Subjugating the Cosmos

S/084/60/000/03/061/083
D047/D002

reached the Moon in 3 days, the flight to Mercury would take 105 days, to Venus 146 and to Mars 259 days. Three types of engine for cosmic rockets are described, based on accounts in the foreign press. Reference is made to a Tu-104 stratospheric craft, but this is fanciful. There is 1 diagram with a table of signs and 1 table.

Card 2/2

29(1)
AUTHOR: Yur'yev, A. Yu. Engineer

SOV/29-58-12-9/23

TITLE: The Atomic Ram Jet Engine is the Heart of an Interstellar Craft (PARD - serdtse planetoletov)

PERIODICAL: Tekhnika molodezhi, 1958, Nr 12, pp 10-13 (USSR)

ABSTRACT: At the beginning the author describes the processes taking place in the atmosphere under the influence of most different radiations. As a consequence of these processes, inexhaustible energies are formed in the upper layers of the atmosphere. In 1954, a propulsion system for aircraft and rockets - PARD was suggested which could make use of the natural atomic gases in these atmospheric layers. Its principle is based on a recombination of atomic oxygen brought about by means of a catalyst. This releases great energies producing propulsive power. The figure on page 11 shows the presumable scheme of such propulsion. What it will really look like and what will be its dimensions, cannot be said at present. But the scheme shows that it greatly differs from other propulsion systems and that its working principle is quite obvious. According to calculations, a rocket thus driven with a diameter of 27 m

Card 1/4

and a propulsion speed of 2 - 11.2 km/sec would not consume more than 1 000 kg of liquid catalyst (nitrous anhydride). In case of a solid catalyst the weight would be even smaller. Such a rocket would have to be at least two-stage. The first stage serving to transport the rocket to the required height could have any propulsion system. Most suitable for such a rocket seems to be the pyramid form (Fig page 15). It is favorable just because it prevents a rotation of the rocket around its own axis. Besides, more drives of the first stage could be placed in the broadest portion, thus obtaining a greater summary thrust. Air flaps can be used for the steering. They need little space and serve as a protection for the body. In case of vertical starting, the direction can be controlled by changing the thrust force. When the fuel tanks for the first stage run empty, the relative weight per 1 m^2 would decrease so as to reach soon the required speed. When flying in the atmosphere with the broad surface in front, the rocket would be able to land like a parachute. In order to reduce air resistance **PARD** remain within the body during the rise to the required height. Then they are slipped out forming an uninterrupted square around the base of the pyramid. By that

time the tanks of the first stage would be empty, and practically nothing would be left of the rocket but the frame coated with a thin metal envelope, a tank with the catalyst and the useful load. All other parts could be dropped with parachutes. At a lateral length of 5 m, the thrust of such a rocket would be 3 t for the ideal case, the heating temperature of the air being about 840 - 1 400°. It can be well imagined that a rocket with a lateral length of 60 m could fly to the Mars with passengers on board. According to calculations, PARD can reach a maximum speed of 17 km/sec. At a speed of 16 km/sec it takes 3 months to get to the Mars. Of course, such a rocket cannot be built from one day to another. At first, test flights have to be made with aircraft having PARD installed at their wing tips. Later, these drives can be used to maintain the flying speed of large transcontinental aircraft and artificial earth satellites. At last, they can be employed for the launching of a large earth satellite and to establish, in great height, a permanent man-operated astronomical-geophysical laboratory. Only then will it be possible to build a rocket for interplanetary flights.

3(7) SOV/26-59-9-14/37

AUTHOR: Yur'yev, A. Yu. (Moscow)

TITLE: An Inexhaustible Source of Energy (The Newest Data on Energy of the Higher Atmosphere)

PERIODICAL: Priroda, 1959, Nr 9, pp 95.97 (USSR)

ABSTRACT: The idea to utilize the energy of gases of the upper atmosphere is not impossible. According to the editorial staff, the author, however, failed to solve the scientific and technical bases of the problem. The author states that there is much more energy necessary to ionize the atmospheric gases than to dissociate them (table 1). The intensity of ionization and dissociation and, subsequently, the altitude of ionispheric layers depend upon the intensity and duration of solar radiation as well as on the intensity of cosmic radiation. The ionized and dissociated atmospheric gases contain

Card 1/2

An Inexhaustible Source of Energy (The Newest Data on Energy of the Higher Atmosphere)

an energy amount equalling what the sun has lost to bring them into this state. In other words, the ionosphere represents a more reliable "accumulator" than the dissociated gases below this layer. In conclusion, the author mentions how much energy a jet engine can obtain when using the energy of atmospheric gases (table 2). The article mentions V. I. Krasovskiy. There are 2 tables and 2 references, 1 of which is Soviet and 1 American.

Card 2/2

PETROVSKIY, V.V.; REBRISTAYA, O.V.; YURTSEV, B.A.

Aleksandr Innokent'evich Tolmachev; on his 60th birthday. Bot. zhur. 48 no.12:1845-1856 D '63. (MIRA 17:4)

1. Botanicheskiy institut imeni Komarova AN SSSR, Leningrad.

YURTSEV, B. A.

"On the origin of the hypoarctic floristic complexes of Eurasia and their evolution in the Pleistocene."

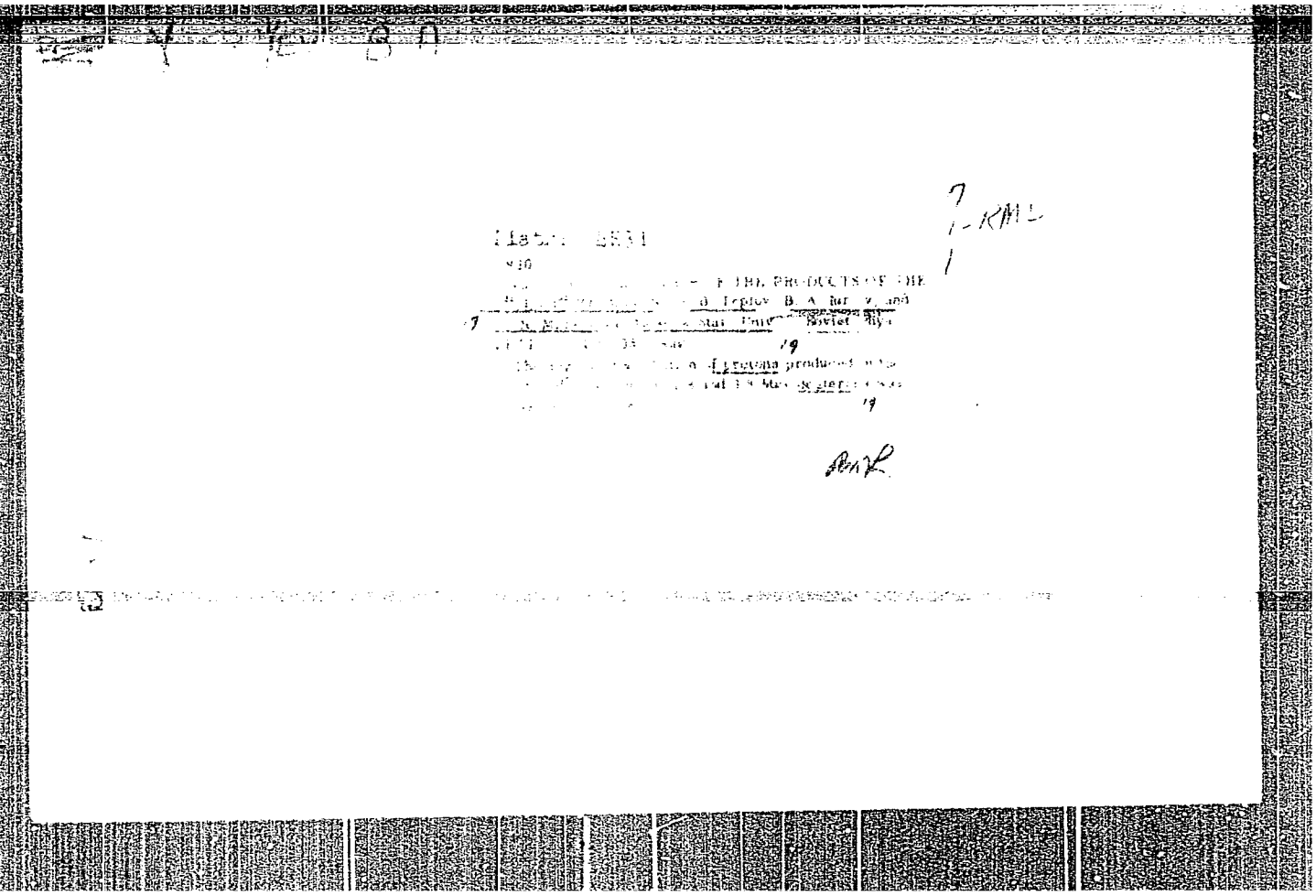
report submitted for 10th Intl Botanical Cong, Edinburgh, 3-12 Aug 64.

AS USSR, Moscow.

YUR'YEV, B.A.

YUR'YEV, B. A. I TSENTILOVICH, N. A.
36367 Pervyye itogi poseva duba gnezdovym sposobom v khar'kovskoy oblasti.
Les i Step', 1949, No. 6, 581-83

SO: Letopis' Zhurnal'nykh Statey, No. 49, 1949



YUR'YEV, B.A.

AUTHOR TEPLOV, I.B., JUR'EV, B.A., MARKELOVA, T.N. PA - 2036

TITLE The Angular Distribution of the Products of the Reaction $S^{32}(d,p)S^{33}$. (Russian)

PERIODICAL Zhurnal Eksperimental'noi i Teoret.Fiziki, 1957, Vol 32, Nr 1, pp 165-166 (U.S.S.R.)

Received 3/1957 Reviewed 3/1957

ABSTRACT At present the reactions of the type (d,p) have already been investigated for many isotopes of light nuclei. However, in the case of most of the investigated nuclei (with the exception of the very lightest) experiments were carried out only at a value of the energy of the inciding particles. At the same time the investigation of the form of the angular distributions of the products of such reactions at different energy values of the impinging deuterons is of interest for the more precise description of the theory of the stripping reaction. Therefore the authors determined the angular distributions of these protons which are produced on the occasion of the reaction $S^{32}(d,p)S^{33}$ at deuteron energies of 1,8 and 3,8 MeV. The electrons accelerated with a 72 cm cyclotron bombarded a sulphur target (of 1 micron thickness) which was applied to leaf-gold. The protons produced in connection with the reaction were recorded by nuclear plates.

Angular distributions were determined for two groups of protons p_0 and p_1, which correspond to the creation of a nucleus (in the end

Card 1/3

The Angular Distribution of the Products of the Reaction $S^{32}(d,p)S^{33}$.

state, in the ground state, and in the first excited state). The experimental results obtained by the authors are shown in diagrams. For reasons of comparison these diagrams contain also the corresponding theoretical curves.

The theoretical curves determine the position of the main maximum (i.e. of the maximum in the case of small angles) well in the angular distribution of the proton group p_1.

In the angular distribution of the group p_0 the experimentally found maximum was somewhat broader than the maximum computed theoretically, and besides it is displaced in the direction of smaller angles. This broadening of the peak and its displacement are considerably more marked in the case of a deuteron energy of 1,8 MeV than for 3,8 MeV.

A characteristic peculiarity of the angular distributions obtained here is the existence of comparatively high maxima. These secondary maxima increase with a decrease of the energy of the inciding deuterons. Also in the angular distribution for the group p_1 something similar may be observed.

When explaining the peculiarities of the experimental angular distributions obtained here, it is necessary to take also Coulomb's interaction into account, because the effective Coulomb barrier of the S^{32} nucleus amounts to 5,1 MeV for deuterons. However, con-

Card 2/3

PA - 2036

The Angular Distribution of the Products of the Reaction $S^{32}(d,p)S^{33}$.

sideration of Coulomb interaction displaces the main maximum towards larger angles and causes no noticeably secondary maxima. Better agreement is apparently obtained if not only Coulomb's interaction but also nuclear interaction of the emitted proton with the remaining nucleus is taken into account.

ASSOCIATION Moscow State University
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Card 3/3

YUR'YEV, B.A.

AUTHORS: Teplov, I. B., Yur'yev, B. A. 56-6-1/47

TITLE: Investigation of the Reactions K^{39} (d,p)K^{40} and Ca^{40}(d,p)Ca^{41}. (Issledovaniye reaktsiy K^{39}(d,p)K^{40} i Ca^{40}(d,p)Ca^{41}).

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957, Vol. 33, Nr 6, pp. 1313-1320 (USSR)

ABSTRACT: By means of a 72 cm collimated deuteron beam coming from a cyclotron thin targets of potassium and calcium were irradiated. These targets were located in the middle part of a cylindrical tube of 26 cm diameter. The interior wall of this tube was lined with nuclear photoplates.
The energy of the deuterons could be kept on the level of exactly ± 40 KeV.

1. The reaction K^{39}(d,p)K^{40} was investigated with 4.0 MeV deuterons. As a natural potassium mixture was used, only three groups of protons of the most frequently occurring K^{39} could be dissolved. The energy of these groups was determined at 0.82 and 2.08 MeV. The proton group, which leads to the ground state of K^{40}, was also found. For these 3 groups of protons the angular distribution and the angular cross sections were measured and herefrom

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the neutron quantum numbers were derived.

E_d in MeV	proton group in MeV	σ in mb	neutron quantum number
4,0	0	12	$\ell = 3$
4,0	0,82	13	$\ell = 3$
4,0	2,08	58	

2. The reaction $Ca^{40}(d,p)Ca^{41}$ was investigated with deuteron energies of 1.3, 2.2, and 4.0 MeV. For the proton group which leads to the ground state the angular distribution and the corresponding cross sections were measured:

Investigation of the Reactions $K^{39}(d,p)K^{40}$ and $Ca^{40}(d,p)Ca^{41}$ 56-6-1/47

E_d in MeV	proton group in MeV	σ in mb
4,0	0	21
2,2	0	2,2
1,3	0	0,04

Especially for K^{40} the angular distribution measured does not agree with that which was computed by means of Butler's theory. There are 7 figures, 2 tables, and 12 references, 3 of which are Slavic.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: June 16, 1957

AVAILABLE: Library of Congress

Card 3/3

Yur'yev B. A.

AUTHORS: Teplov, I. B., Yur'yev, B. A. 56-2-11/51

TITLE: The Angular Distribution for Some (d,p)-Reactions (Uglovyye raspredeleniya dlya nekotorykh reaktsiy (d,p))

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol 34, Nr 2, pp 334-340 (USSR)

ABSTRACT: The present work gives the results of the additional investigation of the $S^{32}(d,p)S^{33}$, $P^{31}(d,p)P^{32}$ and $Cl^{35}(d,p)Cl^{36}$ reactions. Furthermore this work gives the angular distribution for two groups of protons with long ranges wh which are formed in the reaction $Si^{28}(d,p)Si^{29}$ with a deuteron energy of 4 MeV, as well as for the group of protons formed in the reaction $S^{32}(d,p)S^{33}$ which corresponds to the formation of the final nucleus in the ground state. First the methods of experiment are discussed. The angular distribution of the protons is investigated by means of thick-layer photographic plates of the НИКФИ-Р2 type, all characteristic features of this eoperiment had already been described in the previous work of the same quthors (reference 7). PbS, Zn_3P_2 and $BaCl_2$ were used for the

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production of the thin target. These compounds were evaporated on a basis of gold-leaf. The angular distributions obtained are given in 8 diagrams. The authors point at the differences compared with the results of other works. With chlorine besides the main measurements also secondary measurements were carried out. A table contains the values of the cross sections of the productions of the proton groups investigated. First the angular distributions for the first excited level of Si^{29}, for the doublet of P^{32} and for the ground states of S^{33} and Cl^{36} are investigated. With these 4 experimental angular distributions the most important characteristic feature of the cutoff-reactions can be noticed, i. e. there is a maximum with small emission directions of the protons. There are differences between the experimental and theoretical angular distributions, which all 4 cases have in common. To this belongs a marked background, the displacement of the main maximum to smaller angles (compared with the values calculated according to the theory of S. T. Butler (Batler) (reference 8)), There are 9 figures, 2 tables, and 13 references, 5 of which are Slavic.

The Angular Distribution for Some (d,p)-Reactions 56-2-11/51

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: September 9, 1957

AVAILABLE: Library of Congress

1. Protons-Angular distribution 2. Protons-Distribution-Theory

Card 3/3

SHEVCHENKO, V.G.; YUR'YEV, B.A.

Excited states of Li^7 involving energies up to 9 Mev. Izv. AN SSSR. Ser. fiz. 25 no.9:1146-1148 '61. (MIRA 14:8)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(Lithium) (Nuclear reactions)

SHEVCHENKO, V.G.; YUR'YEV, B.A.

Photodisintegration of Li^7 by gamma-bremsstrahlung at a maximum energy of 9.5 Mev. Izv.AN SSSR.Ser.fiz. 25 no.10: 1269-1274 O '61. (MIRA 14:10)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(Lithium—Decay) (Bremsstrahlung)

26696
S/056/61/041/005/011/038
B109/B102

24.6210

AUTHORS: Shevchenko, V. G., Yur'yev, B. A.

TITLE: Photoprotons from Pr^{141}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 5(11), 1961, 1421 - 1426

X

TEXT: The angular and energy distributions and the photoproton yields from Pr^{141} have been measured for the maximum bremsstrahlung energies of 22.5 and 33.5 Mev. The experiments were carried out at the betatron of the NIIYaF MGU ($E_{\gamma max}$ = 35 Mev). Experimental arrangement (Fig. 1): The gamma quanta from the betatron target 1 passed through monitor 2, the lead collimator 3 and through the magnetic field 4, and entered the vacuum chamber 6. In this chamber was a metallic Pr foil which was tilted from the gamma beam by 30°. The emerging photons are recorded photographically using NIKFI plates with Т-3 (T-3) 400μ emulsion and Я-2 (Ya-2) emulsion as well as Ilford C-2 plates. An auxiliary magnetic field kept the electrons leaving the target from striking the photographic plates. Results

Photoprotons from Pr^{141}

of the measurements: Figs. 2 and 3 show the energy distributions of the protons from Pr^{141} photo disintegrations at $E_{\gamma max}$ = 22.5 and 33.5 Mev. The curves 1 and 2 correspond to the calculated spectrum of evaporated protons and of protons from direct photoeffect, respectively. Background was taken into account; generally, it was ~5%, but reached ~20% at 30°. The angular distribution may be described by the empirical expression $a + b \sin^2\theta(1 + p\cos\theta)^2$ (1). The values of a, b, c are given in Table 1. As an example, Fig. 5 shows the angular distribution in the energy interval of from 7.25 to 11.25 Mev (1 - $E_{\gamma max}$ = 33.5 Mev, 2 - $E_{\gamma max}$ = 22.5 Mev). Conclusions: (1) The maximum of the photoproton production cross section corresponds to gamma energies above 22 Mev. (2) The gamma absorption in this range has quadrupole character chiefly. This follows from the expression (1) and from Table 1. (3) The principal peak of the spectrum for $E_{\gamma max}$ = 22.5 Mev corresponds to the transitions $1g_{7/2} \rightarrow 1h_{9/2}$ and $1g_{7/2} \rightarrow 2f_{5/2}$. The peak of the 33.5-Mev spectrum corresponds to dipole transitions as well as to quadrupole transitions with chiefly

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Photoprotons from Pr^{141}

26696
S/056/61/041/005/011/038
B109/B102

$1g_{7/2} \longrightarrow 1i_{11/2}$ and $2d_{5/2} \longrightarrow 2g_{9/2}$. V. V. Balashov and V. G. Neudachin are thanked for discussions, S. Ovchinnikov for assistance. There are 6 figures, 2 tables, and 10 references: 4 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: M. E. Toms, W. E. Stephens. Phys. Rev., 92, 362, 1953; M. E. Toms, W. E. Stephens. Phys. Rev., 98, 626, 1955; W. K. Dawson. Canad. J. Phys., 34, 1480, 1956; J. H. Carver, W. Turchinetz. Proc. Phys. Soc., 73, 110, 1959.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

SUBMITTED: June 6, 1961

Card 3/6

38885
S/188/62/000/003/011/012
B104/B112

24.6600

AUTHORS: Shevchenko, V. G., Yur'yev, B. A.

TITLE: Photoprotons from tungsten

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 3, 1962, 90-92

TEXT: The angular distribution, energy distribution and yield of photoprotons from tungsten at maximum energies of the γ-brems spectrum of 22.5 and 33.5 Mev were studied. When low energy photoprotons (< 8.75 Mev) are formed, γ-quantum has dipole character. At higher energies quadrupole absorption increases, reaching up to 70%. The cross section of the (γ,p) reaction has its maximum at $E_\gamma > 22.5$ Mev; in which region quadrupole absorption predominates. There are 2 figures and 1 table.

ASSOCIATION: NIIYaF

SUBMITTED: January 19, 1962

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Photoprotons from tungsten

S/188/62/000/003/011/012
B104/B112

Table. Legend: (1) $E_{\gamma max}$, Mev; (2) E_{prot}, Mev; (3) $\sigma_{E2}/\sigma_{El} + \sigma_{E2}$, %.

1	2	3
22,5	6,25—8,75	0
	8,75—12,75	~35
	>12,75	~55
33,5	6,75—8,75	4
	8,75—12,75	~55
	>12,75	~70

Card 2/2

35558
S/056/62/042/003/009/049
B104/B102

24.6410

AUTHORS: Shevchenko, V. G., Yur'yev, B. A.

TITLE: Photoprotons from Rh, Pt, and Pb

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 707 - 712

TEXT: To study the role and the position of maximum quadrupole absorption of γ-quanta, the yields, the angular and energy distributions of the protons emitted in the photodisintegration of Rh, Pt, and Pb were determined from the bremsstrahlung spectra (maximum energies 22.5 and 33.5 Mev). Investigations were carried out on the 35-Mev betatron of the NIIYaF MGU. Foils of 25.1 mg/cm^2 (Rh), 41.4 mg/cm^2 (Pt), and 45.4 mg/cm^2 (Pb) thickness were used as targets. The foils were prepared from natural isotope mixtures, the impurities did not exceed 0.03% (Rh and Pt) and 0.01% (Pb). The maxima of the photoproton production cross sections were located at γ-quantum energies above 22 Mev. In this range the absorption of γ-quanta by heavy nuclei was of a quadrupole nature. With increasing A the quadrupole absorption maxima shifted in the direction of lower

Card 1/3

Photoprotons from Rh, Pt, and Pb

energies. For bismuth and lead, these maxima were at 22.5 and 24 Mev quantum energies, respectively. The photoproton angular distributions can be described by $a + b \sin^2\theta (1 + \cos\theta)^2$, where a and b depend on Z and on $E_{\gamma max}$. Such a distribution is characteristic of E1 + E2 absorption, $\sigma_{E2}/\sigma_{E1+E2}$ is between 0 and 75%. The following yields were measured:

	$E_{\gamma max}$, Mev	yield, protons/mole·roentgen
Rh	22.5	$1.3 \cdot 10^5$
	33.5	$2.8 \cdot 10^5$
Pt	33.5	$9.6 \cdot 10^4$
Pb	22.5	$2.9 \cdot 10^4$

T. A. Ivanova, S. M. Kulakova, and T. V. Yudina are thanked for working out measurement results, and the betatron team for assistance. There are 8 figures, 2 tables, and 12 references: 4 Soviet and 8 non-Soviet. The four most recent references to English-language publications read as

Card 2/3

Photoprotons from Rh, Pt, and Pb

S/056/62/042/003/009/049
B104/B102

follows: M. E. Toms, W. E. Stephens, Phys. Rev., 98, 626, 1955; 92, 362, 1953; E. V. Weinstock, J. Halpern, Phys. Rev., 93, 1651, 1954; W. K. Dawson, Canad. J. Phys., 34, 1480, 1956.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of the Moscow State University)

SUBMITTED: October 6, 1961

Card 3/3

40419
S/056/62/043/003/020/063
B102/B104

AUTHORS: Shevchenko, V. G., Yur'yev, B. A.

TITLE: Angular and energy distributions of photoprotons from heavy nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 860-864

TEXT: The photoproton yields and energy distributions were measured with $E_{\gamma max}$ = 22.5 and 33.5 Mev for W, Pt, and Pb of natural isotope composition. The targets were prepared as thin foils and exposed to γ-radiation from the 35-Mev betatron of the NIIYaF MGU. Experimental arrangement and method are described in ZhETF, 41, 1421, 1961 and 42, 707, 1962. The photoproton angular distributions can be approximated by $a + b \sin^2\theta(1+p\cos\theta)^2$ and the constants are tabulated for various E_p intervals. These distributions were asymmetric with respect to 90°, the maximum being shifted toward small angles. The asymmetry was found to increase with E_p as well as with $E_{\gamma max}$. The energy distributions are very similar in all cases: For both $E_{\gamma max}$

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and for W, Pt and Pb there is a maximum at E_p = 10-12 Mev. The photoproton yields, $Y_{exp}(E_{\gamma max})$, were $2.6 \cdot 10^4$(22.5), $6.8 \cdot 10^4$(33.5) for W, $2.4 \cdot 10^4$(22.5) for Pt and $9.2 \cdot 10^4$(33.5) for Pb, given in protons/mole·r. The results indicate that the maximum photoproton production cross section for heavy nuclei is at $E_\gamma \gtrsim 22$ Mev, and that the γ-absorption in this energy range is mainly of quadrupole nature. This is in agreement with the hydrodynamic model, the sum rule and the direct interaction theory. There are 7 figures and 2 tables.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

SUBMITTED: April 21, 1962

S/056/62/043/005/006/058
B163/B186

AUTHORS: Sorokin, Yu. I., Shevchenko, V. G., and Yur'yev, B. A.

TITLE: Cross section for photoproton reactions in lead

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 5(11), 1962, 1600-1603

TEXT: In order to study the shape of the quadrupole giant resonance curve, the total yield curves for the (γ,p) reactions on Pb^{207} and Pb^{208}, and the (γ,pn) and (γ,d) reactions on Pb^{208} were measured by recording the induced activity. Similar measurements at γ energies up to 27 Mev have been made earlier by Cameron et al. (Phys. Rev. 83, 1264, 1951) who succeeded in discovering only the ascending branch of the curve. In this experiment, lead discs of 14 and 30 mm diameter were irradiated within a distance of 50 cm from the target of the 35 Mev NIIYaF MGU betatron. The maximum energy of the bremsstrahlung from the target was variied from 0.5 to 33.5 Mev. The irradiated disc specimens were arranged between two β-counters measuring the induced activity of

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Cross section for photoproton ...

Tl^{206} and Tl^{207}. From the total yield curve the energy dependence of the total cross section for photonuclear reactions on Pb^{207} and Pb^{208} was calculated using the matrix method of Penfold and Leiss (Analysis of photo cross section, University of Illinois, 1958). The contribution of the (γ, pn) and (γ, d) reactions to the total cross section was estimated. Fig. 2 shows the energy dependence of the cross section before and after correction for the (γ, pn) processes. The (γ, d) cross section was neglected for all energies. It is of interest that the maxima of the cross section curves are situated at energies 12 - 13 Mev above the maximum of the dipole giant resonance. They are also clearly above theoretical estimates (17 - 21 Mev) previously calculated by the authors for the maximum of the cross section of basic quadrupole transitions in heavy nuclei according to the one-particle model. The integral cross sections for the complete reactions and the (γ, p) reactions which equal 60 and 55 Mev·mbarn respectively, are consistent with estimates made by Khokhlov's summation rule for quadrupole transitions (Yu. K. Khoklov, ZhETF 32, 124, 1957). There are 2 figures.

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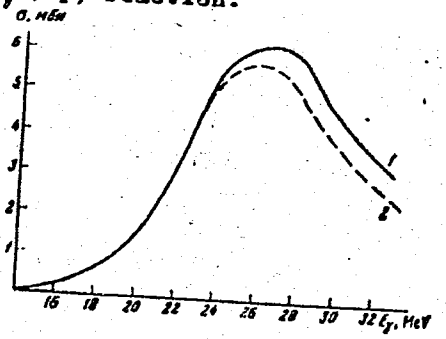
Cross section for photoproton ... S/056/62/043/005/006/058
B163/B186

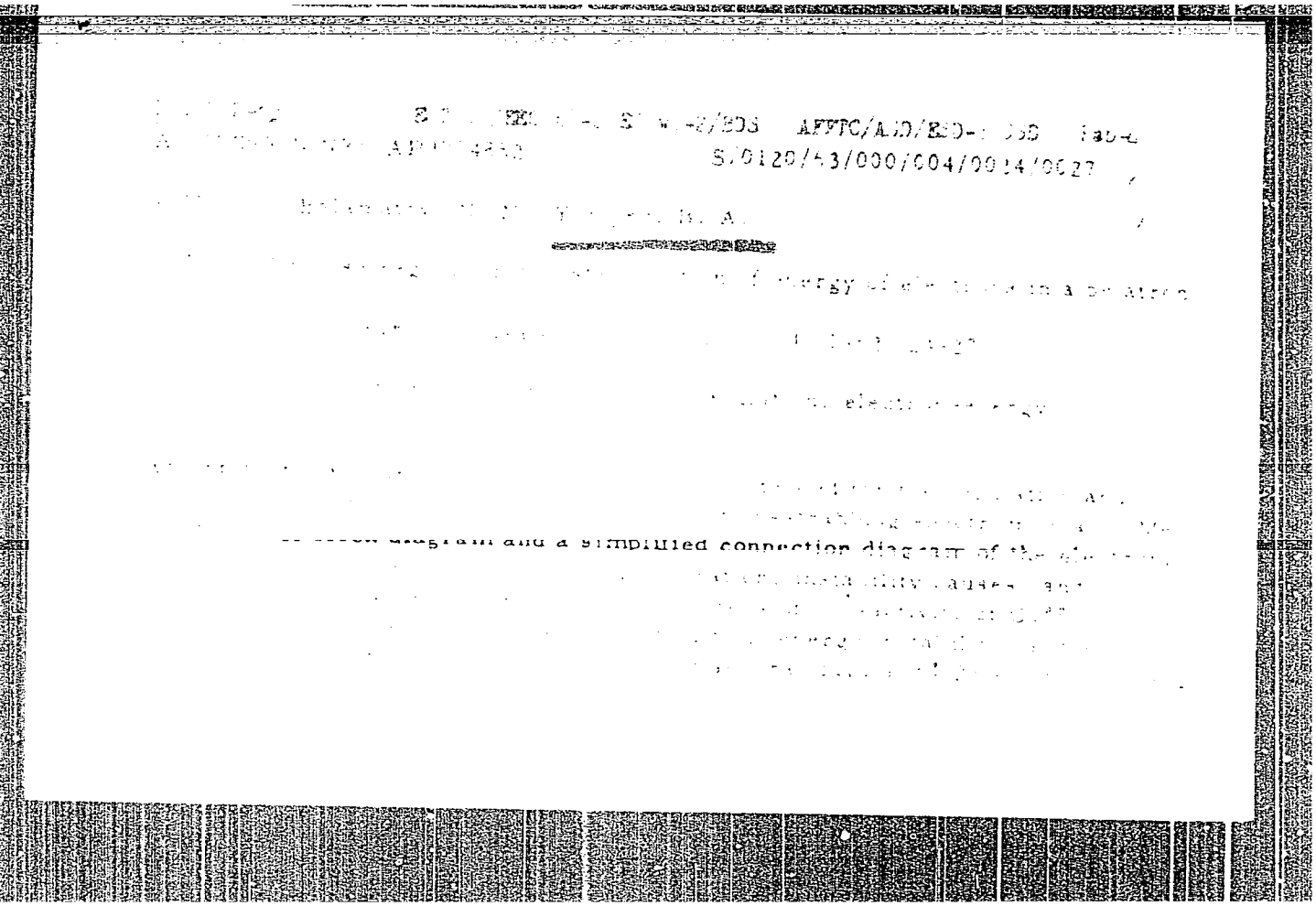
ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of the Moscow State University)

SUBMITTED: June 23, 1962

Legend of Fig. 2. Cross section of photonuclear reactions on lead: 1 - cross section calculated from the total yield curve, 2 - cross section for the (γ, p) reaction.



Card 3/3



SUBMITTED: 15Aug62 DATE ACQ: 28Aug63

SHEVCHENKO, V.G.; YUR'YEV, B.A.

Scintillation methods for studying (γ, P) reactions. Vest. Mosk. un. Ser. 3:Fiz., astron. 18 no.5:11-17 S-O '63. (MIRA 16:10)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

SHEVCHENKO, V.G.; YUDIN, N.P.; YUR'YEV, B.A.

Quadrupole excitations of atomic nuclei. Izv. AN SSSR. Ser. fiz. 27 no.10:1313-1318 O '63. (MIRA 16:10)

[illegible] AFFTC/ASD/APWL/3[illegible] Lab-4
[illegible]: AD[illegible]5233 B/0056/63/045/002/0538/0542

[illegible] Ishkhanov, B. S.; Kornienko, S. N.; Sorokin, Yu. I.; Shevchenko, V. I.; [illegible]

[illegible] section of the reaction O[illegible] and 103 (gamma, p)

[illegible] Fizika, v. 45, no. 2, 1963, [illegible]

[illegible] photon, photon absorption, neutron emission

[illegible] The yield curve of the reaction (γ, p) was measured for maximum [illegible] ranging from [illegible] MeV by recording the photoprotons with [illegible] proton counter. The investigation was aimed at checking the presence [illegible] absorption calculated by the [illegible] at the maximum, at [illegible] MeV. The cross section [illegible] at the peak [illegible] MeV. The cross section [illegible] MeV, apparently owing to [illegible] MeV region. The integral cross [illegible] MeV-mb. It is evident that an appreciable part of the quadrupole transitions lead, owing to the mixing

Card 1/4 Note: Ignore Topic Tag "Rhenium"; should be rhodium

15F20-63

ACCESSION NR: AP3005239

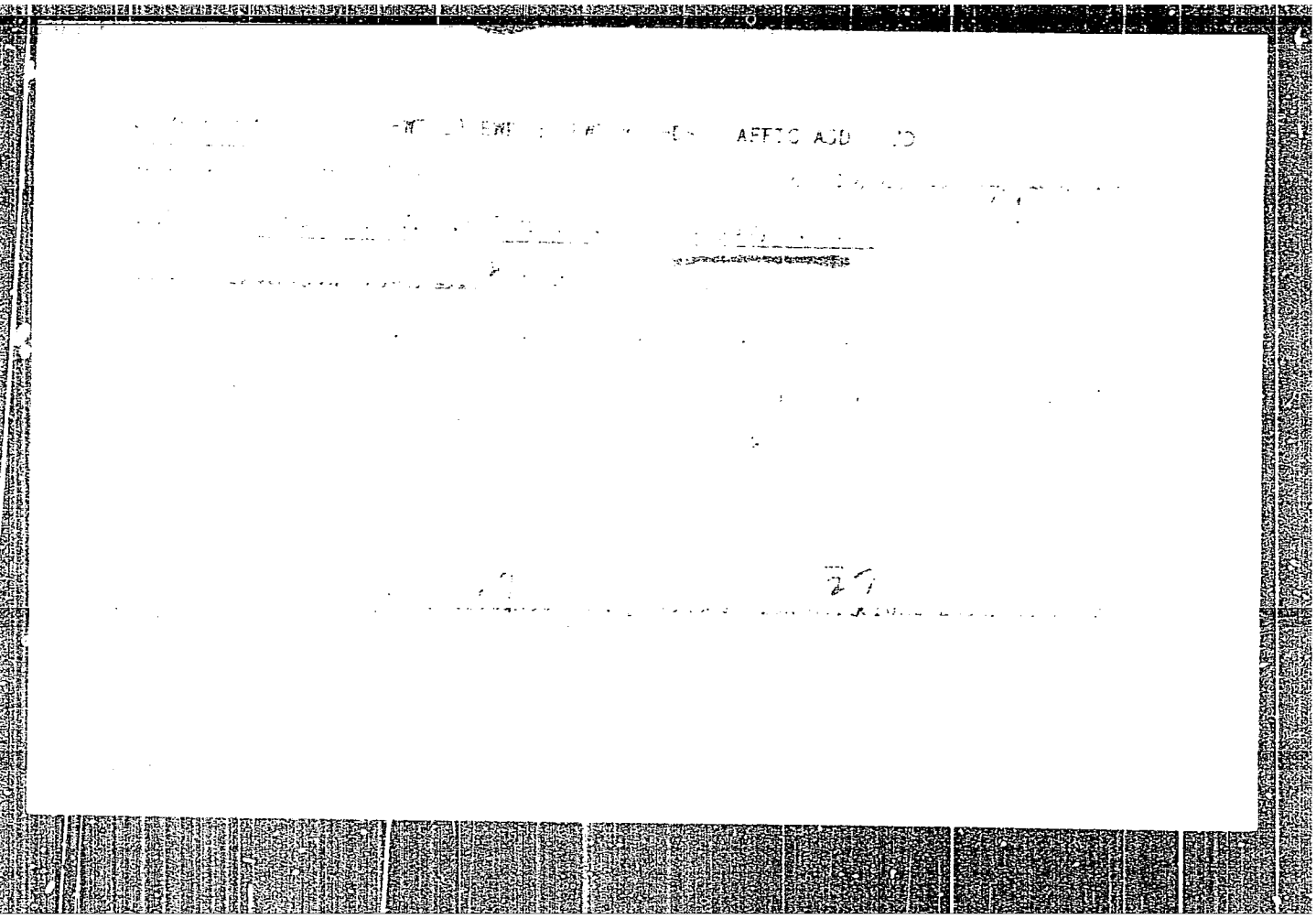
of the configurations, to the emission of neutrons, in agreement with the pre-
[illegible] of fast photoneutrons, obser[illegible]
important role of the residual
grateful to V. G. Nedachin and
also to N. N. Bilambov and the

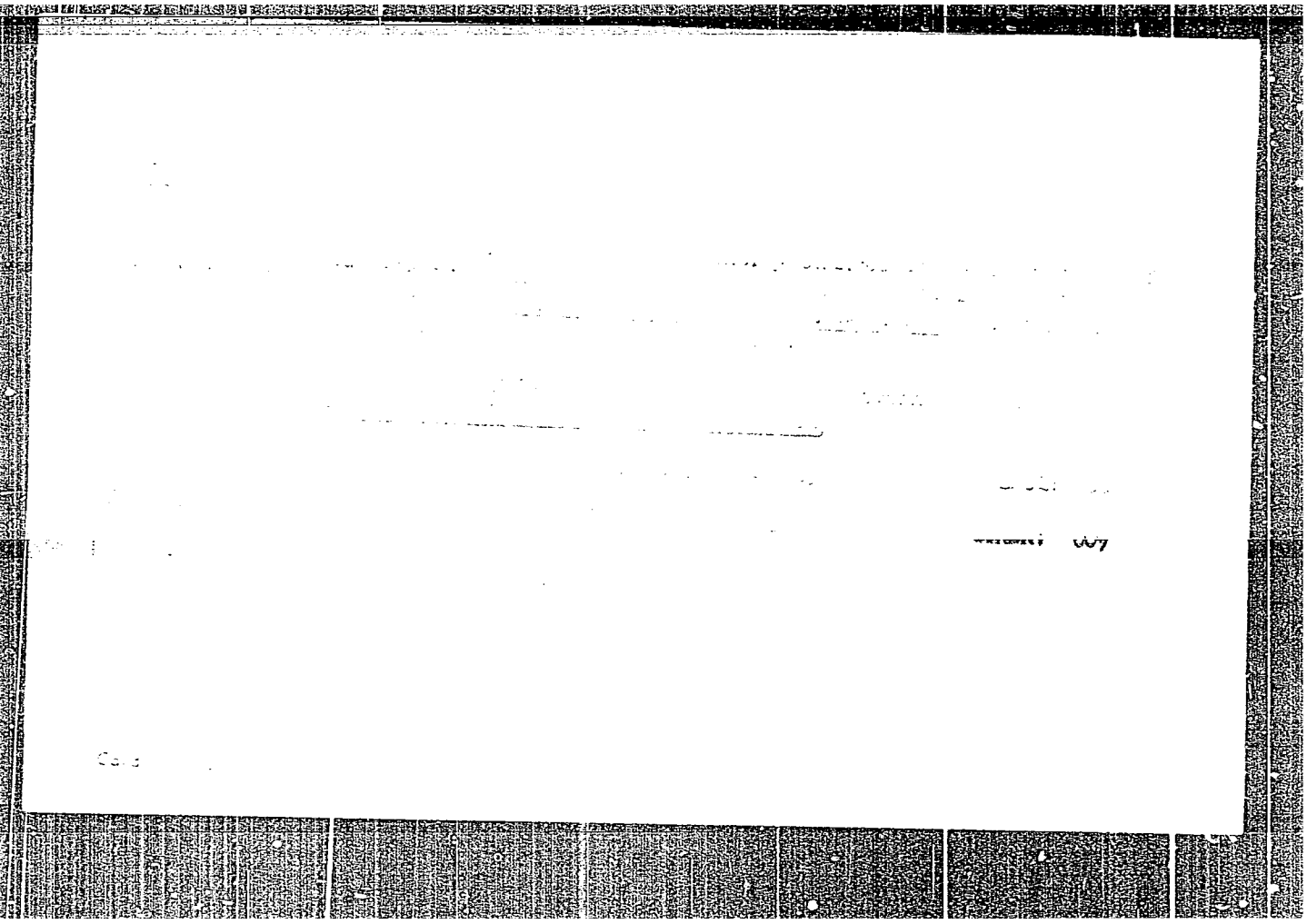
ASSOCIATION: Institut yaderney fiziki [illegible] gosudarstvennogo universiteta
[illegible]

DATE ACQ: [illegible] ENCL: 02

SUB CODE: PH NO REF SOV: 011 OTHER: 008

Card 2/4





$E_{\gamma\,max}$ between 49.9 and 55.5 Mev. The photoprotons were recorded with a [illegible]

[illegible] reaction up to 33 Mev is 50 ± 10 Mev.mb.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute for Nuclear Physics of the Moscow State University)

SUBMITTED October 25, 1962

Card 2/2

ISHKHANOV, B. S.; KAPITONOV, I. M.; KORNIYENKO, E. I.; SHEVCHENKO, V. G.; YUR'YEV, B. A.

"Investigations of the Reaction $Ca^{40}(\gamma,p)$."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

NIIYaF, MGU (Sci Res Inst Nuclear Physics, Moscow State Univ)

[illegible]NOV, A. Kh.; SHEVCHENKO, V. G.; YUR[illegible]EV, [illegible]. A.

"The Photodisintegration of Li^6 by Bremsstrahlung Gamma Rays with Maximum Energy 12.5 MeV."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

NII, YaF, MGU
ci Res Inst Nuclear Physics, Moscow State Univ.

ISHKHANOV, B. S.; KAPITONOV, I. M.; YUR'YEV, B. A.; SHEVCHENKO, V.G.

"The giant resonance of the gamma quantum dipole absorption in Ca^{40}."

report submitted for Intl Conf on Low & Medium Energies Nuclear Physics, Paris, 2-8 Jul 64.

BALAMATOV, N. N.; ISHKHANOV, B. S.; SHEVCHENKO, V. G.; YUR'YEV, B. A.

Setup for measuring the cross sections and angular distributions of photonuclear reaction products. Vest.Mosk.un Ser.3:Fiz., astron.19 no. 2:85-87 Mr-Ap '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo universiteta.

SHARDANOV, A.Kh.; SHEVCHENKO, V.G.; YUR'YEV, B.A.

Study of the $Li^6(\gamma,p)$ reaction. Izv. AN SSSR. Ser. fiz. 28 no.1:60-63 Ja '64. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

ACCESSION NR: AP4033640 S/0188/64/000/002/0085/0087

AUTHOR: Balamatov, N. N.; Ishkhanov, B. S.; Shevchenko, V. G.; Yur'yev, B. A.

TITLE: An apparatus for measurement of the cross sections and angular distributions of the products of photonuclear reactions

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 2, 1964, 85-87

TOPIC TAGS: physics, photonuclear reaction, betatron, bremsstrahlung, gamma radiation, gamma quantum

ABSTRACT: In order to compute the cross sections of photonuclear reactions with a sufficient degree of accuracy when working with bremsstrahlung gamma radiation of betatrons it is necessary that yield curves be measured with exceptionally high accuracy. Errors in experimental determinations are caused by the statistical error in determining the yields of nuclear reaction products, error in determination of the energy of electrons in the betatron, drift of the instrument determining the intensity of the flux of gamma quanta and the error associated with the instability of the recording instrument in time. Most of these errors have been eliminated or decreased by use of an apparatus already described in the literature

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ACCESSION NR: AP4033640

(O. V. Bogdankevich, Atomnaya energiya, 12, No. 3, 199, 1962). An apparatus of a similar type now has been constructed for simultaneous measurement of the yield of photoprotons at three angles. The descriptive text is accompanied by a block diagram of the apparatus; there are two synchronously operating units: a unit for regulating and stabilizing electron energy and a recording unit. The apparatus was checked by measurement of the yield of photoprotons from zirconium. The recording was for angles of 90^0, $90^{0\prime}$ and 150^0 relative to the beam of gamma quanta. The results are shown in Fig. 1 of the Enclosure. "The authors wish to thank O. V. Bogdankevich, I. M. Kapitonov, I. M. Piskarev and N. G. Vodyanov for valuable advice and assistance". Orig. art. has: 3 figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki (Scientific Research Institute of Nuclear Physics)

SUBMITTED: 18Aug63 DATE ACQ: 30Apr64 ENCL: 01

SUB CODE: NP NO REF SOV: 004 OTHER: 002

Card 2/3

ACCESSION NR: AP4033640

ENCLOSURE: 01

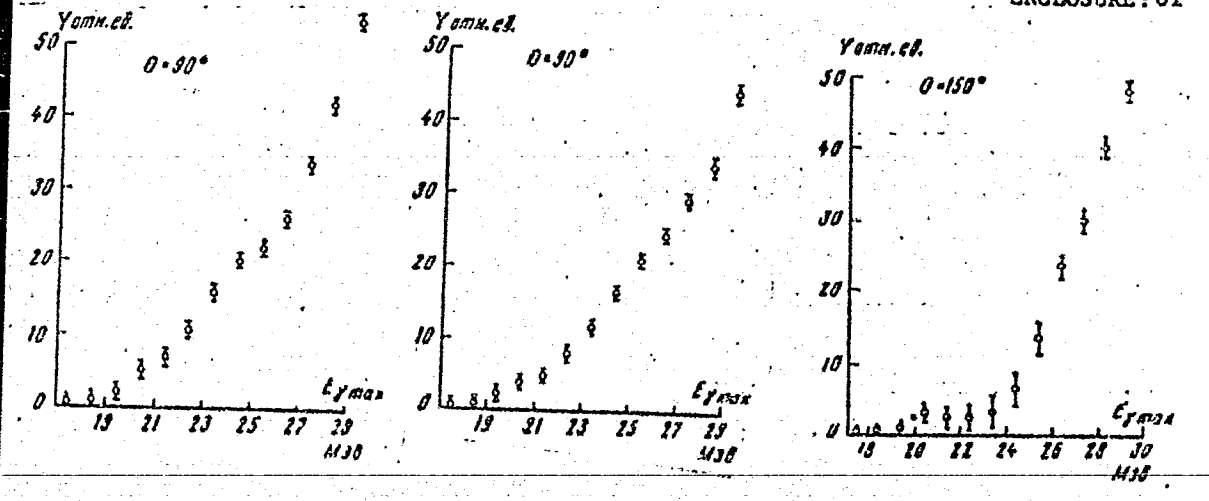

Fig. 1. Yield of photoprotons from the reaction, measured at angles 90°, 90°' and 150°.

otn. ed. = relative units МэВ = Mev

Card 3/3

ACCESSION NR: AP4031181 S/0056/64/046/004/1484/1486

AUTHOR: Ishkhanov, B. S.; Kapitonov, I. M.; Kormiyenko, E. N.; Shevchenko, V. G.; Yur'yev, B. A.

TITLE: Photoprotons from calcium

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1484-1486

TOPIC TAGS: photoproton, angular distribution, energy distribution, photoproton yield curve, integrated cross section, shell model, sum rule

ABSTRACT: To eliminate some contradictions which still exist between the calculations of the photodisintegration of Ca^{40} according to the many-particle shell model and the experimental data, the authors measured the angular and energy distribution of photoprotons from Ca^{40} for a maximum γ-ray energy 22 MeV, and also obtained cross sections for the reactions $Ca^{40}(\gamma, p)$. The measurements were made on the 35 MeV betatron of NIIYaF MGU, the energy distributions being obtained with emulsions and the photoproton yield curves with scintillation spectrometers. The position of the peak in the cross section for the (γ, p) reaction agrees with the theoretical calculation Balashov, Shevchenko, and Yudin (Nucl. Phys. v. 27, 323, 1961), and the integrated cross section agrees with both the sum-rule calculations and

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ACCESSION NR: AP4031181

the shell-model calculations. The positions of the cross section peaks also agree with theory. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 24Sep63 DATE ACQ: 07May64 ENCL: 02

SUB CODE: NP NR REF SOV: 004 OTHER: 002

Card 2/4

L 10522-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pe-10/Pab-24 IJP(c)/AFWDC/SSD/AFWL

ACCESSION NR: AP4047456 S/0120/64/000/005/0041/0043

AUTHOR: Balamatov, N. N.; Balashov, A. V.; Yur'yev, B. A.

TITLE: Device for varying the duration of a gamma-radiation pulse in a betatron

SOURCE: Pribory* i tekhnika eksperimenta, no. 5, 1964, 41-43

TOPIC TAGS: betatron, gamma radiation, gamma radiation pulse

ABSTRACT: To avoid a counting loss and overloading the equipment by superimposed electron- and gamma-background pulses, a generator circuit is proposed which produces variable-height near-rectangular pulses; the pulses are intended for directing the electrons toward the target. The generator ensures lengthening the gamma-radiation pulse derived from the 35-Mev NIIYaF MGU betatron to 100--130 microsec within the working energy range. The effect found experimentally of the electron energy on the pulse duration is reported. Pulse lengthening impairs the electron-energy stability somewhat; the moment of

Card 1/2

L 30591-65
ACCESSION NR: AP4047456

hitting the target by an electron fluctuates within ±5 microsec due to supply-voltage variations; this results in an additional instability of ±50 kev. Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific-Research Institute of Nuclear Physics, Moscow State University)

SUBMITTED: 04Oct63 ENCL: 00

SUB CODE: NP NO REF SOV: 001 OTHER: 001

Card 2/2

ACCESSION NR: AP5005943 S/0048/65/029/002/0213/0215

AUTHOR: Dzhakov, I.I.; Ishchanov, B.S.; Kapitonov, I.M.; Shevchenko, V.G.; Yur'yev, B.A.

TITLE: Photoprotons from zirconium /Report, 14th Annual Conference on Nuclear Spectroscopy Held in Tbilisi, 14-22 Feb 1964/

SOURCE: AN SSSR. Izvestiya, Seriya fizicheskaya, v.29, no.2, 1965, 213-215

TOPIC TAGS: bremsstrahlung, gamma reaction, photonuclear reaction, proton, dipole photoabsorption, quadrupole photoabsorption, zirconium

ABSTRACT: The Zr(γ,p) reaction was investigated with 22, 26 and 34 MeV bremsstrahlung from the 35 MeV betatron of the Moscow State University. A 14.7 mg/cm² zirconium film of natural isotopic composition on an organic backing was employed as the target. The total photodisintegration cross section was found to have a peak at 21.5 MeV with a width of 4.5 MeV; this is in agreement with the results obtained for neighboring nuclei. The energy distribution of the photoprotons ejected by 25 MeV bremsstrahlung was compared with calculations for Zr^{90} based on the statistical model (R.M.Osokina, Int.Symp.on Direct Interaction and Nuclear Reaction Mech-

Card 1/2

L 33613-65

ACCESSION NR: AP5005942

[illegible] The agreement between theory and experiment was reasonably good for photon energies below about 3 MeV, but there was a considerable excess of high energy (> 4 protons). These are ascribed to direct processes and account for at least 15% of the total number of photoprotons. The angular distribution of the photoprotons ejected by 25 Mev bremsstrahlung was moderately asymmetric and indicated an approximately 5% contribution from quadrupole absorption. For the 34 MeV bremsstrahlung the asymmetry, and, consequently, the quadrupole absorption contribution were much greater; this is in agreement with the findings of V.G.Shevchenko, A.P.Klyucharev and B.A.Yur'yev (Zhur.eksp.i teor.fiz.45,180,1968), who place the quadrupole absorption peak for Zr in the vicinity of 27 MeV. Orig.art.has: 6 figures.

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

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NR REF SOV: 004 OTHER: 004

Card 2/3

L 13012-66 EWT(m) Pab DIAAP

ACCESSION NR: AP5006949 S/0048/65/029/002/0216/0220

AUTHOR: Ishkhanov, B.S.; Shitikova, K.V.; Yur'yev, B.A.

TITLE: Photodisintegration of Zr^{90} /Report, 14th Annual Conference on Nuclear Spectroscopy held in Tbilisi, 14-22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.2, 1965, 216-220

TOPIC TAGS: photonuclear reaction, dipole photoabsorption, zirconium, nuclear shell model

ABSTRACT: The dipole photoabsorption cross section of Zr^{90} was calculated on the basis of the shell model with δ-function residual interactions in order to determine the importance of the residual interactions for this process in medium mass nuclei. The parameters of the residual interaction potential were so chosen as to obtain agreement between the calculated position of the giant resonance maximum and the experimental (γ,n) peak. These parameters were intermediate between those for Ca^{40} and Pb^{208}, and were thus reasonable. Taking account of the residual interactions in the diagonal approximation produced no significant effect; the main transitions were concentrated in the region from 7 to 11 MeV. When the nondiagonal part of the

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residual interaction was taken into account, a single 16.0 MeV level of less than 300 keV width accounted for nearly all of the dipole sum. The small width of this level in comparison with those of lighter nuclei is ascribed to the shift of the giant resonance to lower energies and the increase of the Coulomb and centrifugal barriers, enhancing the contribution of single-particle states with large angular momentum. This theory does not account for the observed shape of the giant resonance, moreover, the theory predicts that the (γ,n) and (γ,p) peaks will coincide, whereas experiment shows them to be separated by some 4 to 5 MeV. The energy distribution of the photoprotons was calculated on the basis of the shell model. Comparison with experiment (I.I.Bubbkov et al., Izv.AN SSSR,Ser.fiz.25,121,1965 /See abstract AP5005942/) showed that many more levels are involved than the shell model would indicate. The photoproton energy distribution was accordingly calculated on the basis of the statistical model with pairing taken into account (B.M.Oskins, Int.Symp.on Direct Interaction and Nuclear Reaction Mechanism, Padova, 1962). Reasonable agreement with experiment was obtained only in the low energy region. "In conclusion, the authors express their gratitude to V.V.Balashov and N.P.Yudin for valuable discussions." Orig.art.has: 1 formula, 4 figures and 3 tables.

ACCESSION NR: AP5006943

ASSOCIATION: none

SUB CODE: NP

ENCL: 01

OTHER: 003

Card 3/3

AUTHOR: Ishkhanov, B.S.; Kapitonov, I.M.; Kornilyenko, E.N.; Shevchenko, V.G.; Yur'yev, B.A.

TITLE: Investigation of the $Ca^{40}(\gamma,p)$ reaction /Report, 14th Annual Conference on Nuclear Spectroscopy held in Tbilisi, 14-23 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.2, 1965, 221-224

TOPIC TAGS: bremsstrahlung, gamma reaction, photonuclear reaction, proton, calcium

ABSTRACT: The authors have determined the energy and angular distributions of photoprotons ejected from Ca^{40} nuclei by 18, 22 and 25 MeV bremsstrahlung from the 35 MeV betatron of the Moscow State University. The measurements were undertaken because of the relatively large amount of theoretical work that has been devoted to this problem and the contradictory nature of some of the experimental data. A 4.4 mg/cm^2 metallic calcium target having the natural isotopic composition was employed. The apparatus has been described elsewhere (V.G.Shevchenko and B.A.Yur'yev, Zhur. eksp.i teor.fiz.45,No.2,1963). The energy distribution of protons ejected by 18 MeV bremsstrahlung showed clear peaks at 2.6 and 0.6 MeV with indications of the pre-

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L 5[illegible]

ACCESSION NR: AP6005944

series of numerous other peaks. These maxima persisted in the distribution from 22 MeV bremsstrahlung and other maxima developed, including a broad maximum centered in the 8 to 9 MeV region. This last maximum appears to be split in the case of photoprotons ejected by 25 MeV bremsstrahlung. Possible origins of these maxima are discussed at some length in terms of the level structure of Ca^{40}. The angular distributions were all symmetric about 90° within the experimental error. Protons of energy greater than 7.5 MeV ejected by 22 MeV bremsstrahlung were isotropically distributed. The angular distribution of protons of the same energy range ejected by 23 MeV bremsstrahlung was described by $1 + \sin^2\theta$. Orig.art.has: 5 figures.

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

L 32032-65 EWT(m)/T LJP(c)
ACCESSION NR: AP5005962 S/0048/65/029/002/0315/0318

AUTHOR: Goryachev,B.I.; Kozlov, V.A.; Chukichev,M.V.; Yur'yev,B.A. 14

TITLE: Influence of the gamma-ray background on the energy resolution of a spectrometer employing a semiconductor detector /Report, 14th Annual Conference on Nuclear Spectroscopy held in Tbilisi, 14-22 Feb 1964/

SOURCE: AN SSSR, Izvestiya. Seriya fizicheskaya, v.29, no.2, 1965, 315-318

TOPIC TAGS: particle detector, gamma background, alpha detector, alpha spectroscopy, semiconductor detector

ABSTRACT: The resolution of an α-particle spectrometer employing a solid-state detector was investigated in the presence of a background of Co^{60} γ-rays. Four silicon detectors were investigated, two of the surface-barrier and two of the diffusion-drift type. The resolution was measured for the 6.066 and 6.110 Mev alphas from a Cm^{242} source. The instrumental broadening was increased from 0.03 to 1.7% by a 5.3×10^7 $cm^{-2}sec^{-1}$ flux of Co^{60} γ-rays when one of the surface-barrier detectors was employed, and from 2 to 13% by a 2.0×10^7 $cm^{-2}sec^{-1}$ flux with one of the diffusion-drift detectors. The square of the instrumental broadening was an approxi-

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L 12032-65

ACCESSION NR: AP5005962

mately linear function of the γ-ray flux, and the slope depended principally on the sensitive volume of the detector. The equation $r^2 = r_0^2 + 3.65\ bNTVE^2$ is derived for the instrumental broadening r. Here r_0 is the broadening in the absence of a γ-ray background, N is the γ-ray flux b is the absorption coefficient of the detector material for γ-rays, V is the sensitive volume of the detector, T is the time constant of the amplifier, and E^2 is the mean square energy of the electrons released by the γ-rays in the detector material. The value of the numerical coefficient was obtained with the aid of specific assumptions concerning the pulse distribution. The predictions of this equation were in agreement with the experimental data, and the equation can be employed to estimate the influence of a γ-ray background on the resolution of a semiconductor spectrometer. Orig.art.has: 7 formulas, 5 figures, and 1 table. [02]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NO REF SOV: 000 OTHER: 001 ATD PRESS: 3199

Card 2/2

ISHKHANOV, B.S.; YUDIN, N.P.; YUR'YEV, B.A.

Electric quadrupole transitions in Ca^{40}. Izv. AN SSSR. Ser. fiz. 29 no.7: 1212-1216 Jl '65. (MIRA 18:7)

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

GORYACHEV, B.I.; ISHKHANOV, B.S.; KAPITONOV, I.M.; SHEVCHENKO, V.G.; YUR'YEV, B.A.

Energy distribution of photoprotons from Si^{28}. IAd. fiz. 1 no.6: 1005-1008 Je '65. (MIRA 18:6)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

L 41308-66 EWT(m)/T/EWP(t)/ETI IJP(c) JH/JD

ACC NR: AP6019636 (A,N) SOURCE CODE: UR/0048/66/030/002/0378/0382

AUTHOR: Ishkhanov,B.S.; Kapitonov, I.M.; Shevchenko, V.G.; Yur'yev, B.A. 47 47 B

ORG: none

TITLE: Photoprotons from magnesium /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya. v. 30, no. 2, 1966, 378-382

TOPIC TAGS: nuclear reaction, nuclear cross section, magnesium, gamma interaction, gamma ray absorption, proton, proton emission

ABSTRACT: The authors have measured the energy and angular distributions of protons ejected from a 9.2 mg/cm^2 target of 99.9% pure magnesium of the natural isotopic composition by 23 and 34 MeV bremsstrahlung from a 35 MeV betatron and have determined the total Mg^{24} (γ,p) cross section as a function of γ-ray energy in order to obtain data for comparison with theory on the giant dipole resonance in nuclei between C^{12} and O^{16}, for which "particle-hole" calculations based on the shell model are known to give a satisfactory description of the photodisintegration process, and Ca^{40}, for which similar calculations fail to account for a number of features of the process. The energy and angular distributions of the photoprotons were determined with 400 micron thick nuclear emulsions. The total cross section as a function of γ-ray energy was calculated by the method of Penfold and Leiss from yield curves measured with

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41308-66

ACC NR: AP6019636

scintillation spectrometers, using a 12.2 mg/cm^2 target. The angular distributions of the photoprotons with energies below 6.7 MeV were practically isotropic, indicating the participation in the photodisintegration process of a number of levels with different orbital angular momenta. The energy distribution of the photoprotons ejected by 23 MeV bremsstrahlung did not differ greatly from the distribution found by M.E.Toms and W.E. Stephens (Phys.Rev. 82, 709 (1951)), using 22.5 MeV bremsstrahlung, and by J.Yamamuro (J. Phys.Soc.Japan, 18, 11 (1961)), using 21.5 MeV bremsstrahlung. The (γ,p) cross section as a function of photon energy differed considerably from the cross sections measured by K.Shoda, K.Abe, T.Ishizuka,N.Kawamura, and by M.Kimura (J. Phys.Soc. Japan, 17, 735 (1962)); it was in better agreement with the (γ,n) cross section of J.Miller, C.Schul, G.Tomas, and C.Tzara (Preprint.Centre d'Etudes Nucleaires de Saclay, 1963) and the absorption cross section of B.S.Dolbilkin, V.A.Zapevalov, V.I.Korin, L.Ye.Lazareva, and F.A.Nikolayev (Conf. Rend. Congr. Internat. Phys.Nucl.Paris, 1964, vol. 2, 1060, Paris, 1964). The integrated (γ,p) cross section was 180 mb MeV; when that is added to the integrated (γ,n) cross section of Miller et al. (loc.cit.), the sum is 265 mb MeV, which may be compared with the value of 360 mb MeV given by the dipole sum rule. The authors thank N.N.Balamatov for assistance with the work. Orig. art. has: 5 figures and 1 table.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 006 OTH REF: 011

Card 2/2 hs

Yu.K.V.6.51

Yuškevič, B. I. The life and work of N. E. Žukovskiĭ (1847-1921). Bull. Acad. Sci. URSS Cl. Sci. Tech. [Izvestia Akad. Nauk SSSR] 1947, 41-252 (1947) (Russian)

Source: Mathematical Reviews, 1948, Vol. , No. 2

PHASE I BOOK EXPLOITATION SOV/6004

Yur'yev, Boris Nikolayevich, Academician

Izbrannyye trudy. t. 2: Aerodinamika; istoriya aviatsionnoy tekhniki (Selected Works. v. 2: Aerodynamics; History of Aviation Engineering) Moscow, Izd-vo AN SSSR, 1961. 272 p. Errata slip inserted. 1500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR.

Members of the Committee: Chairman: I. I. Artobolevskiy, Academician; Deputy Chairman: I. P. Bratukhin, Professor; S. G. Kozlov, Professor; A. K. Martynov, Professor, Doctor of Technical Sciences; K. K. Fedyayevskiy, Professor, Doctor of Technical Sciences; and V. A. Konstantinov, Candidate of Technical Sciences; Scientific Secretary: N. P. Lesnikova; Resp. Ed.: I. I. Artobolevskiy, Academician; Deputy Resp. Ed.: I. P. Bratukhin, Professor; Ed. of Publishing House: G. B. Gorshkov; Tech. Ed.: V. G. Laut.

PURPOSE: This second volume of the selected writings of the late Academician

Card 1/6 2

B. N. Yur'yev is intended for specialized and general readers interested in aviation.

COVERAGE: The present collection contains 17 previously published engineering and historical papers on aviation subjects, some of which are here republished in full and some of which are excerpts from the original works. The paper "Rational Sizes of Wind Tunnels" (p. 154), although first published in 1935, is still considered important. The calculation methods described in "Pressure Picture" (p. 40), "Wing With Circulation Changing Along Its Span" (p. 71), and "New Method of Aerodynamic Airplane Calculation" (p. 134) were widely adopted. No personalities are mentioned. References accompany one article.

TABLE OF CONTENTS [Abridged]:

SECTION I. AERODYNAMICS

Released 1957

PHASE I BOOK EXPLOITATION SOV/5987

Yur'yev, Boris Nikolayevich, Academician

Izbrannyye trudy. t. 1: Vozdushnyye vinty, vertolety (Selected Works. v. 1: Propellers, Helicopters) Moscow, Izd-vo AN SSSR, 1961. 551 p. Errata slip inserted. 1500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR.

Members of the Committee: Chairman: I. I. Artobolevskiy, Academician; Deputy Chairman: I. P. Bratukhin, Professor; S. G. Kozlov, Professor; A. K. Martynov, Professor; K. K. Fedyayevskiy, Professor; V. A. Konstantinov, Candidate of Technical Sciences; Scientific Secretary: N. P. Lesnikova, Candidate of Technical Sciences; Resp. Ed.: I. I. Artobolevskiy, Academician; Deputy Resp. Ed.: I. P. Bratukhin, Professor; Ed. of Publishing House: G. B. Gorshkov; Tech. Ed.: V. G. Laut.

PURPOSE: This book is intended for aeronautical engineers and students of aeronautics.

Card 1/

Selected Works (Cont.) SOV/5987

COVERAGE: The book, volume I of a two-volume work, consists of two parts: 1) Propellers, and 2) Helicopters. Detailed information on propeller and helicopter rotor design is given, and several theories dealing with the design of these parts are explained. Attention is also given to the operation of propellers and rotors, and to helicopter flight characteristics. There are numerous Soviet and non-Soviet references.

TABLE OF CONTENTS [Abridged]:

Card 2/7

YUR'YEV, B.N.

GEL'D, Pavel Vladimirovich; YESIN, Oleg Aleksandrovich; YUR'YEV, B.N., red.; KEL'NIK, V.P., red.; ZEF, Ye.M., tekhn.red.

[Processes of high-temperature metal reduction] Protsessy vysokotemperaturnogo vosstanovleniia. Sverdlovsk, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, Sverdlovskoe otd-nie, 1957. 646 p. (MIRA 11:1)
(Metallurgy)

YUR'YEV, B. N. (Engr)

Editor of the book GAS UTILIZATION IN METALLURGICAL PLANTS (Gasovoye khozyaystvo metallurgicheskikh zavodov) by KUNAKOV, N. E. (Master of Eng. Sci)

SO: A.I.D., Library of Congress (Call No: ~~TN]~~ TN776.K8)(191-I) SMOS

SOV/137-58-8-16454

Translation from: Referativnyy zhurnal. Metallurgiya. 1958, Nr 8, p 32 (USSR)

AUTHOR: Yur'yev, B.N.

TITLE: Calculation of the Consumption of Coke for Blast-furnace Smelting According to the Over-all Thermal Balance (Raschet raskhoda koksa dlya domennoy plavki po summarnomu teplovomu balansu)

PERIODICAL: V sb.: Domennoye proiz-vo, Moscow, Metallurgizdat, 1958, pp 96-124

ABSTRACT: As the result of many years of estimating experience at the Sverdlovsk branch of Gipromez a new method was developed for the estimation of the specific consumption of coke in blast-furnace smelting, consisting in the performance of the usual estimation of the first furnace charge per ton of iron with an arbitrarily assumed consumption of coke and a given content of certain components (e.g., Mn) and a slag of a specified basicity. Thereupon the usual material and thermal balances are computed and the deficit or surplus of heat is estimated. A similar computation is made for a second charge with 100 kg of additional coke and a slag of the same basicity but with a zero

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Calculation of the Consumption of Coke for Blast-furnace Smelting (cont.)

yield of iron and Mn, likewise finding the surplus of heat. The total heat effect of both balances is made equal to zero, (which is necessary for the convergence of the balance sought). Therein, for the second surplus it becomes necessary to assume the coefficient k (equal to the ratio of the thermal effects of the two balances) resulting from the equation. Then the material and thermal balances of the new charge are computed, wherein the amount of each component and its thermal characteristic are obtained from the corresponding criterion of the first charge with the addition of the criterion of the second charge multiplied by the coefficient k. A method for the establishment of the effects of separate factors (blast temperature) on the coke consumption is described.

N.L.

1. Coke--Consumption 2. Blast furnaces--Thermodynamic properties
3. Mathematics

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KHOKHLOV, Dmitriy Gavrilovich; YAKOBSON, Aleksandr Petrovich; YUR'YEV, B.N., red.; SKOROBOGACHEVA, A.P., red.izd-va; MAYLYUK, R.M., tekhn.red.

[Production of fluxed sinter] Proizvodstvo ofliusovannogo agloмerata. Sverdlovsk, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, Sverdlovskoe otd-nie, 1959. 159 p. (MIRA 13:1)

(Sintering)

YUR'YEV, Boris Nikolayevich; YUR'YEVA, Lidiya Vasil'yevna; CHENTSOV, A.V., retsenzent; SKOROBOGACHEVA, A.P., red. izd-va; MATLYUK, R.M., tekhn. red.

[Methods of calculating blast-furnace smelting] Metody rascheta domennoi plavki. Sverdlovsk, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 304 p. (MIRA 14:8)
(Blast furnaces)

YUR'YEV, Boris Nikolayevich, akademik; STRIZHEVSKIY, S.Ya., kand. tekhn. nauk, retsenzent; ZAYTSEVA, K.Ya., insh., red.; PETROVA, I.A., red.izd-va; ZUDAKIN, I.M., tekhn. red.

[Aerodynamic analysis of helicopters] Aerodinamicheskii raschet vertoletov. Moskva, Oborongiz, 1956. 959 p. (MIRA 16:9)

(Helicopters--Design and construction)

YUR'YEV, B.P.; VOLKOV, L.V.

Mutual discharge of Ni^{2+} and Zn^{2+} ions in sulfate solutions. Zhur. prikl. khim. 38 no.1:66-72 Ja '65. (MIRA 18:3)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.

GURYEV, B.P.

Dependence of current efficiency on current density during electrolytic deposition of metals. Zhur. prikl. khim. 38 no.1: 201-205 Ja '65. (MIRA 18:3)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.

YUR'YEV, B.P.; YEVLANNIKOV, L.M.

Some properties of amalgam electrodes and hydrogen supertension on sodium amalgams. Trudy LPI no.188:249-256 '57. (MIRA 11:9)
(Amalgams) (Electrolysis)

YUR'IEV, B.P.

Simultaneous discharge of zinc ions with the cations of iron group metals. Trudy LPI no.223:87-96 '63.

(MIRA 17:11)

YUR'YEV, B.P.; PETRAKOVA, L.S.

Investigating the electrochemical properties of a magnesium electrode. Trudy LPI no.223:97-108 '63.

(MIRA 17:11)

BAYMAKOV, Yu.V.; YUR'YEV, B.P.

Electrolytic deposition of chromium. Trudy LPI no.239:153-174 '64. (MIRA 17:10)

YUR'YEV, B.P.

Simultaneous ion discharge and current yield in the electrolytic deposition of metals. Trudy LPI no.239:175-192 '64. (MIRA 17:10)

YUR'YEV, E., inzh.

Television in space. Av.i kosm. 46 no.7:9-15 Jl '63. (MIRA 16:8)

(Television in astronautics)

YUR'YEV, E.Yu.; STERLIGOV, V.L., red.; MEDNIKOVA, A.N., tekhn.red.

[Radio communications with space rockets] Radiosviaz' s kosmicheskimi raketami. Moskva, Voenizdat, 1963. 77 p.

YUR'YEV, F. N.

14(10) SOV/99-59-6-13/13

AUTHOR: Sharov, N.A., Engineer

TITLE: Conference on Problems of Crop Irrigation Mechanisation in the USSR

PERIODICAL: Gidrotekhnika i melioratsiya, 1959, Nr 6, pp 61-64, (USSR)

ABSTRACT: The article describes the Conference on Problems of Crops Irrigation Mechanization in the USSR called by the Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva (All-Union Research Institute of Agriculture Mechanization) and held in Moscow from March 18 to 21, 1959. The conference was dedicated to problems of sprinkling. The following organizations were represented in it: research institutes, water economy corporations, institutions of higher learning, special design offices, planning organizations, industrial enterprises from the Uzbek, Ukrainian, Azerbaydzhan,

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Georgian, Kirgiz, Kazakh, Turkmen, and the Moldavian SSR, the RSFSR, as well as the Gosudarstvennyy Nauchno-tekhnicheskiy komitet pri Sovete Ministrov SSSR (State Scientific and Technical Committee Attached to the Ministers Council of the USSR), the Giprovodkhoz, and the Ministerstvo sel'skogo khozyaystva SSSR (Ministry of Agriculture of the USSR). In all, the conference was attended by more than 100 specialists and representatives of at least 53 organizations. The conference had its past developments summed up and made several decisions to promote irrigation mechanization. The following reports were delivered there: A.V. Krasnichenko, Director of the VISKhOM, made an introductory speech; G.P. Nechotov, Senior Engineer of the Upravleniye novoy tekhniki i ispytaniya mashin MSKh SSSR (New Equipment and Machinery

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Testing Administration of the MSKh USSR), lectured on "Present-Day Condition and Work Outlook for the Creation of New Sprinklers"; Candidate of Technical Sciences B.M. Lebedev, VISKhOM, - on his institute's laboratory work; Candidate of Technical Sciences S.Kh.Guseyn-Zade, Representative of the AzNIIGiM, - on sprinkling in the Azerbaydzhan SSR; Candidate of Technical Sciences V.I. Kal'nitskiy, GruzNIIGiM, - on sprinkling in the Georgian SSR; R.I. Rozhkov, Manager of the Irrigation Engineering Section of the Moskovskaya opytno-issledovatel'skaya dozhdeval'naya stantsiya (Moscow Station for Testing and Sprinkling Research), - on sprinkling in the Moskovskaya Oblast'; V.I. Bogdanovich, Senior Scientific Worker of the UkrNIIGiM, - on sprinkling in the Ukraine; V.P. Vitte, Senior Scientific Worker

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and Representative of the YuzhNIIGiM, - on sprinkling mechanization; A.N. Koryagin, Scientific Worker of the Institut sel'skogo khozyaystva imeni Dokuchayeva (Institute of Agriculture imeni Dokuchayev), - on a mobile sprinkling system in the Central Chernozem Zone; D.I. Sazonov, Chief Agronomist of the Magnitogorskiy molochno-ovoshchnyy sovkhoz (Magnitogorsk Milk and Vegetable-Growing Sovkhoz), - on on sprinkling vegetables and potatoes in Southern Ural; Engineer-Hydrotechnician F.N. Yur'yev - on sprinkling cotton at the Sovkhoz "Pakhta-Aral", with an expedition of the SANIIRI doing appraisal work.

ASSOCIATION: Glavodkhoz MSKh SSSR

Card 4/4

YUR'YEV, F.S.

YUR'YEV, F.S.; BUZIN, L.V.

A shield for X-ray examination of infants and children. Sov. med. 18 no.8:34-35 Ag '54 (MIRA 7:8)

1. Iz Turukhanskoy rayonnoy bol'nitsy Krasnoyarskogo kraya (glavnyy vrach P.G.Krotov)

(ROENTGENOGRAPHY
appar. for x-ray exam. of inf. & child.)
(APPARATUS AND INSTRUMENTS
shield for x-ray exam. of inf. & child.)

YUR'YEV, Georgiy

Secret of the cinchona tree. Zdorov'e 2 no.11:20-23 N '56. (MLRA 10:1)
(CINCHONA)

YUR'YEV, G.

YUR'YEV, G.; KOSTINSKIY, D.N., red.; VILENSKAYA, E.N., tekhn.red.; GOLITSYN, A.V., red.kart.

[In Pakistan] V Pakistane. Moskva, Gos.izd-vo geogr.lit-ry, 1957. 36 p. (MIRA 11:1)
(Pakistan--Description and travel)

YUR'YEV, G.I.

State of technical control in the automotile industry. Avt.i trakt.prom. no.6:1-3 Je '57. (MIRA 10:8)
(Automobile industry--Production control)

ANTYSHEV, P.I.; VASIL'YEV, V.M.; ZHARKOV, V.P.; LOZOVOY, V.I.; POPOV, N.I.; PUZANOV, V.S.; PUZRYAKOV, V.A.; SHIRNOV, N.I.; SOLODENIKOV, V.N.; YUR'YEV, G.I.; KRYUKOV, V.L., red.; PEVZNER, V.I., tekhn.red.

[Agricultural machinery in the seven-year plan] Sel'skokhoziaistvennaia tekhnika v semiletke. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 94 p. (MIRA 13:10)

(Agricultural machinery)

YUR'YEV, G. S.

MTS v bor'be za urozhai [Machine-tractor stations in the campaign for a good harvest]. Kursk, Kurskoe knizhnoe izd., 1953. 47 p.

SO: Monthly List of Russian Accessions, Vol. 7 No. 1 April 1954.

YUR'YEV, G.S.

Morphology of carp (Cyprinus carpio L.) in Proletarskoye Reservoir. (MIRA 14:6)
Vop.ikht. 1 no.2:243-252 '61.

1. Stavropol'skiy sel'skokhozyaystvennyy institut.
(Proletarskoye Reservoir—Carp)

YUR'YEV, G., prepodavatel' avtodela.

Training stands are needed. Avt. transp. 40 no.4:50 Ap '62.
(MIRA 15:4)
(Automobile drivers)

YUR'YEV, I. M.

Chrishanovich, S. A., and Yuriev, I. M. Subsonic gas flow past a wing profile. Appl. Math. Mech. [Akad. Nauk SSSR. Prikl. Mat. Mech.] 11, 105–118 (1947). (Russian. English summary)

The authors present a method of constructing a circulatory flow past a closed profile under the assumption of Chaplygin's simplified equation (the so-called "...-...-" case). They seem to be unaware of the fact that this problem was already solved by the reviewer [Tech. Notes Nat. Adv. Comm. Aeronaut., no. 969 (1945); these Rev. 7, 497] and in a more general way by Gelbart [Tech. Notes Nat. Adv. Comm. Aeronaut., no. 1170 (1947); these Rev. 8, 417] [illegible]

Source: Mathematical Reviews, Vol. 9 No. 7

Lin, Quart. Appl. Math. 4, 291–297 (1946) and by P. Germain, C. R. Acad. Sci. Paris 223, 532–534 (1946); these Rev. 8, 418, 237] The last section of the paper discusses Joukowsky's theorem in the framework of the Chaplygin approximation.