : Survey article.

Card : 1/1

RACHKOV, N.F., kand. tekhn. nauk; DYATLOVA, V.P., kand. tekhn. nauk;
CHERENKOVA, G.M., insh.

Surface finishing of asbestos-cement slabs with silicate paints. Trudy NIIAsbesttsementa no.8:168-172 '58.
(MIRA 16:8)

L 17145-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM
ACCESSION NR: AR4049277 S/0081/64/000/015/S070/S070

SOURCE: Ref. zh. Khimiya, Abs. 15S406

AUTHOR: Kochetkov, V.N., Sadikova, L.I., Ponomareva, V.A., Cherenkova, G.M.

TITLE: Regeneration of polyurethan foam wastes

CITED SOURCE: Vestn. tekhn. i ekon. inform. N.-i. in-t tekhn.-ekon. issled. Gos. kom-ta khim. i neft. prom-sti pri Gosplane SSSR, vy*p. 8, 1963, 22-23

TOPIC TAGS: polyurethan, polyurethan foam, waste regeneration

TRANSLATION: Regenerates from polyurethan foam wastes were prepared in a stainless steel cooker with a mixer, heated by ditolylmethane. A solvent, such as the polyester desmophen 2200, diethylene glycol or a mixture of the two, was poured in first and heated to 200C. Polyurethan foam wastes in the form of crumbs with a diameter of 10 mm were then added under continuous stirring at a ratio to the solvent ranging from 1:5 to 4:5, the former being recommended. The regeneration process lasted 1-9 hours in various experiments, with a 3-4 hour regeneration period being recommended. The quality of the resultant regenerate was poorer with diethylene glycol than with the polyester or a

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L 17145-65
ACCESSION NR: AR4049277

mixture of polyester and diethylene glycol at a ratio of 10:1 (hydroxyl numbers increased 10 fold and productivity doubled in the latter case). The yield of regenerate reached 98-99.5% of the charge of initial components. Regenerate obtained with the polyester solvent was used in quantities of 10% for the commercial production of polyurethan foam. The resultant product equalled foam produced without use of regenerate as to physical and mechanical properties. I. Kotlyarevskaya

ASSOCIATION: none

SUB CODE: OC, MT ENCL: 00

Card 2/2

DEVYATOVA, V.A.; PYATYSHEV, R.V.; TYDEL'SKAYA, R.O.; CHERNENKOVA, I.A.

Studying pulsations of the horizontal component of the velocity of winds up to an altitude of 5 kilometers. Trudy TSAO no.21: 52-175 '58. (MIRA 11:11)

(Winds)

CHERENKOVA, L. L.

USSR/Chemistry - Catalysts Apr 51

"Action of Inhibitors on Catalytic Hydrogenation in Presence of Palladium, III," Kh. V. Bal'yan, V. A. Orestova, L. L. Cherenkova, Chair of Org Chem, Leningrad Tech Inst imeni Lensovet

"Zhur Obshch Khim" Vol XXI, No 4, pp 729-734

Synthesized methyl esters of methylbutynol and methylbutenol. Describes their properties. Hydrogenation of esters in presence of colloidal Pd proceeded slower than that of corr alcs, due to shielding by methyl group of triple or double bond. Phenyl mustard oil, p-thiocyanoaniline, p-thiocyano-chlorobenze inhibited course of hydrogenation.

182T24

SOV/79-28-6-4/63

AUTHORS: Petrov, A. A., Bal'yan, Kh. V., Kheruze, Yu. I., Shvarts, Ye. Yu., Cherenkova, L. L.

TITLE: Investigations in the Field of Combined Systems (Issledovaniya v oblasti sopryazhennykh sistem) LXXXIX. The Influence of Various Factors on the Yield of Geranil Chloride in the Reaction of Isoprene With Its Hydrochlorides (LXXXIX. Vliyaniye razlichnykh faktorov na vykhod geranilkhlorida v reaktsii isoprena s yego gidrokhloridami)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp. 1435 - 1444 (USSR)

ABSTRACT: In many investigations of synthesizing geranil chloride in a good yield special attention was paid to the binding of the 1 chloro-3-methylbutene-2 to isoprene. Its production offered good prospects to the perfume- and vitamin industry. This was the reason for many laboratories, such as the author's, to investigate the reaction of the diene hydrocarbons with their hydrochlorides in order to learn on which conditions the best yields of geranil chloride and its derivatives

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Investigations in the Field of Combined Systems. LXXXIX. The Influence of Various Factors on the Yield of Geranil Chloride in the Reaction of Isoprene With Its Hydrochlorides

could be realized. The final product of the binding of isoprene hydrochlorides to isoprene is a complex mixture of halogen derivatives of the formula $C_5H_9-(C_5H_8)_n-Cl$. In this paper only the fraction of terpene chlorides of the composition $C_{10}H_{17}Cl(n=1)$ was investigated. The telomerization reaction of isoprene with its hydrochlorides was investigated in the presence of various catalysts of which tin chloride and zinc chloride proved to be the best. It was found that the character of the telomerization depends on the nature of the catalyst: tin chloride promotes the formation of the higher telomers besides geranil chloride, tin chloride that of terpenyl chloride. It was shown that in using tin chloride and zinc chloride catalysts the yield of geranil chloride depends first of all on the depth of the conversion, and that with the same depth of conversion secured it does not depend on the nature of the catalyst, the nature of the halogen derivatives, the temperature, the ratio of reagents, and only little on the nature of the solvent. The composition of the mixture of terpene chlorides forming in the telo-

Investigations in the Field of Combined Systems. LXXXIX. The Influence of Various Factors on the Yield of Geranil Chloride in the Reaction of Isoprene With Its Hydrochlorides SOV/79-28-6-4/63

merization can be determined according to the frequency intensities of the infrared spectrum within the range of 1,6 and of from 10 - 12 μ. There are 3 figures, 4 tables, and 11 references, 10 of which are Soviet.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: May 24, 1957

1. Chlorodimethyloctadine--Synthesis 2. Isoprene--Chemical reactions

Card 3/3

5(3)

SOV/79-29-6-21/72

AUTHORS: Petrov, A. A., Bal'yan, Kh. V., Kheruze, Yu. I., Shvarts, Ye. Yu., Cherenkova, L. L.

TITLE: Investigations in the Field of the Conjugated Systems (Issledovaniya v oblasti sopryazhennykh sistem). XCIX.On the Problem of the Synthesis of Geranyl Chloride by Telomerization of Isoprene With Its 1,4-Hydrochloride (XCIX. K voprosu o sinteze geranilkhlorida telomerizatsiyey izoprena i yego 1,4-gidrokhloridom)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1876 - 1878 (USSR)

ABSTRACT: In a report recently published (Ref 1) the authors described the synthesis of geranyl chloride by means of telomerization of isoprene with its hydrochloride in the presence of stannic or stannous chloride as catalysts. In the paper under review the results of further investigations on this reaction were presented, in which, however, different catalysts were used. The effect of titanium tetrachloride on the mixture of isoprene and its 1,4-hydrochloride (1-chloro-3-methyl butene-2), on the mixtures of $TiCl_4$ and $SnCl_4$, $SnCl_4$ and excess HCl, $SnCl_4$ and

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Investigations in the Field of the Conjugated Systems. SOV/79-29-6-21/72
XCIX. On the Problem of the Synthesis of Geranyl Chloride by Telomerization of Isoprene With Its 1,4-Hydrochloride

$CuCl_2$, $FeCl_3$ and potassium bifluoride, $Zn(BF_4)_2$ and $BiBr_3$ was investigated. The investigations with these catalysts led to the conclusion that on telomerization of isoprene with its hydrochloride two groups of catalysts have to be distinguished: The catalysts of the first group ($SnCl_4$, $TiCl_4$, $FeCl_3$) yield the highest telomers. The catalysts of the second group ($ZnCl_2$, $Zn(BF_4)_2$, $BiBr_3$) only lead to the stage of the formation of terpene chlorides where the reaction stops. The cause of this stop is, as has been already found previously, the partial cyclization of the geranyl chloride into the terpenyl chloride. Therefore the content of geranyl chloride in the terpene fraction of the telomer is far less than when using catalysts of the first group. The hydrogen chloride retards the telomerization but does not affect its character. There are 1 table and 1 Soviet reference.

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Investigations in the Field of the Conjugated Systems. SOV/79-29-6-21/72
XCIX. On the Problem of the Synthesis of Geranyl Chloride by Telomerization of Isoprene With Its 1,4-Hydrochloride

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: May 31, 1958

Card 3/3

TRAKHTENBERG, D.M.; CHEREMKOVA, L.V.; KHOKHLOV, A.S.

Isolation and properties of the antiviral antibiotic violarin.
Antibiotiki 4 no.5:7-11 S-O '59. (MIRA 13:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ANTIBIOTICS chem.)

CHERENKOVA, L.V.; KOSTYUNINA, M.A.

Automatic lines for machining gears. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.4:89-92 Ap '64. (MIRA 17:6)

DEDKOV, I.P. (Kiyev, Spusk Stepana Razina, d.7); MALOVICHKO, A.Ya.; CHERENKOVA, N.D.

Anesthesia and safety measures in one-stage bilateral pulmonectomy. Nov. khir. arkh. no.2:75-81 Mr-Ap '60. (MIRA 14:11)

1. Kafedra torakal'noy khirurgii (zav. - prof. N.M.Amosov) Kiyevskogo instituta usovershenstvovaniya vrachey.
(LUNGS--SURGERY)

CHERENKOVA, N.D. (Kiyev)

Cardiac fibrillation in mitral stenosis following commissurotomy. Vrach. delo no.4: 21-24 Ap'63. (MIRA 16:7)

1. Klinika torakal'noy khirurgii (zav.-prof. N.M.Amosov) Ukrainskogo nauchno-issledovatel'skogo instituta tuberkuleza.
(ARRHYTHMIA) (MITRAL VALVE--SURGERY)

CHERENKOVA, N.D. (Kiyev, ul. Krasnoarmeyskaya, d.67/7, kv.19)

Ventricular fibrillation during heart surgery under artificial blood circulation. Grud. khir. 6 no.2:30-33 Mr-Ap '64. (MIRA 18:4)

1. Klinika torakal'noy khirurgii (zav. - chlen-korrespondent AMN SSSR prof. N.M.Amosov) Ukrainskogo instituta tuberkuleza (dir. - dotsent A.S.Mamolat), Kiyev.

CHERENKOVA, V.A.

USSR / Zooparasitology. Acarina and Insects. Vectors of Pathogenic Agents. Insects. O

Abs Jour: Ref Zhur-Biol., No 6, 1959, 24305.

Author : Volkova, M. I., Dielektova, N. A., Khamitova, A. N., Cherenkova, V. A.

Inst : Kazan University.

Title : Testing of the Toxic Effect of Tetraethyldithiopyrophosphate on Synanthropic Flies. Report I.

Orig Pub: Uch. zap. Kazansk. un-ta, 1957, 117, No 9, 268-272.

Abstract: A study of the toxicity of tetraethyldithiopyrophosphate on five generations of the common fly and two generations of the spring carrion fly showed that with single treatment of flies of each generation with a sublethal dose (0.0012%

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46

Abstract: aqueous emulsion of tetraethyldithiopyrophosphate of the active substance), the resistance of flies to the preparation increases. In the first generation, 14% females survived; in the second, 37%. With increase of the concentration to 14 times, the survival of flies of the fifth generation was maintained at a level of 13.6%. Young males and females until 10 days of age are more resistant than older flies. -- V. L. Tsiopkalo.

Card 2/2

VOLKOVA, M.I.; DIALEKTOVA, M.A.; KHAMITOVA, A.N.; CHERENKOVA, V.A.

Testing the toxic effect of tetraethyldithiopyrophosphate on synanthropic flies. Uch. zap. Kaz. un. 117 no.9:268-272 '57. (MIRA 13:1)

1.Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina. Kafedra zoologii besposvonochnykh.
(Thiopyrophosphoric acids) (Flies--Extermination)

FUNKE, V.F.; YUDKOVSKIY, S.I.; Prinimali uchastiye: KUZNETSOVA, K.F.; CHERENKOVA, V.A.

High temperature oxidation of alloys formed by titanium boride with iron group metals. Zhur.fiz.khim. 37 no.7:1557-1562 Jl '63. (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.

FUNKE, V.F.; YUDKOVSKIY, S.I.; Prinimali uchastiye: CHERENKOVA, V.A.; POPOV, V.I.

High temperature oxidation of alloys of zirconium boride with iron group metals. Zhur. fiz. khim. 38 no.5:1280-1283 My '64. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov. Submitted March 13, 1963.

KOZHOV, M.M.; IZHBOLDINA, L.A.; KAPLINA, G.S.; SHAPOVALOVA, I.M.; CHERENKOVA, V.I.

Littoral and sublittoral benthos of Lake Baikal along the southeastern shore. Gidrobiol. zhur. 1 no.4:3-11 '65. (MIRA 18:10)

1. Baykal'skaya biologicheskaya stantsiya Irkutskogo gosudarstvennogo universiteta.

L 23732-65 EWT(m)/EWA(h)

ACC NR: AP6014813 SOURCE CODE: UR/0367/65/001/002/0329/0337

AUTHOR: Denisov, F. P.; Latypova, R. A.--Latipova, R. A.; Milovanov, V. P.; Cherenkov, P. A. 30 B

ORG: Physics Institute im. P. N. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Cascade mechanism of high-energy nuclear reactions. 19 1. Total inelastic cross sections, angular and energy distribution of fast particles

SOURCE: Yadernaya fizika, v. 1, no. 2, 1965, 329-337

TOPIC TAGS: inelastic resonance, nuclear reaction, angular distribution, proton, fast particle

ABSTRACT: The interactions of high-energy protons with nuclei have been calculated on the basis of the cascade theory of nuclear reactions. The nuclear reactions induced by protons with energies of 150, 340, and 660 MEV on Si^{28}, $(AgBr)_{41}^{95}$, and Au^{197} were considered. The nuclear diffusion surface and refraction and reflection of nucleons in the process of the escaping of the nucleus were taken into account. Comparison of the calculations with the experiment allows one to conclude that the initial principal suppositions of the cascade theory are valid. Orig. art. has: 11 figures and 1 table. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 20 / SUBM DATE: 28Jul64 / ORIG REF: 007 / OTH REF: 015

Card 1/1 fw

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CHERENKOVA, Yelena Lazarevna; KUZ'MIN, V.A., redaktor; VERKHOVINA, T.M., redaktor; [illegible], N.V., tekhnicheskiy redaktor.

[Distortion of telegraph signals in short wave transmission] Iskashcheniia telegrafnykh signalov pri peredache na korotkikh volnakh. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1955. 43 p. (MLRA 9:5)

(Telegraph, Wireless)

CHERENKOVA, Ye.L.

Present-day presentations of meter-length wave propagation by means of dispersion in the ionosphere. Elektrosviaz' 10 no.10: 22-28 O '56. (MLRA 9:11)
(Ionospheric radio wave propagation)

PHASE I BOOK EXPLOITATION 1149

Cherenkova, Yelena Lazarevna

Dal'neye rasprostraneniye ul'trakorotkikh voln (Long-distance Microwave Propagation) Moscow, Svyaz'izdat, 1958. 40 p. (Series: Lektsii po tekhnike svyazi) 23,500 copies printed.

Sponsoring Agency: USSR Ministerstvo svyazi. Tekhnicheskoye upravleniye.

Resp. Ed.: Kalinin, A.I.; Tech. Ed.: Karabilova, S.V.; Ed: Bashchuk,V.I.

PURPOSE: The monograph is intended for persons working in communications.

COVERAGE: The author presents a survey of published material on long-distance propagation of microwaves. She describes the

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physical processes of long-distance tropospheric and ionospheric propagation and presents the results of experimental work. She also discusses the requirements of equipment for radio links utilizing the phenomena of long-distance tropospheric and ionospheric microwave propagation. No personalities are mentioned. There are no references.

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9.9000 SOV/106-59-10-3/11

AUTHOR: Cherenkova, Ye. L

TITLE: Evaluation of the Methods of Calculating Short-Wave Field-Strengths

PERIODICAL: Elektrosvyaz', 1959, Nr 10, pp 23-29 (USSR)

ABSTRACT: In this article calculated field strengths for short-wave radio-links are compared with experimentally measured results. In the Soviet Union, four methods of calculation are used: Kosikov's method (Ref 1), the method of the CRPL of the American Bureau of Standards, (Ref 2), Kazantsev's method (Ref 3), and Robert's method (Ref 4). The article deals mainly with the first three methods. Because these make different assumptions, their results do not agree and the extent of their differences depends on the particular conditions of the problem. To decide which is the most correct method, approximately 2000 monthly-median values of field strength were obtained from about 30,000 separate measurements on medium-latitude, radio-links at different times and at different frequencies. Despite the large amount of experimental data, it was nevertheless insufficient for all frequencies over the whole of the solar activity

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Evaluation of the Methods of Calculating Short-Wave Field-Strengths

cycle. The experimental conditions are described: the results apply to radio-links, the great circle arcs of which do not go higher than 62 to 64° northern latitude in the Eastern hemisphere; the measured results were all referred to a transmitted power of 1 kW, the necessary data for this reduction being obtained from the operational charts of the transmitting stations. Details of the method of selecting the measurement periods and of processing the experimental data are given. From the total number of measurements, about 1000 median values refer to the period of minimum solar activity (1953 to 1954) and were obtained on 9 radio-links of lengths 3000 to 7000 km, the majority of the measurements being in the 10 to 20 Mc/s band. The remaining 1000 median values relate to the period of maximum solar activity (1956 to 1957) and were obtained on 8 radio-links of lengths 5000 to 11000 km at frequencies 5 to 20 Mc/s. The difference between the calculated and measured values was evaluated as follows: the ratio of the calculated value E_p and the measured value E of the median values over a month of the field strength was calculated for

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Evaluation of the Methods of Calculating Short-Wave Field-Strengths

each frequency and for specific times of the day. This ratio is called the calculation error. The results are tabulated in Table 1, in which the results are divided into two groups, according to the degree of solar activity. These groups are further divided into three parts: day, dusk and night. It was found that the calculation error for the day-field with maximum solar activity increases with reduction in frequency. During the period of minimum solar activity, when the absorption coefficient is low, the calculation error in the 10 to 20 Mc/s band has no clear correlation for frequency. The results show that the error depends on the solar activity, being less during periods of maximum solar activity. The calculation errors for the night-fields show a different pattern. The results indirectly support the assumption that the field level is unaffected by the solar activity cycle. The frequency-correlation assumptions made in the CRPL and Kosikov methods are not justified by the measured results, which showed that there is considerable frequency-dependence and often the field strength increases with decrease of frequency. It is further concluded that the

Evaluation of the Methods of Calculating Short-Wave Field-Strengths

calculation error does not show any clear correlation with the season and it does not vary much with path length. Over path lengths of 3000 to 11000 km, the methods of Kosikov, Kazantsev and Roberts are better than the CPRL method and over the frequency range 10 to 20 Mc/s, their calculation error does not usually exceed ± 10 db and there is often no error. The simplest method from the point of view of calculation is Kazantsev's method. O. A. Meyerson, L. M. Likhacheva and G. I. Serikhina helped in this work. There are 2 figures, 1 table and 6 references, 3 of which are Soviet, 2 English and 1 German.

SUBMITTED: May 27, 1959

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CHERENKOVA, Ye. P.

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PHASE I BOOK EXPLOITATION SOV/5743

Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po provedeniyu Mezhdunarodnogo geofizicheskogo goda. V. razdel programmy MGG: Ionosfera.

Issledovaniya ionosfery; sbornik statey (Ionospheric Researches; Collected Articles. No. 3) Moscow, Izd-vo AN USSR, 1960. 100 p. 2,000 copies printed.

Resp. Ed.: N. V. Mednikov, Candidate of Physics and Mathematics; Ed.: L. A. Trofimova; Tech. Ed.: T. V. Polyakova.

PURPOSE : This IGY publication is intended for geophysicists, astrophysicists, and other scientists concerned with the ionosphere and radio atmospherics.

COVERAGE: The collection of articles contains the results of investigations on the ionosphere and radio atmospherics, based chiefly on IGY observational data from USSR stations. The articles may be grouped into the three following categories:

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1) studies of the morphology and physics of both quiet and perturbed ionospheres; 2) methodology of evaluating absorption and drifts in the ionosphere; and 3) questions on the use of ionospheric observations for practical purposes. No personalities are mentioned. English abstracts and references follow each article.

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Shapiro, B. S. An Investigation of the Distribution of Ionization With Height 5

Kessenikh, V. N. Certain Peculiarities in the Geographic Distribution of the Maximum Electron Concentration in the F-2 Layer Over the Urals, Siberia, the North Caucasus, and Soviet Central Asia (1957-1958) 7

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Kerblay, T. S., and Ye. M. Kovalevskaya. Correlation of foF2 With Solar Activity Indices 22

Driatskiy, V. M. Processes in the Lower Ionosphere in High Latitudes During the Solar Flare of February 23, 1956 27

Fel'dshteyn, Ya. I. The Noctural E-Layer According to Observations at the Dikson Island Observatory 34

Pankratova, N. S. Irregular Phenomena in the F-Region of the Ionosphere According to Observations at the Dikson Island Observatory 40

Cherenkova, Ye. P. Certain Regularities in the Behavior of the Lower Ionosphere Over Dikson Island 51

Gorbushina, G. N. On the Use of Single Reflections for Evaluating Absorption in the Ionosphere According to Observations at Dikson Island 60

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Gusev, V. D., and S. F. Mirkotan. On Certain Anomalies During an Investigation of Ionospheric Drifts 77

Rapoport, Z. Ts. On the Question of Determining the M3000 Coefficient 83

Likhter, Ya. I., and G. I. Terina. Certain Results on Investigating the Intensity of Radio Atmospherics (Strays) at Moscow 90

Rodionov, Ya. S. A Possible Method of Determining Effective Recombination Coefficients and the Rate of Ionization in the Ionosphere 95

Zakharov, V. I., and Z. K. Shibayev. Effective Recombination

Ionospheric Researches; Collected (Cont.) SOV/5743

Coefficient in the Ionosphere According to Observations at Dikson Island Observatory 100

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E133/E414

AUTHORS: Dmitriyev, A.A., Mishina, M.I., Mikirov, A.Ye. and Charankova, Ye.P.

TITLE: The Influence of Cosmic Dust on Certain Solar Radiation Characteristics in the Atmosphere

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No.10, pp.1518-1528

TEXT: Kalitin has shown that there is a small decrease in the measured solar radiation correlated with the date of the Perseids (Ref.1). Zatharov found that the minimum measured value occurred three days after the maximum of the Perseid stream but that the time depended on the wavelength used (Ref.2). Giovanelli (Ref.3) calculated the size and number of the particles responsible, and information on these data has also been obtained from radar (Ref.5) and rocket (Ref.6) observations as well as from collection of magnetic material (Ref.7) and work on the zodiacal light. It seems likely that the dust in the troposphere derives

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The Influence of Cosmic Dust on Certain Solar Radiation Characteristics in the Atmosphere

from the Earth, whereas that in the stratosphere is of interplanetary origin. An equation is derived giving the distribution of dust with height in the presence of convection (Eq.(7)). This formula is considerably more complicated than the exponential expression which holds in the absence of convection. A lower limit for the number of dust particles in the stratosphere is then derived, assuming that tropospheric convection does not extend into the stratosphere. It is found that the mass of particles entering the Earth's atmosphere is 5.5×10^{-15} gm/cm^2 sec. The authors next consider the effect of the dust content on the solar halo and, in this connection derive an equation to represent it. Fig.1 is obtained from this equation and consists of a plot of halo brightness against height for various wavelengths. (The observations were made from an aircraft.) The atmospheric transmission coefficient is closely connected with halo brightness, but effects in the lower atmosphere can be sufficiently large to blot out effects in the upper atmosphere. From data obtained in

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the period 1933 to 1955, it is found that the intensity of solar radiation seems to oscillate with a period of 5 to 7 days as well as having minima during meteor showers. It is shown that there is a linear correlation between the intensity of short wavelength solar radiation and the number of meteors per hour found by radar observations. A correlation was also found between oscillations in solar radiation and radio-echo observations, although maxima and minima of the two curves were displaced. The authors finally calculate the ratio of the intensity of light scattered by meteoritic dust to that scattered by air molecules at varying heights. The results are shown in Fig.6 for different angles of scattering and different elapsed times after the initial influx of the particle stream. It was found that the ratio had a constant maximum at 87 km for all angles of scattering near the level of the noctilucent clouds (Fig.7). There are 7 figures, 1 table and 20 references: 7 Soviet and 13 non-Soviet.
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ASSOCIATION: Akademiya nauk SSSR Institut prikladnoy geofiziki (Academy of Sciences USSR Institute of Applied Geophysics)

SUBMITTED: December 25, 1959

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1 - Halo region between 5°12' and 4°27';
2 - ditto for 2°11' to 1°44'.
The dashed curve marked 1' represents the Rayleigh component for the curve 1.
The dependence of the halo brightness on height for different wavelengths (μ).
3 - 0.4; 4 - 0.45; 5 - 0.55.
The dashed curve marked 3' is the Rayleigh component for curve 3.
The left scale refers to curves 1, 1' and 2; the right scale refers to curves 3, 3', 4 and 5.

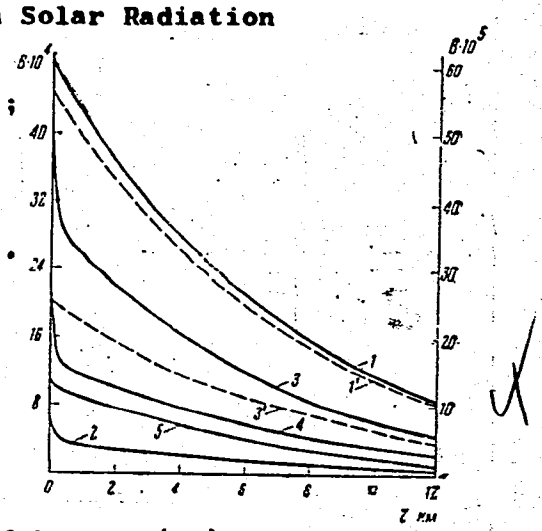

Fig.1. Halo brightness as a function of height (km) at $\lambda = 0.4\ \mu$

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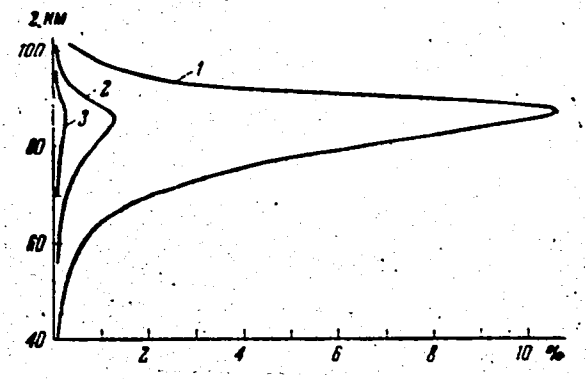

Фиг. 7. Зависимость от высоты отношения интенсивности рассеянного на метеорных частицах света к интенсивности света, рассеянного на молекулах. Угол рассеяния β': · 10°; 2 — 90°; 3 — 170°

Fig.7. Dependence of the ratio of the intensity scattered by meteor particles to the intensity scattered by molecules for β' = 10° (curve 1), 90° (curve 2) and 170° (curve 3), where β' = (180° - angle of scattering).

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L 6693-65 EWG(j)/EWG(r)/EWT(1)/A/FS(v)-3/EWG(v)/EWG(a)/EWA(b)/EWG(c) Pe-5/Pb-4
AMD DD

ACCESSION NR: AR4041665 S/0299/64/000/010/B035/B035

SOURCE: Ref. zh. Biologiya. Svodny*y tom, Abs. 10B251 60

AUTHOR: Cherenkova, Ye. P.; Yefimova, T. P.

TITLE: Possibility of using unicellular green alga of Chlorella in preparation of media for producers of antibiotics

CITED SOURCE: Sb. Materialy* 3-y Nauchn. sessii Leningr. in-ta antibiotikov, 1963. L., 1963, 92

TOPIC TAGS: Chlorella, unicellular green alga, algae, antibiotic

TRANSLATION: The possibility of using media containing Chlorella in the form of dry powder, acid or fermentative hydrolyzate of alga, during production of the antibiotics Levorin and griseofulvin, and also antibiotics formed by 100 freshly separated actinomycetes is demonstrated.

SUB CODE: LS ENCL: 00

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L 20181-65 EWG(j)/EWA(v)/FBD/EWT(l)/EWT(m)/EPF(c)/EEC(k)-2/EEC(t)/T/EWP(t)/
EEC(b)-2/EWP(k)/EWP(b)/EWA(m)-2/EWA(h) Pn-4/Po-4/Pf-4/Pr-4/Peb/Pi-4/Pl-4
SSD(c)/SSD/APWL/ASD(a)-5/ASM(p)-2/RAEM(a)/ESD(gs)/ESD(t)/IJP(c) WG/JD
ACCESSION NR: AP4041633 S/0054/64/000/002/0040/0046

AUTHOR: Kaliteyevskiy, N. I.; Razumovskiy, A. N.; Chayka, M. P.; Cherenkovskiy, V. A.

TITLE: Experiments with gaseous lasers

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 4, 1964, 40-46

TOPIC TAGS: gaseous laser, continuous gaseous laser, laser beam structure, helium neon laser, stimulated emission

ABSTRACT: The authors have experimented with a continuous gas laser (Ne:He=1:7) working on a wavelength of 1.15 μ which corresponds to the 2s-2p transition in neon. The study consisted of an investigation of: 1) the intensity of the generated power (stimulated radiation) as a function of the input power, the diameter of the discharge tube, and of gas pressure; 2) the contribution to radiation of the various parts of the discharge; and 3) the structure of the generated beam. It was confirmed in the author's experiments that the intensity of the generated beam reaches a maximum with increase of the input power, and then decreases. In addition to the 1.15 μ line, the 1.16 μ line (much weaker than 1.15) was also

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L 20481-65

ACCESSION NR: AP4041833

observed with a diffraction grating. It disappears at very high input. The photograph of the beam shows a ring regardless of the adjustment of the lens. This is explained by the coherence of the stimulated radiation. Orig. art. has: 8 figures.

ASSOCIATION: None

SUBMITTED: 17Jan64

ENCL: 00

SUB CODE: EC

NO REF SOV: 003

OTHER: 001

Card 2/2

ZOHN, M.G.; CHERNOV, A.M.; SHINIBEROV, P.Ya., otv. red.; GAL'CHIN-SKAYA, V.V., tekhn. red.

[Instructions for laboratory work in the field of overhead communication lines] Rukovodstvo k laboratornym rabotam po vozdushnym liniiam sviazi. Leningrad, Elektrotekhn. in-t sviazi. Part 1. [Testing the engineering properties of line wire and insulators and methods for splicing wires and fastening lines to poles] Ispytanie tekhnicheskikh svoistv lineinoi provoloki i izoliatorov, sposoby soedineniia kontsov provodov, ukreplenie provodov na oporakh. Pod red. P.IA.Shiniberova. 1959. 29 p. (MIRA 14:5)

(Electric lines--Overhead)