

KOCHEVNIKOV, V.N.; SIDOROV, V.A., inzh.; MORONOVA, N.V.

Investigating the effect of stabilizers on the aging, physico-
mechanical and lightproof properties of polyamide films.
Nauch.-issl. trudy VNIIPK no.14:92-110 '64.

(MIRA 18:12)

ACCESSION NR: AP4039798

S/0286/64/000/010/0058/0058

AUTHOR: Sidorov, V. A.; Trosman, G. M.; Rogov, V. M.

TITLE: Method for stabilizing polyamides. Class 39, No. 162657

SOURCE: Byul. izobr. i tovar. znakov, no. 10, 1964, 58

TOPIC TAGS: polyamide, polyamide light stability, stabilizer,
aniline-phenol-formaldehyde resin

ABSTRACT: This Author Certificate introduces a method for imparting light stability to polyamides by adding aniline-phenol-formaldehyde resin to the mixture of starting monomers.

ASSOCIATION: none

SUBMITTED: 06Jul62

DATE ACQ: 19Jun64

ENCL: 00

SUB-CODE: OC, MT

NO REF SOV: 000

OTHER: 000

Card 1/1

TELEGIN, V.G.; SIDOROV, V.A.; ZHARKOVA, D.R.; BIRYUKOVA, L.M.;
TOKAREVA, A.A.

Obtaining individual vinyl toluenes. Khim. i tekh. topl. i
masel 9 no.4:3-7 Ap '64. (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimi-
cheskikh protsessov.

L 48587-65

EWT(m)/EWP(j)

PC-1 RI

ACCESSION NR: AK5005877

S/0081/64/000/023/S058/S058

SOURCE: Ref. zh. Khimiya, Abs. 238347

AUTHOR: Sidorov, V. A.; Rogov, V. M.; Aleksandrov, K. N.; Trosman, G. M.; Aref'yev, V. N.

17
B

TITLE: A study of the dependence of the principal physicommechanical properties of elastic polyurethan foams on technological factors. Part 1.

CITED SOURCE: Nauchno-Issled. tr. Vses. n.-i. in-t plenochn. materialov i iskusstv. kozhi, sb. 15, 1964, 44-52

TOPIC TAGS: polyurethan, foam plastic, elastic foam, polyurethan density, polyurethan mechanical property, polyurethan foam manufacture, foam plastic mixing, toluylene diisocyanate, foam coefficient, pore size

TRANSLATION: A study of the dependence of the principal physicommechanical properties of polyurethan foams on the technological factors which have an effect on their quality was carried out on the UBT-65 industrial mixing and casting machine and on the SSK-1 laboratory installation (standard mixing chamber), developed by VNIIPK, which is an industrial machine in miniature. The rate of rotation of the cross-shaped blade mixer was 3,000, 4,000 and 5,000 rpm, the angle between
Card 1/2

SIDOROV, V.A.; MOROZCVA, N.V.; TROSMAN, G.M.; ZAYTSEVA, N.P.; ALEKSANDROV, K.N.

Using stabilized polyamide films in agriculture. Biul. tekhn.-ekon.
inform. Gos. nauch.-issl. nauch. i tekhn. inform. 17 no.9:67-69
S '64 (MIRA 18:1)

SINCHOV, V.A.; KHARCHENEK, A.A.

Thermodynamics of the process of alkylation of toluene with
ethylene. Khim. prom. 40 no.9:574-577 Ag '64. (MIRA 18:4)

SIDOROV, V.A.

Rapid Method for determining the volumetric weight of elastic
polyurethane foams. Plast. Massy no.4011-75 165.

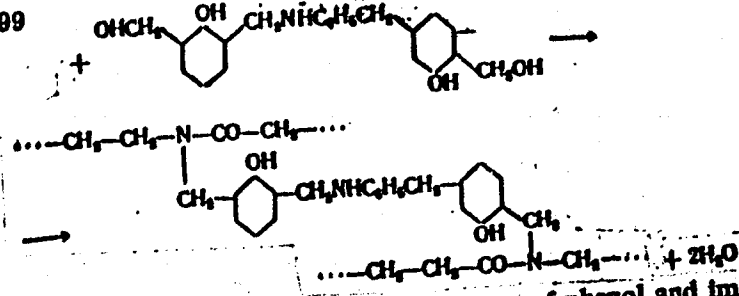
(MIRA 1816)

SHOLOV, V.A.; PLOV, V.M.

Study of the applicability of polyurethane resins for the
production of porous film materials. Plast. massy no.5:
70-72 1965. (MIRA 18:6)

L 58974-65

ACCESSION NR: AP5014699



Thus, the stabilizing influence of this resin is due to the presence of phenol and imine groups and to its curing effect during the formation of the polyamide film. Hence, other types of curing resols may also be effective in stabilizing various types of polymers. Orig. art. has: 2 figures, 1 formula and 3 tables.

ASSOCIATION: none

SUBMITTED: 00

NO REF SOV: 007

ENCL: 00

SUB CODE: MT

OTHER: 002

Card 2/2 *dm*

SEIDKOV, V.A.; TROJAN, G.M.; ALEKSEEV, K.S.

Lengthening the service life of the "PE-4" polyamide film.
Plast. massy no.8:61-62 '65. (MIRA 18:9)

SIDOROV, V.A.; TELEGIN, V.G.

Isomerization of cymenes on various catalysts. Khim. i tekhn. topl.
i masel 10 no.2:13-19 F '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh
protseessov.

ISEGIN, V.G., SIDOROV, V.A.; KHARCHENKO, A.A.

Operation of a reactor with shielded electric motor in the
production of ditolyl ethane. Khim. prom. 42 no.9:666-668
(MIRA 18:9)
S '69.

FD-2331

SIDOROV, V. A.

USSR/Nuclear Physics - Tritium

Card 1/2 Pub. 146 - 2/34

Author : Vlasov, N. A.; Kalinin, S. P.; Ogloblin, A. A.; Samoylov, L. N.;
 Sidorov, V. A.; and Chuyev, V. I.

Title : Interaction of protons with tritium, and the excited state of
 helium-4

Periodical : Zhur. eksp. i teor. fiz. 28, 639-650, Jun 1955

Abstract : The authors describe experiments investigating the reactions $T(pn)$
 He^3 and $T(p\gamma)He^4$ in the interval of proton energies up to 7 Mev.
The energy of the protons in the beam from the cyclotron chamber
was varied by way of slowing in lead filters. Serving as detec-
ectors of the neutrons were so-called all-wave counter and uranium
chamber; a scintillational counter served as detector of the gamma
rays, with NaI(Tl). The curve of cross-section, σ , versus
proton energy, E_p , for the first reaction possesses a maximum at
 $E_p=3$ Mev. For the second reaction the cross-section increases
monotonically in the entire energy interval. Also investigated
were the angular distributions of neutrons and gamma rays. The
characteristics of the excited state of helium-4 are discussed.
The authors thank the associates of the Cyclotron Laboratory, and

Card 2/2

FD-2337

also Ya. A. Smorodinskiy, A. I. Baz', and Yu. M. Popov. Fourteen references, including 2 USSR (B. V. Rybakov, same issue, p. 651; A. I. Baz' and Ya. A. Smorodinskiy, *ibid.* 27, 382, 1954).

Institution : Academy of Sciences USSR

Submitted : March 9, 1955

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1606
AUTHOR BOGDANOV, G.F., KURASHOV, A.A., RYBAKOV, B.V., SIDOROV, V.A.
TITLE The Measurements of Fast Neutron Spectra by Time-of-Flight
Methods.
PERIODICAL Atomnaja Energija, 1, fasc. 1, 66-82 (1956)
Issued: 3 / 1956

Whereas the usual methods for measuring fast neutrons can be used up to 2 - 3 MeV at the most, time of flight measurements for slow neutrons do not go beyond 1 keV.

Modern scintillation counters have a resolving power in time of 10^{-9} sec and make it possible, by using a pulsating neutron source which furnishes impulses of $5 \cdot 10^{-9}$ sec in the case of a period of $112 \cdot 10^{-9}$ sec, to measure up to some 10 MeV.

The scintillation counter was connected with a coincidence device which, besides, received impulses from the excitation frequency of the cyclotron, which can be delayed ad.lib., so that every time of flight could be measured.

After some constructional details there follow data concerning the time resolving capacity which is equal to that of the coincidence device and the duration of the primary impulse. Calibration was carried out by the bombardment of a T Zr sample with protons. The calibration curve shows two maxima at the end and at the beginning of the energy domain; the former originates from radiation caused by the reaction of protons with Zr, the latter was caused by the reaction

S. I. DABOV, V. A.

Neutron spectra from the bombarding of lithium and
deuterium with deuterons of energy 14 MeV G. F. 5
Dabov, V. A. Vlasov, S. P. Kuznetsov, A. G. Kovalev,
and V. A. Sidorov. Zh. Eksp. Teor. Fiz. 47, 1000 (1964)
English translation: Sov. J. Nucl. Energy, Part C, 7, 1000 (1964)

1/3-2m

yes

USSR/Nuclear Physics-Structure and Properties of Nuclei

C-4

Abst Journal: Referat Zhur-Fizika, No. 12, 1956, 33990

Author: Bogdanov, G. F., Vlasov, N. A., Kalinin, S. P., Rybakov, B. V.
Sidorov, V. A.

Institution : None

Title: Spectra of Neutrons Bombarded with T and D Deuterons with
Energies of 14 Mev

Original

Preiodical : Zh. eksperim. i teor. fiziki, 1956, 30, No1, 185-187

To check the existing experimental data on the existence of an excited state of approximately 2 Mev in the He^4 nucleus, spectra were studied of Neutrons produced by the $T(d,n) He^4$ and $D(d,n) He^3$ reactions, with the neutrons escaping at an angle of 0° relative to the beam of the deuterons. The beam of the 14 Mev deuterons was focused with the aid of a magnetic prism at a distance of 12 m from the cyclotron, where a thin tritium-zirconium or a gas deuterium target was placed. The energy of the neutrons

Card 1/3

USSR/Nuclear Physics - Structure and Properties of Nuclei

C-4

Abst Journal : Referat Zhur - Fizika, No 12, 1956, 33990

was measured from the time it took them to cover the distance from the target to the counter, the latter being a photomultiplier with a solid solution of terphenyl in polystyrol acting as a phosphor. The neutron source was operating under pulse conditions based on the natural modulation of the cyclotron beam. The pulses from the counter went to a germanium-diode coincidence circuit. Pulses, synchronized with the accelerating voltage of the cyclotron were applied to the second leg of the coincidence circuit. The time resolution of this spectrometer (width of gamma line at half the altitude) amounted to 7 μ seconds.

The spectrum of the neutrons from the $T(d,n)He^4$ and $D(d,n)He^3$ reactions displayed not only the maxima corresponding to the formation of the He^4 and He^3 nuclei in their fundamental states but also wide groups of slower neutrons with an average of energy of 8 Mev. For the $T + d$ reaction this energy corresponds to an excitation energy of finite nucleus of approximately 22 Mev. However, the similarity of the spectra in

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USSR/Nuclear Physics-Structure and Properties of Nuclei

C-4

Abst Journal: Referat Zhur-Fizika, No. 12, 1956, 33990

the case of both reactions is indication in favor of the assumption that the second groups of neutrons are formed faster by a break-up of the deuteron than the usual reaction with a formation of a finite nucleus He^4 and He^3 in excited state. Notice is taken of the large value of the ~~cross~~ section for the formation of the neutrons of the second groups. This amounts to 300 millibarns/steradian for the case of the $T+d$ reaction, and 100 millibarns/steradian for the case of the $D+d$ reaction.

Card 3/3

SIDOROV, V.A.
Category : USSR/Nuclear Physics - Nuclear Reactions

C-5

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3252

Author : Bogdanov, G.F., Vlasov, N.A., Kalinin, S.P., Rybakov, B.V., Sidorov, V.A.
Title : Spectra of Neutrons Produced by Bombarding Light Nuclei with 14 Mev Deuterons.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 5, 981-983

Abstract : Using the time of flight method, a measurement was made of the spectra of neutrons produced by bombarding thin targets of H, He³, He⁴ (E_d 13.0 Mev) and T (in zirconium), Li, Be, B, C, Cu (E_d 14.4 Mev) produced by bombardment with a beam of deuterons from a cyclotron. The measurements were made at an angle of 0° to the deuteron beam. The reactions T+d and He³+d differ both in the shape of the neutron spectrum, as well as in the value of the cross section (in the former case the cross section is almost three times greater). This confirms the existence of an excited state with excitation energy of 22 Mev in the He⁴ nucleus and indicates the absence of a similar state in the Li⁴ nucleus. Consequently, the isotopic spin of the excited state of He⁴ is zero. It is noted that the neutron spectrum of the reaction He³+d does not display the hypothetical level of the Li⁵ nucleus with an approximate excitation

Card : 1/2

Category : USSR/Nuclear Physics - Nuclear Reactions

C-5

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3252

energy of 2.5 Mev, corresponding to the spin-orbit splitting. The cross sections of the formation of neutrons escaping at 0° to the deuteron beam are estimated. This cross section is approximately 50 millibarns/steradian per nucleon for all the light elements investigated, with the exception of T, i.e., it is approximately proportional to the number of nucleons in the nucleus. The cross section diminishes for the heavier elements; it is only 200 millibarns/steradian for Cu.

Card : 2/2

SIBONOV, Y. A., NEBAYEV, B. V., KALININ, B. F., BOJENKIN, G. F., and GILSON, P. A.

"Time-of-Flight Analysis of the Reaction of ^{10}B Neutrons with Light Nuclei," a paper submitted at the International Conference on the Control of Interactions with Nucleus, New York City, 9-13 Sep 57.

Abstract Available in C-3, 000, 844

SIDOROV, Y.A., ANTONOV, K.P., BOGDANOV, G.P., KALININ, L.I., RYBAKOV, B.V.,
VLASOV, V.A.,

"Spectra of Neutrons and Protons from ($\text{He}^4 + d$) Reaction and Energy Levels of Li^7 and He^3 ."

paper submitted at the All-Union Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 November 1957.

SHOROV, V.A., BOGDANOV, G.F., KALININ, S.P., NYBAKOV, B.V., VIABOV, N.A.

"The (p,n) Reaction on Lithium and the Ground State of Be⁶."

paper submitted at the All-Union Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 November 1957.

VLASOV, N.A.; KALININ, S.P.; OGLOBLIN, A.A.; PANKRATOV, V.M.; RUDAKOV, V.P.;
SERIKOV, I.N.; SIDOROV, V.A.;

Excitation curves of the following reactions; $Mg^{24}(d,\alpha)Na^{22}$,
 $Fe^{54}(d,\alpha)Mn^{52}(d,n)Co^{55}$, and $Zn^{66}(d,2n)Ga^{66}$. Atom.energ.2
no.2:169-171 F '57. (MIRA 10:3)
(Nuclear reactions)

312000011

AUTHOR BOGDANOV, G.F., VLASOV, N.A., KALININ, S.P., RYBAKOV, B.V., 89-9-2/32
 SIDOROV, V.A.

TITLE The Li(p,n)Be reaction and the Fundamental Structure of the Be⁶ Nucleus.
 (Rechtsiya(p,n) na litii i osnovnoye sostoyaniye yadra Be⁶)

PERIODICAL Atomnyy Energiya, 1957, Vol 3, Nr 9, pp 204 - 210 (U.S.S.R.)

ABSTRACT By means of the time of flight method the neutron spectrum emitted by the reactions Li⁶+p and Li⁷+p = 9 MeV is measured. Further, the redistribution of neutrons and the reaction cross sections were measured. The results are

- 1) Li⁶(p,n)Be⁶
 - a) $Q_0 = -5,2 \pm 0,2$ MeV
 - b) the natural breadth of the ground state $\Gamma < 0,3$ MeV
 - c) angular distribution of neutrons: $\sigma(\theta) = 0,19 + 0,23 \cos(\theta) + 0,70 \cos^2(\theta)$ mb/steradian
 - d) mass defect of Be⁶ = $20,3 \pm 0,2$ MeV
 - e) Reaction cross section for the ground state at Ep=9 MeV $\sigma = 5 \pm 1$ mb
- 2) Li⁷(p,n) Be⁷
 - a) The neutrons corresponding to the ground state, the level with 0,43 MeV and 4,65 MeV were found,
 - b) The angular distribution for the neutrons of the ground state and the 1st level is $\sigma(\theta) = 6,8 + 2,4 \cos^2(\theta)$ mb/steradian
 - c) The total reaction cross section (forming of ground state and 1st

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24(7); 21(0)

PHASE I BOOK EXPLOITATION

SOV/1849

Rybakov, B. V. and V. A. Sidorov

Spektrometriya bystrykh neytronov (Spectrometry of Fast Neutrons) Moscow, Atomizdat, 1958. 175 p. (Series: Atomnaya energiya. Prilozheniye, 1958, Nr. 6) 8,050 copies printed.

Ed.: N.A. Vlasov; Tech. Ed.: S.M. Popova .

PURPOSE: This book is intended for engineers and technicians working in the field of experimental nuclear physics. It may also be used by advanced students majoring in physics.

COVERAGE: This volume is concerned with the spectrometric study of fast neutrons with energies ranging from 0.3 to 30 Mev. Main interest is focused on the time-of-flight method, a new approach to this energy range. This book is not only a review of work done on the time-of-flight method but also an original contribution of the authors based on experimental work done at the Institute of Atomic Energy. A general review is given of other methods in current use. References accompany each chapter.

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AVAILABLE: Library of Congress

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7-14-59

Card 4/4

SOV-120-58-1-2/43

AUTHORS: Kondrashev, I.F., Kurashov, A.A., Linev, A.F., Sidorov, V.A.,
Sokolov, N.I. and Khaldin, N.N.

TITLE: A Spectrometer for Fast Neutrons (Spektrometr bystrykh
neytronov)

PERIODICAL: Pribery i Tekhnika Eksperimenta, 1958, Nr 1, pp 17-21
(USSR)

ABSTRACT: The measurement of the fast neutron spectrum is one of the most difficult problems of experimental nuclear physics. The most common method employed in neutron spectroscopy in the energy region of a few MeV is the method of proton recoil. The measurement of the neutron spectrum is reduced to the measurement of the spectrum of the recoil protons which are produced by the neutron beam in a specimen containing hydrogen. There are a number of methods of measuring the proton spectrum. One of these is the nuclear emulsion method but this is very time-consuming and therefore not always convenient. The other methods employ coincidence circuits. Such a system is usually called a "telescope". These telescopes can be used in two ways. In the first method one measures the range of the protons in special absorbers between the counters and in the second method one measures the amplitudes of the pulses from a scintillation counter which is the last

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SOV-120-58-1-2/43

A Spectrometer for Fast Neutrons.

counter of a telescope. The first of these was used in the present work. The telescope (Fig.1) consists of 4 proportional counters. A polyethylene "radiator" is placed in front of the first counter and two sets of aluminium absorbers are used to measure the range of recoil protons in aluminium. The first and main set of absorbers is placed in front and the third counter and the second set of filters in front of the fourth one. The first, second and third counters are in coincidence and the fourth in anti-coincidence. Thus one records recoil protons formed in the radiator and whose path ends before the fourth counter. An estimate of the proton loss due to multiple scattering was made, using the curves of Dickinson and Dodder (Ref.2). The figure obtained for this loss was less than 5% of the recoil protons. A photograph of the telescope is shown in Figs.2 and 3. The telescope can be used in studying not only neutrons but also charged particles. The spectrometer was used to study the reaction $T(p, n) He^3$ for proton energies between 7 and 12 MeV. The neutrons were obtained at a target of a 1.5 m

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A Spectrometer for Fast Neutrons.

cyclotron. The derived neutron spectrum at zero angle for the above reaction is shown in Fig.5. The following persons are thanked for their cooperation: N. A. Vlasov, S. P. Kalinin, A. A. Shubin and L. N. Samoylov. There are 5 figures, no tables and 6 references, of which 2 are English and 4 Soviet.

SUBMITTED: June 19, 1957.

1. Neutron spectrum analyzers--Equipment
2. Neutron spectrum analyzers--Performance
3. Neutron spectroscopy

Card 3/3

SOV/89-5-2-6/36

AUTHORS: Kurashov, A. A., Linev, A. F.,
Rybakov, B. V., Sidorov, V. A.

TITLE: A Multichannel Time-of-Flight Fast Neutron Spectrometer
(Mnogokanal'nyy spektrometr bystrykh neytronov po vremeni proleta)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 2, pp. 135-140 (USSR)

ABSTRACT: The novelty of the neutron spectrometer developed consists in the immediate use of the natural modulation of the cyclotron ray. The driving pulses which are synchronized by high frequency, are formed by means of a trigger. The trigger works with a pentode with secondary emission. The duration of the pulse is about 10^{-9} sec. The period of recurrence of a neutron pulse T is equal to the period of high frequency. For the simultaneous investigation of the time interval $2T$, the generator for the driving pulses has to emit one pulse for two high frequency periods each. This is brought about by means of a frequency divider the input of which is fed by a sinusoidal voltage. The sinusoidal voltage is collected from the resonance lines of one of the cyclotron duants by means of a coil. The driving pulses with the $2T$ period pass on to a rapid coincidence scheme.

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A Multichannel Time-of-Flight Fast Neutron Spectrometer SOV/89-5-2-6/36

The main part of the time analyzer is the "phase" generator which is driven by the pulses of the scintillation counter. The generator is a trigger with delayed feedback and consists of a pentode with secondary emission. 150 m of the cable RK-2 are used as a delaying element in the system of delayed feedback. The length of the cable is chosen in such a manner that the period of the "phase" generator is equal to $8T - \Delta t$, where $\Delta t \approx 1.10^{-9}$ sec. The "phase" generator is always in action and is brought into phase by the pulse of the counting tube. (The fact that the counting tube pulse is used for switching on the generator leads to disturbing effects). The pulse of the anode of the multiplier FEU-33 reaches the input of the generator via a blocking valve and operates the input trigger, which emits two pulses. One of the pulses stops the generator and the second one releases the generator into phase again, viz. at the moment at which a neutron is recorded. The generator remains out of action for about 2,5 μ seconds. An amplitude selector also belongs to the scheme of the spectrometer, the input of which is fed with the pulses of one of the dynodes of the multiplier. The amplitude selector is switched into

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A Multichannel Time-of-Flight Fast Neutron Spectrometer SOV/89-5-2-6/36

the coincidence scheme by means of an input trigger. In this way it is possible to vary the effective threshold of the scintillation counter within wide ranges.

The operation of the time analyzer according to the nonius principle demands a high degree of constancy of the frequency differences. This is attained by means of a separate frequency stabilizer.

The width of a channel of the spectrometer amounts to about $1 \cdot 10^{-9}$ sec. The system of recording of the spectrometer consists of 256 channels; each channel is able to work up 2^{16} pulses. There are 5 figures and 13 references, 6 of which are Soviet.

SUBMITTED: May 14, 1958

Card 3/3

5(1)

SCV/19-59-4-31/317

AUTHOR: ~~Sidorov, V. A.~~, Ognevskiy, A. F., Kovraskiy, A. Ye. and Pletnev, F. I.

TITLE: A Disc for the Rectification Column

PERIODICAL: Byulleten' izobreteniy, 1959, Nr 4, p 11 (USSR)

ABSTRACT: Class 12a, 5. 118215 (421137 of 7 October 1949). Depending on the Author's Certificate Nr 117518. Submitted to the **Committee of the Council of Ministers of the USSR** for the Introduction of Advanced Techniques into National Economy. A disc for a rectifying column with steam-ejection of liquid is modified in that the bells are made in the form of 3 coaxial tumblers. The outer tumbler has a nozzle for steam supply, the next one serves for pouring over the liquid, and the inner one, with a closed top and nozzles for liquid supply serves for the contacting of steam and liquid with the following discharge of the mixture into the ring space.

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21(7)
AUTHORS: Bogdanov, G. F., Vlasov, N. A., Kalinin, S. P., Rybakov, B.V.,
Samoylov, I. N., Sidorov, V. A. SOV/56-36-2-53/63

TITLE: The Reaction $T(p,n)He^3$ at Proton Energies of 7 to 12 Mev
(Reaktsiya $T(p,n)He^3$ pri energii protonov 7 - 12 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 36, Nr 2, pp 633-636 (USSR)

ABSTRACT: The present paper deals with the measurement of the cross sections and of the angular distributions of the reaction $T(p,n)$ in the interval 7 - 12 Mev of proton energies. Moreover, the authors tried to measure the polarization of the neutrons in this reaction. A solid tritium-zirconium target (thickness 20 μ) was bombarded by protons accelerated to 12 Mev in a cyclotron. The neutron flux was measured by a telescope consisting of 4 proportional counters and also by a spectrometer. The cross sections are measured with a precision of 10%. The first diagram shows the results of the measurement of the cross section under the angle 0° and previously published results of the measurements in the energy interval of 1 - 7 Mev. The cross section is approximately constant in the investigated energy interval, and it increases

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SOV/56-56-2-53/63
of 7 to 12 Mev

The Reaction $T(p,n)He^3$ at Proton Energies

slightly at energies of 11 - 12 Mev. The second diagram gives the angular distributions of the neutrons at the energies 8.8; 8.9; and 12 Mev. The high forward-backward anisotropy indicates an intense interference of the states of different parity. The curves given in the figures correspond to expressions of the type $\sigma(\theta) = A + B\cos\theta + C\cos^2\theta + D\cos^3\theta + E\cos^4\theta$ in the c.m.s.. The coefficients of these expressions were calculated by the method of least squares and they are given in the following table:

E_p (Mev)	A	B	C	D	E	σ_t (mb)
6.8	11.1	11.3	24.4	-51.4	25.3	305
8.9	13.3	1.0	1.3	-28.4	27.3	241
12.0	13.0	7.5	-23.7	-24.9	44.6	176

The third diagram shows the energy dependence of the reaction. The investigation of the polarization of the neutrons produced in the reaction $T(p,n)He^3$ is important for the determination of the characteristics of the excited states of an α -particle. The inverse reaction $He^3(n,p)T$ was investigated according to a method suggested by H. H. Barshall. According to this method,

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The Reaction $T(p,n)He^3$ at **Proton Energies**

SOV/56-36-2-53/63
of 7 to 12 Mev

the absolute values of the polarization can be measured without an analyzer of known polarization properties. According to the measurements discussed in the present paper, for $E_p \lesssim 10$ Mev and for the angles satisfying Marshall's condition asymmetry is not higher than 5%. A noticeable asymmetry was observed in the case $\theta_1 = \theta_2 = 40^\circ$, and this asymmetry indicates a polarization of the neutrons. θ_1 denotes the angle under which the chamber filled with He^3 (10 atmospheres) was placed in the neutron beam. By means of a telescope of proportional counters, the right-left asymmetry of the flying off of protons from the reaction $He^3(n,p)T$ under the angle θ_2 was measured. There are 3 figures, 1 table, and 9 references, 6 of which are Soviet.

SUBMITTED: November 17, 1958

Card 3/3

KURASHOV, A.A.; LINEV, A.F.; RYBAKOV, B.V.; SIDOROV, V.A.

[Multichannel time-delay analyzer of nanosecond range]
Mnogokanal'nyi vremennoi analizator nanosekundnogo dia-
pazona. Moskva, In-t atomnoi energii, 1960. 14 p.
(MIRA 17:1)

VLASOV, N.A.; KALININ, S.P.; RYBAROV, B.V.; SIDOROV, V.A.

[Neutron spectrum of the $d + p$ reaction] Spektry neutronov
reaktsii $d + p$. Moskva, In-t atomnoi energii AN SSSR, 1960.
15 p. (MIRA 17:3)

S/056/60/038/006/023/049/XX
B006/B070

24.6600

AUTHORS:

Vlasov, N. A., Kalinin, S. P., Rybakov, B. V., Sidorov, V. A.

TITLE:

Neutron Spectra¹⁹ of the d+p Reaction¹⁹

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 38, No. 6, pp. 1733-1737

TEXT: A report is given of the determination of neutron spectra by the time-of-flight method, obtained from $H(d,n)2p$ reactions at $E_d = 18.6$ Mev and $D(p,n)2p$ reactions at $E_p = 8.6$ Mev, and at an angle of 0° . The form of the spectra obtained corresponds to a nucleon pair interaction in the final state. The studies were made on the 1.5-m cyclotron of the Institut atomnoy energii AN SSSR (Institute of Atomic Energy of the AS USSR). The target containers (3.5 cm deep) were filled with hydrogen or deuterium gas up to 5 and 2 atm, respectively. The containers had a thin window of nickel or platinum foil. The neutrons were recorded by a scintillation counter (stilbene or tolane crystal). The time analyzer worked on the principle of the vernier. The resolution time of the spectrometer was

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85681

Neutron Spectra of the d,p Reaction

S/056/60/038/006/023/049/XX
B006/B070

2.5 μ sec; the channel width of the time analyzer was about 0.8 μ sec. The recording device had 256 channels with a capacity of 2^{16} pulses per channel. For illustration, the distribution of the neutrons from $H(d,n)2p$ is given (Fig. 1) as a function of their time of flight at an angle of 0° with the deuteron beam. E_d being 18.6 Mev. The target - counter distance was 2.8 mm, the counter threshold 3.2 Mev. and the time analyzer channel width 0.836 μ sec. Figs. 2 and 3 show the energy distribution of neutrons in the laboratory system of the two reactions studied. The path lengths in the first case were 7m (o) and 2.8m (o), and in the second case, 5.15 m (o) and 1.58 m (o). The neutron production cross sections at 0° for the reaction $H(d,n)2p$ was (150 ± 15) mb/steradian, and for the reaction $D(p,n)2p$ (47 ± 5) mb/steradian. In the center-of-mass system of the three nucleons, the cross sections were (20 ± 2) mb/steradian and (11 ± 1) mb/steradian, respectively, at 0° and 180° with the deuteron beam. Figs. 4 and 5 show the neutron spectra of the reactions $d+p \rightarrow 2p+n$ at angles of 0 and 180° , respectively, with the deuteron beam, and for $E_s=4.0$ Mev and $E_c=3.5$ Mev, respectively. In addition to a peak on the edge, the spectrum at 180° shows a peak also at a neutron energy of

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05681

Neutron Spectra of the d+p Reaction

S/056/60/038/006/023/049/KK
B006/B070

0.6 Mev whose position corresponds to a zero relative velocity of the neutron and one of the protons in the final state. The results show that nucleon pairs of low kinetic energy of relative velocity have a large probability of formation in the reaction $d+p \rightarrow 2p+n$. Finally, the explanation of the spectra by pair interaction between nucleons in the final state is discussed and compared with the results of other authors. A. B. Migdal, V. V. Komarov, and A. M. Popova are mentioned. There are 5 figures and 10 references: 6 Soviet and 4 US.

SUBMITTED: February 15, 1960

Card 3/5

33146
S/120/61/000/006/012/041
E032/E514

2/6730
AUTHORS

Kurashov, A.A. and Sidorov, V.A.

TITLE

A nanosecond multichannel time analyser

PERIODICAL

Peribory i tekhnika eksperimenta, no. 6, 1961, 69-73

TEXT

A block diagram of the time analyser is shown in Fig. 1. The circuit incorporates two narrow-pulse generators one of which produces reference pulses (Φ_r) which are synchronous with the high-frequency accelerating voltage of the cyclotron (Φ_y) and has a repetition period which is equal to twice the period of Φ_y . The second generator (Φ_r) has built in delayed feed-back and is phase shifted by approximately twice the pulses. Its period ($\sim 0.8 \mu\text{sec}$) differs by approximately 1 nanosec from the trebled period of Φ_r . Pulses from Φ_r and Φ_r , which are 3 nanosec in length, are continuously fed into the fast coincidence circuit. The number of cycles of operation of Φ_r from the instant of phase shift until the first coincidence is proportional to the time interval between the generator pulses at the instant of phase shift. The train of pulses corresponding to this number of cycles is extracted by a series of gates

Card 1/4 S

X

33145

A nanosecond multichannel time analyser S/120/91/000/006/012/0'1
E032/E514

circuits and serves to encode the channels of the recording system. The gating circuits are opened at the instant of operation of the flip-flop input and are closed by the first coincidence circuit pulse. An amplitude analyser *ЭЛА-2* (ELA 2) (a more advanced version of ELA 1, Ref 1: G. P. Melnikov, L. I. Artemenkov and Yu. M. Golubev, PTE, 1957, No. 6) is used as the recording system in the time analyser circuit. It possesses 256 channels with a capacity of 10^{16} pulses per channel. A digital printout and perforated tape system is used for extracting the data. The data are read off at one channel per second. The punched tape is used for feeding the results into a computer for evaluation. The spectrometer incorporates an amplitude selector whose input accepts pulses from the last dynodes of the photomultiplier. The amplitude selector is connected through a coincidence circuit to the flip-flop. The ELA 2 system records the pulse if there is a coincidence between the pulse produced by the amplitude selector and the pulse produced by the flip-flop. This is used to vary the effective threshold of the counter within wide limits. In order that the stability of the channel width of the analyser, which is

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A nanosecond multichannel time analyser 33146
S/120/61/000/006/012/041
E032/E514

operated on the vernier principle, should be 1%, the stability of f_1 and f_2 must be better than 0.001%. Since this requirement is difficult to satisfy in practice, the circuit incorporates a beat frequency stabiliser. Measurements have shown that the resolution of the spectrometer is better than 3 nanosec with a channel width of about 1 nanosec and that channel widths remain constant to better than 0.1%. Acknowledgments are expressed to N.V.Kartashov and V.D. Krupochkin for assistance in this work. There are 3 figures and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc. The English-language references read as follows: Ref.2:H.W.Lefevre, J.T.Pussel, Trans.Nucl.Sci., 1958, No.3, 146; Ref.3: H.W.Lefevre, J.T.Russell, Rev.Scient.Instrum., 1959, 30, No.3, 959.

ASSOCIATION: Institut atomnoy energii AN SSSR (Institute of Atomic Energy AS USSR)

SUBMITTED: February 8, 1961.

Legend to Fig.1. 1 - phase shifter, 2 reference pulse generator ϕ_1 ,
3 - beat frequency stabiliser, 4 - fast coincidence circuit, 5 - phase shifting generator ϕ_2 ,
6 - series gate, 7 - recording system ELA-2

Card 3/4 3

X

SIDOROV, V. A.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences
at the Joint Scientific Council on Physicomathematical and Technical Sciences;
Siberian Branch 1962

"Evaporative Spectra of Protons and Neutrons."

Vestnik Akad. Nauk, No. 4, 1963, pp 119-145

S/903/62/000/000/002/044
B102/B234

AUTHORS: Rybakov, B. V., Sidorov, V. A., Vlasov, N. A.
TITLE: Deuteron disintegration on H, D, He³ and He⁴ nuclei
SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyyakh; trudy
Vtoroy Vsesoyuznoy konferentsii, iyul' 1960 g. Ed. by
A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 33-37.

TEXT: To investigate the mechanism whereby fast deuterons interact with light nuclei the spectrum of the neutrons produced in these interactions was investigated with the help of a time-of-flight spectrometer. The measurements were made at the 1.5-m cyclotron of the IAE AN SSSR; gas targets with Ni windows were used and all spectra were measured of neutrons emitted at 0° or 180° with respect to the incident deuteron beam. The center-of-mass spectrum $s(E)$ of p+d reactions at 0° angles increases almost linearly up to ~2.3 Mev and then suddenly drops with a small tail toward 3 Mev; the spectrum of the neutrons emitted at 180° with respect to the deuteron momentum has a maximum at about 0.6 Mev (corresponding to p+n reaction) and another at 2.2 Mev (p+p). The neutron spectra of the reaction d+d (0°) has a broad maximum at ~3 Mev (range 0-6 Mev), that of He³+d (0°) one at ~4 Mev
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8/903/62/000/000/002/044
B102/B234

Deuteron disintegration on...

(range 0-7 Mev), that of $\alpha+d$ (0°) one at ~ 7 Mev, corresponding to Li^7 formation (range 2-9 Mev) and that of $\alpha+d$ (180°) a peak at ~ 2 Mev, corresponding to He^5 formation and a hardly remarkable hill corresponding to Li^5 formation. In several reactions, such as $d+d+d+p+n$ or $\alpha+d+\alpha+p+n$, the $p+n$ pair formation in the singlet S-state is forbidden by selection rules with respect to isotopic spin. This is the reason why there are no maxima observed whose position would correspond to $p+n$ pair formation, with the exception of the He^3+d reaction where no forbiddenness exists; in the latter case σ_{max} is only somewhat shifted from the $p+n$ position to higher energies by reason of the necessity for spin rotation of one of the nucleons of the deuteron, a fact which reduces the probability of the process. In the case of $d+d$ the neutron spectrum corresponds to a 1:1 mixture of the states $l_1=0, l_2=1, l_1=l_2=1$, and He^3+d to $l_1=l_2=1$, where l_1 is the relative orbital angular momentum of proton and target nucleus in the final state and l_2 that of neutron and center of mass of the first two particles. There are 6 figures and 1 table.

ASSOCIATION: Institut atomnoy energii im. I. V. Kurchatova AN SSSR (Institute of Atomic Energy imeni I. V. Kurchatov AS USSR)
Card 2/2

37793

S/120/62/000/002/017/047
E140/E163

21,6000

AUTHORS: Glukhov, Yu.A., Kurashov, A.A., Mel'nikov, G.P.,
and Sidorov, V.A.

TITLE: Application of the STA teletype apparatus for
information output from a multichannel analyser

PERIODICAL: Pribory i tekhnika eksperimenta, no.2, 1962, 70-75

TEXT: The article describes the use of a teletype
apparatus for the output of information directly from the
internal (es) memory of a multichannel fast-neutron spectrometer.
Output is in the form of a printed sheet and a five-row punched
tape. The latter is used for input to a computer. The stored
information was originally in binary form, but due to
difficulties in binary-decimal conversion at the output, it was
decided to record in the (es) memory directly in decimal.
To prevent loss of capacity, the number of bits per channel was
increased from 16 to 20 on the crt, which was found possible
while retaining 256 channels as before. The decimal code used
is the one in which the digits from 0 to 7 are in straight
Card 1/2

Application of the STA teletype... S/120/62/000/002/017/047
E140/E163

binary form, 8 corresponds to binary 1110, and 9 to 1111.
A dash is used to separate the data printed for each channel.
It is stated that the substitution of ten type slugs on the
teletype machine as required by the application takes one working
day of a workman of "average qualification". The output rate is
one channel per minute. The output system has been in use since
May 1960 in the authors' laboratory, and has demonstrated
reliable operation. It has reduced the time required for the
processing of each spectrum from two working days to two
minutes.

There are 3 figures.

ASSOCIATION: Institut atomnoy energii AN SSSR
(Institute of Atomic Energy, AS USSR)

SUBMITTED: May 6, 1961

Card 2/2

L 13614-63

EWP(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3003106

S/0056/63/044/006/1829/1831

57
55

AUTHOR: Gulyamov, M.; Rybakov, B. V.; Sidorov, V. A.

TITLE: Ground state of the Be sup 6 nucleus

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1829-1831

TOPIC TAGS: Be sup 6 nucleus, ground state width, reaction energy, Coulomb energy difference ratio, Li sup 6, He sup 6

ABSTRACT: The spectrum of the neutrons from the reaction Li sup 6 (p, n) Be sup 6 ¹⁹ was investigated by the time-of-flight method using a multichannel fast-neutron spectrometer, at a proton energy of 9.96 MeV. The investigation was aimed at obtaining more precise values of the energy and width of the ground state of Be sup 6. The spectrometer was based on the use of natural modulation of the cyclotron beam and had a resolution time better than 3 nanoseconds, with the width of the channel of the time analyzer being about 0.85 nanosecond. A 256-channel unit was used with capacity 2 sup 16 pulses per channel. Readout was with a telegraph-type printer. The more precise value for the reaction energy obtained is -5.08 plus or minus 0.04 MeV and the width of the ground state of Be sup 6 is 0.14 plus or minus 0.04 MeV. The ratio of the differences in the Coulomb energies

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L 13614-63

ACCESSION NR: AP3003106

2

of Be sup 6, Li sup 6*, and He sup 6, respectively, is found to be 1.86 plus or minus 0.05, which is somewhat higher than calculated on the basis of several assumptions, and suggests a somewhat higher correlation between the two last protons in the Be sup 4 nucleus. "The authors are grateful to O. D. Brill, V. V. Paramonov, and to the entire cyclotron crew for collaborating in the work." Orig. art. has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 15Jan63

DATE ACQ: 23Jul63

ENCL: 01

SUB CODE: 00

NO REF SOV: 005

OTHER: 003

Card 2/32

24c

HY200-55 INT(m)/EPA(w)-E/EWA(m)-2 Pab-10 IJP(c) GS
ACCESSION NR: AT5007321

S/0000/64/000/000/0274/0287

26
64
B+1

AUTHOR: Bayer, V. N.; Blinov, G. A.; Bondarenko, L. N.; Yerozolinskiy, B. G.;
Korobeynikov, I. S.; Mironov, Ye. S.; Naumov, A. A.; Onuchin, A. P.; Panasyuk,
V. S.; Popov, S. G.; Sidorov, V. A.; Sil'vestrov, G. I.; Skrinakiy, A. N.;
Khabakhpashay, A. G.; Auslender, V. L.; Kiseley, A. V.; Kushnirenko, Ye. A.;
Livshits, A. A.; Rodionov, S. N.; Synakh, V. S.; Yudin, L. I.; Abramyan, Ye. A.;
Vasserman, S. B.; Vecheslavov, V. V.; Dimov, G. I.; Papadichev, V. A.; Protopopov,
I. Ya.; Budker, G. I.

TITLE: Colliding electron-electron, positron-electron, and proton-proton beams

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 274-287

TOPIC TAGS: high energy interaction, high energy plasma, particle physics, particle beam, charged particle beam

ABSTRACT: In the Institute of Nuclear Physics, Siberian Department, Academy of Sciences SSSR, programs on high-energy particle physics are mainly concerned with work on colliding charged particle beams. The Institute considers it unsuitable

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17354-66
ACCESSION NO: AT5007921

for its purpose to install huge accelerators whose construction requires large resources outlaid and long time. For work on colliding electron-electron, positron-electron, and proton-proton beams, three installations are being built, which are in various stages of readiness. Work on colliding electron beams was conducted at the institute, (then a laboratory of the Institute of Atomic Energy, named I. V. Kurchatov) in the fall of 1956, after Kerst's report on accelerators with colliding proton beams of the FFAG type. By that time Soviet scientists had already acquired some experience in obtaining large electron currents; in particular, the mentioned laboratory had installed and then abandoned a device for the spiral storage of electrons (G. I. Budker and A. A. Naumov, CERN Symposium, 1, 76 (1956)), by which, subsequently, circulating currents of the order of 100 amperes were obtained. In 1957 two variants of this device were considered at the same time. The first one consisted of two accelerators with spiral storage and subsequent transition of the particles to synchrotron state in comparatively narrow paths. The second one had storage rings with constant magnetic field and frequent external injection because of the damping of the oscillations under the action of radiation. The first variant was more cumbersome; the second variant contained an element not developed at that time, namely a 100-kilovolt commutator of 10 kilo-amperes with nanosecond front. At the end of 1957, the first positive results were obtained

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L 47304-65

ACCESSION NR: AT5007921

0

with a packing discharger of 100 kilovolts, and work stopped on the variant with storage rings. Originally it was proposed to set up two devices: VEP-1 of 2×130 Mev energy, and VEP-2 of 2×500 Mev energy. The VEP-1 was considered as an actual model of an accelerator and as a device for conducting initial experiments at low energies. After the Panofsky report in 1958 on his work with colliding electron beams conducted in his laboratory at Stanford, construction ceased on 500-Mev storage paths and work was continued on the 2×130 -Mev installation. Instead of work on colliding electron beams with energies of 500 Mev, work at the end of 1958 was conducted with colliding positron-electron beams and the planning of the VEPP-2 device was begun, whose main elements are a strong-current electron accelerator and a high-vacuum storage path of 700 Mev energy. At the present time the VEP-1 and VEPP-2 are installed in Novosibirsk. The VEP-1 is in a state of neglect, but at the end of 1964 experiments will be begun with it. Installation of the VEPP-2 has been completed. To obtain a marked effect from the application of colliding proton beams, an accelerator is needed with an energy of at least 10 Gev. Since the ordinary accelerator at such energies is a very bulky machine, it was decided to combine the idea of colliding proton beams with the creation of an iron-less impulse accelerator with very large fields and a neutralized central busbar. This latter work of creating such a machine was reported by the authors at a Moscow conference

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ACCESSION NR: AT5007921

held in 1956. The presence of a field with two directions in an iron-less accelerator with central busbar permits the acceleration of protons toward opposite sides in one machine, which makes possible the collision of protons in case of a suitable race-track. At the present time the Institute is developing a proton device with a magnetic field of about 200 kilogauss and radius of 2 meters for a particle energy of 12 Gev in the beam (equivalent energy is around 300Gev). Tests are being conducted on models, and an effective method of injection by overcharging of negative ions is under study. Also under development are an impulse electric power supply system of 100 million joules capacity and an hf power supply. Since 1958 the Institute has been conducting theoretical investigations on the limits of applicability of quantum electrodynamics [V. N. Bayyer, ZhETF, 37, 1490 (1959), and UFM, 78, 619 (1962)] for the calculation of the radiational corrections to the electrodynamic cross-sections [V. N. Bayyer and S. A. Kheyfets, ZhETF 40, 613-715 (1961) and Nuclear Physics (in print)], and on other problems of high-energy particle physics that are connected with the preparation of experiments on colliding beams [V. N. Bayyer, I. B. Khriplovich, V. V. Sokolov, and V. S. Synakh, in ZhTF, 1961]. The present report takes up under the mentioned three main headings the following pertinent topics: the accelerator-injection, storage paths, electron-optical channel,

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L 47304-65

ACCESSION NR: AT5007921

input and output system, experiments on storage, proposed work, experimental set-up, physical layout of magnets, power supply, etc. Orig. art. has: 8 figures.

ASSOCIATION: Institut yadernoy fiziki SO AN SSSR (Institute of Nuclear Physics, SO AN SSSR)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: EE, NP

NO REF SOV: C12

OTHER: 003

ML
Card 5/5

L 1847-66 EWT(m)/EPF(c)/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/JG
ACCESSION NR: AT5022290 UR/3136/65/000/835/0001/0010

AUTHOR: Gulyamov, M.; Rybakov, B. V.; Sidorov, V. A.

TITLE: The reaction He super 4 (He super 3, n)Be super 6

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-835, 1965. Reaktsiya He⁴(He³, n)Be⁶, 1-10

TOPIC TAGS: helium, beryllium, nuclear reaction, neutron, nuclear cross section

ABSTRACT: The paper is devoted to a study of the states of the Be⁶ nucleus in the reaction He⁴(He³, n)He⁶. The work was carried out with the 1.5-m cyclotron at the Institut atomnoy energii im. I. V. Kurchatova (Institute of Atomic Energy). A fast-neutron multichannel spectrometer was used to analyze the neutron spectrum of the reaction on the basis of the time of flight at an energy of He³ ions of 29.8 ± 0.3 MEV. The data were processed with a TsEM-2 computer. Groups of neutrons corresponding to the ground state and first excited state of the Be⁶ nucleus were observed. The energies of the excited state of Be⁶ (E* = 1.73 ± 0.1 MEV) and its energy width (Γ = 1.7 ± 0.3 MEV) were determined. Differential cross sections of formation of both groups of neutrons at angles of 0, 7.5, 15.0, 22.5, 30.0, and 45.0° to the incident beam of He³ ions were measured. Orig. art. has: 3 figures.
Card 1/2

L 1847-66

ACCESSION NR: AT5022290

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 004

dy
Card 2/2

L 25792-66 EWI(m) IJP(c)

ACC NR: AP6016376

SOURCE CODE: UR/0089/65/019/006/0498/0502

AUTHOR: Budker, G. I.; Kushnirenko, N. A.; Naumov, A. A.; Onuchin, A. P. 40
Popov, S. G.; Sidorov, V. A.; Skriniski, A. N.; Tumaykin, G. M. B

ORG: none

TITLE: Status report on the VEP-1 electron storage ring

SOURCE: Atomnaya energiya, v. 19, no. 6, 1965, 498-502

TOPIC TAGS: electron scattering, synchrotron, electron energy/B-25 synchrotron

ABSTRACT: This paper updates the report given at the International Conference on Accelerators held in Dubna in 1963 and describes the work carried out since that time. In the last two years the following work has been accomplished: accumulation of electrons simultaneously on two paths, study of certain interaction effects between two beams, and measurement of the luminance of the machine from the electron-electron scattering in the range of angles from 45 to 90 deg. The VEP-1 storage ring, designed to operate at electron-electron energy of 2 X 130 Mev, is connected to a B-25 synchrotron, as shown in a schematic diagram. The magnetic paths are 43 cm in dia and the aperture is 3 X 4 cm. All experiments were made at electron energies of 43 Mev and resonator voltage of 5 kv. The average injection current pulse did not exceed 10 ma, although more than 100 ma were available. Injection mode stability left much to be desired. Results of the experiments are shown in a series of graphs. Further experiments are planned at electron energies of 100 Mev. Orig. art. has: 8 figures.

SUB CODE: 20 / SUBM DATE: none / ORIG REF: 005 [JPRS]

Card 1/1 CC

L 25793-66 EWT(m) IJP(c)

SOURCE CODE: UR/0089/65/019/006/0502/0505

ACC NR: AP6016377

AUTHOR: Auslender, V. L.; Blinov, G. A.; Budker, G. I.; Karliner, M. M.; Kiselev, A. V.; Livshits, A. A.; Mishney, S. I.; Naumov, A. A.; Panasyuk, V. S.; Pestov, Yu. N.; Sidorov, V. A.; Sil'vestrov, G. I.; Skrinskiy, A. N.; Khabakhashev, A. G.; Sherhtman, I. A.

ORG: none

TITLE: Status report on the VEPP-2 positron-electron storage ring

SOURCE: Atomnaya energiya, v. 19, no. 6, 1965, 502-505

TOPIC TAGS: electron positron pair, electron interaction, synchrotron, electron scattering, luminescence, betatron/B-3M synchrotron

ABSTRACT: The VEPP-2 was designed for electron-positron interaction experiments at energies of 2 X 700 Mev. as reported in the "Proceedings of the International Conference on Accelerators", Dubna, 1963. Work accomplished in the two years following that conference includes the following: start-up of the synchrotron injector, accumulation of large electron currents in the storage ring, study of instability related to the interaction of the beam with the resonator, and the accumulation of positrons. At present the VEPP-2 is being used to study the interaction of two beams and to measure the luminescence from the small-angle positron-electron scattering. An over-all schematic diagram of the VEPP-2 is shown, including its connection to a B-3M synchrotron. The latter operates in light-duty mode at 200 Mev, and its 100 ma output pulse is shorter than 20 nsec. Its energy scattering is less than 2% and pulse repetition frequency is about 3 cycles. The storage ring is a weakly focussing racetrack with four identical rectilinear segments 60 cm long. The equilibrium orbit radius is 150 cm and the aperture is

Card 1/2

L 25793-56

ACC NR: AP6016377

8 X 14 cm. One segment of the ring is the experimental working section; the opposite section is a resonator; the remaining two are used to inject electrons and positrons. The experiments made and the operation of the equipment are described in detail. It is noted with interest that when betatron oscillations are excited by individual inflector pulses, most of the initial oscillation amplitude decays in a time interval much shorter than the natural radiation decay time. Orig. art. has: 4 figures. [JPRS]

SUB CODE: 20 / SUBM DATE: none / ORIG REF: 006 / OTH REF: 001

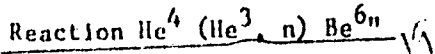
Card 2/2 CC

ACC NR: AP7000461

SOURCE CODE: UR/0367/66/004/001/0093/0096

GULYAMOV, M.; RYBAKOV, B. V.; SIDOROV, V. A.

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13



Moscow, Yadernaya Fizika; July, 1966; pp 93-96

ABSTRACT: The neutron spectron for the reaction $He^4 (He^3, n) Be^6$ is investigated for the He^3 ion energy of 298 ± 0.3 MeV, using a fast neutron multichannel spectrometer, according to the time of flight. Neutron groups were detected, corresponding to the ground and first excited state of the Be^6 nucleus. The energy ($E^* = 1.73 \pm 0.1$ MeV) and width ($\Gamma = 1.7 \pm 0.3$ MeV) of the Be^6 excited state were determined. The differential cross-sections for the production of both neutron groups were measured for the angles $0^\circ, 7.5^\circ, 15^\circ, 22.5^\circ, 30^\circ$ and 45° , with respect to the incident He^3 ion beam. Orig. art. has: 3 figures.

[Based on authors' Eng. abst.] [JPRS: 37,330]

ORG: none

TOPIC TAGS: neutron spectrum, neutron cross section

SUB CODE: 20 / SUBM DATE: 23Mar65 / ORIG REF: 004 / OTH REF: 004

Card 1/1 p. 16

0923 1165

L 05821-67 ENT(m) IJP(c) GD
ACC NR: AT6031468 SOURCE CODE: UR/0000/65/000/000/0001/0012

AUTHOR: Auslender, V. L.; Blinov, G. A.; Budker, G. I.; Karlner, M. M.; Kiselev, A. V.; Livshits, A. A.; Mishnev, S. I.; Naumov, A. A.; Panasyuk, V. S.; Pestov, Yu. P.; Sidorov, V. A.; Sil'vestrov, G. I.; Skrinskiy, A. N.; Khabkhpashev, A. G.; Shekhtman, I. A.

44
B+1

ORG: none

TITLE: Present state of research on the VEPP-2 electron-positron ring

SOURCE: AN SSSR, Sibirskoye otdeleniye. Institut yadernoy fiziki. Doklady, 1965. Sostoyaniye rabot na pozitron-elektronnom nakopitele VEPP-2, 1-12

TOPIC TAGS: electron, positron, electron positron storage ring, electron beam /B-3M synchrotron, VEPP-2 electron-positron, steradian

ABSTRACT: The VEPP-2 electron-positron storage ring was designed for experiments on the interaction of positrons and electrons with an energy of up to 2 x 700 Mev. It is basically a special type of B-3M synchrotron, and is equipped with an exterior injector, a high-vacuum storage track, a single thread system to extract the electron beam from the accelerator and insert it into the storage ring.

Card 1/2

L 05821-67

ACC NR: AT6031468

It has electron-optic channels and a converter to transform an electron beam into a positron beam. It now works at an energy of 200 Mev. Basic studies of the process of insertion into the storage ring were made at an energy of 100 Mev. A detailed description is given of the installation and storage of electrons and positrons. A system of spark chambers, comprising a 2 x 0.7 solid angle steradian close to the vertical direction, was prepared for experiments on the interaction of positrons and electrons. Efforts are now being made to increase the accumulation speed of positrons. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 001/

kh

Card 2/2

K 05822-67 EWT(m) IJI(z) GD

ACC NR: AT6031467

SOURCE CODE: UR/0000/65/000/000/0001/0014

3

AUTHOR: Budker, G. I.; Kushnirenko, Ye. A.; Skrinskiy, A. N.; Naumov, A. A.; Onuchin, A. P.; Popov, S. G.; Sidorov, V. A.; Tumaykin, G. M.

50
BHI

ORG: none

TITLE: Present state of research on the VEP-1 electronic storage ring

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut yadernoy fiziki. Doklady. 1968.
Sostoyaniye rabot na elektronnom nakopitele VEP-1, 1-14

TOPIC TAGS: synchrotron, electron scattering, electron beam/VEP-1 electronic storage ring, B-2C electronic synchrotron

ABSTRACT: The VEP-1 electronic storage ring consists basically of two paired high-vacuum magnetic tracks, 43 cm in radius, with a 3 x 4 cm² aperture a special B-2C electronic synchrotron, an electronic-optic channel, and a single thread system to extract the electron beam from the accelerator and insert it into the storage ring. This storage ring was designed for experiments in electron scattering with electrons of an energy of 2 x 130 Mev. It is now being used in

Card 1/2

L 05822-67

ACC NR: AT6031487

experiments with electron scattering in a 45—90 degree angle. Descriptions are given of the installation, the process of electron storage, and radiance measurements. The results of the first experiments on electron scattering show that divergences from the reference curve of the Moller electron scattering do not exceed the statistical error. Orig. art. has: 8 figures;

SUB CODE: 09, 20/ SUBM DATE: none/ ORIG REF: 005/

kh

Card 2/2

SIDOROV, V.A., inzhener.

Unsoldered terminal board of main power and lighting lines. **Energetik 1**
no.4:24-26 S '53. (MLRA 6:8)
(Electric switchgear)

SIDOROV, V.A., inshener.

Энергетик 1

Apparatus for soldering fuses with copper. *Энергетик 1* no.6:22-23 N '53.
(MIRA 6:10)

(Solder and soldering) (Electric fuses)

TINIakov, N. I., SIDOROV, V. A. Eng.

Electric Trans formers

Mobile metal transformer substation of 6-10 kilovolt capacity. Rab. energ. 3 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

1. STURM, V. A., Eng.
2. USSR (600)
4. Electric Cables
7. Installing cable drums on special stands. Rab. energ. 3 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

1. SIDOROV, V.A.
2. USSR (600)
4. Cranes, Derricks, Etc.
7. Tower crane ("creeping") UBK-15. Eng. V.A. Sidorov, Rab.energ. 3 no. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

SIDOROV, V.A., inzhener.

Stand for cutting "atseit" slabs. Energetik 2 no.1:19-20 Ja '54.
(MLRA 7:1)
(Cutting machines)

SIDOROV, V. A.

AID P - 1164

Subject : USSR/Electricity

Card 1/1 Pub. 29 - 17/31

Author : Sidorov, V. A., Eng.

Title : ~~XXXXXXXXXXXXXXXXXXXX~~
Voltage indicator

Periodical : Energetik, 11, 25, N 1954

Abstract : The author describes a simple low voltage indicator designed by a foreman. One drawing.

Institution : None

Submitted : No date

SIDOROV, V.A., inzhener; TINYAKOV, N.I., tekhnik.

Granite and ceramic facing of building facades in winter using electric heating; construction experience on the Moscow State University buildings. Gor.khoz.Mosk. 28 no.1:35-37 Ja '54.

(MLRA 7:2)

(Bricklaying--Cold weather conditions)

Sidorov, V. A.

Subject : USSR/Electricity

AID P - 1956

Card 1/1 Pub. 29 - 5/25

Author : Sidorov, V. A., Eng.

Title : ~~Automatic switches~~
Automatic switches

Periodical : Energetik, 4, 14-17, Ap 1955

Abstract : The author describes automatic overload breakers produced by the Khar'kov Electromechanical Plant and used in Moscow State University instead of knife-switches and fuses. The devices are enclosed in tight plastic temperature-resisting casings. The release mechanisms used in these breakers are thermal, electromagnetic, and mixed. The author gives a detailed description of the device of the A-3100 type and of its operating characteristics. Four drawings, 1 table.

Institution: None

Submitted : No date

V.A.

AID P - 3086

Subject : USSR/Electricity
Card 1/1 Pub. 29 - 20/29
Author : Sidorov, V. A., Eng.
Title : Stand for testing installation automats
Periodical : Energetik, 7, 27-28, J1 1955
Abstract : In the new buildings of the Moscow State University, there are over 70,000 installation automats produced by the Khar'kov Electro-mechanical Plant. Chief foreman Krivolapov developed a universal stand for testing, repairing and calibrating these automats. The author describes details of the arrangement. Two drawings.
Institution : None
Submitted : No date

SIDOROV, V.A., inzhener; BARABANOV, V.K., inzhener.

Use of fluorescent lighting. Svetotekhnika 2 no.2:11-14 Mr '56.
(MIRA 9:7)

1.Moskovskiy gosudarstvennyy universitet.
(Fluorescent lighting)

SIDOROV, V.A., inzhener; SHMUKLER, G.M., inzhener.

Automatic photoelectric apparatus for controlling outdoor lighting.
Energetik 4 no.9:34-36 8 '56. (MLRA 9:10)
(Electric lighting) (Photoelectric cells)

SIDOROV, V.A.; SHUKLER, G.E.

Automatic feeding in hot-water heating systems. Vol. 1 san.
tekh. no.10:33-35 0 '56. (MLRA 10:2)

(Hot-water heating)

SIDOROV, V.A., inzhener; SHMUKLER, G.E., inzhener.

Automatic feeder for hot-water heating systems. Gor. khoz.
Mosk. 30 no.7:31-32 J1 '56. (MLRA 9:10)

(Hot-water heating)

SIDOROV, V.A.; SHMUKLER, G.E.

Device for winding resistance coils. Priberestrenie no.2:24-25 P '57.
(Resistance-coil) (MIRA 10:4)

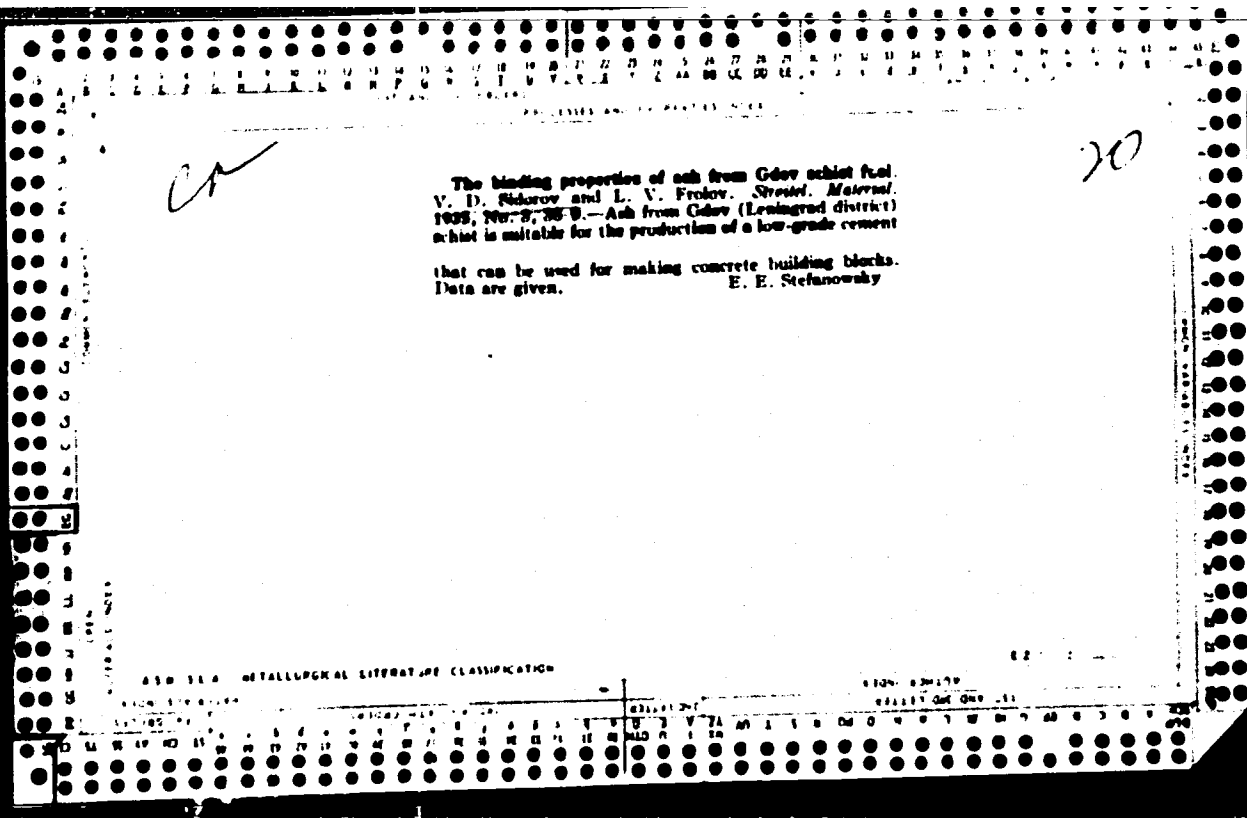
BELYAYEV, A.V.; SIDOROV, V.A.

**Electrodynamic vibrographs. Inzh.-fiz.zhur. no.4:67-71 Ap '58.
(MIRA 11:7)**

**1.Gosudarstvennyy universitet in. M.V. Lomonosova, g.Moskva.
(Vibration--Measurement) (Electric instruments)**

... ..
... .. "The Akshel'zhan Station of Plant Inst. of the , no. 11,
1949, 11. 1-17. 76 2913.

Re: CIAA 41-70-57, 15 Dec 1953

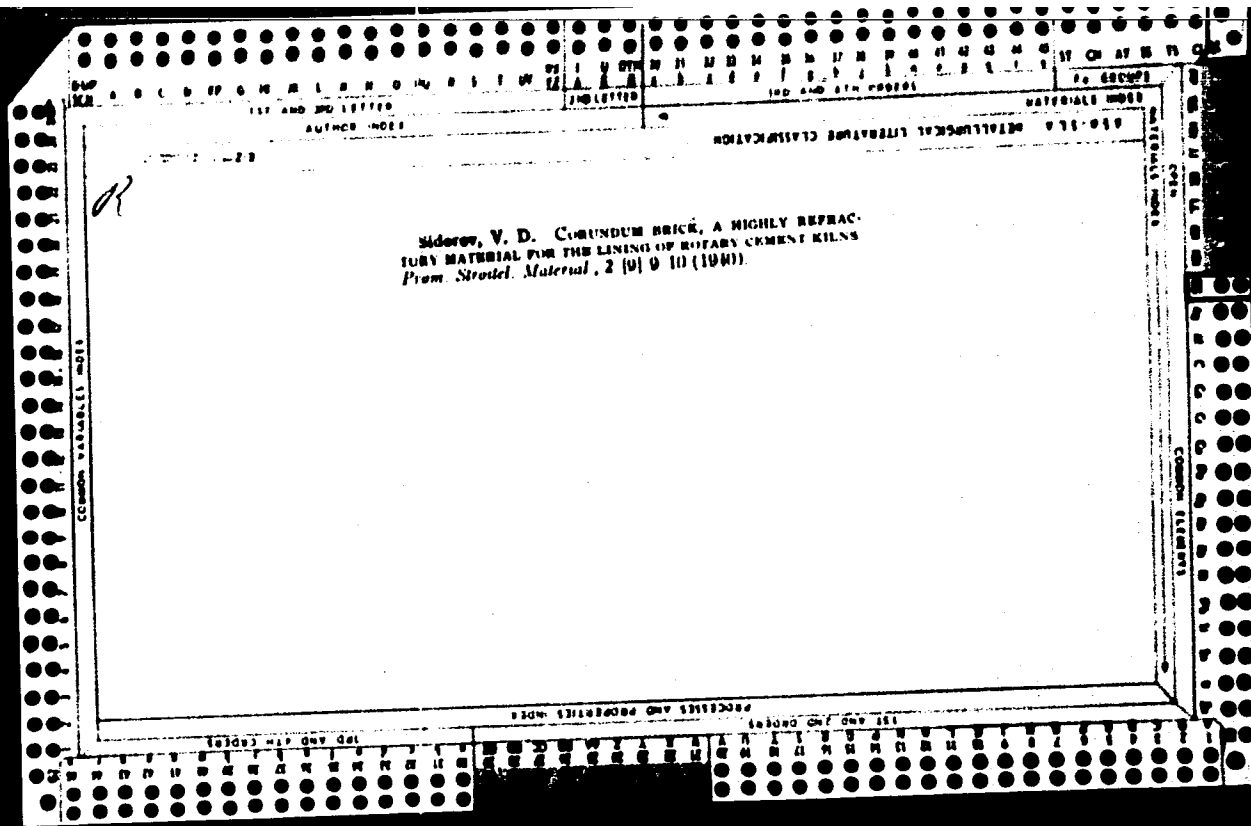


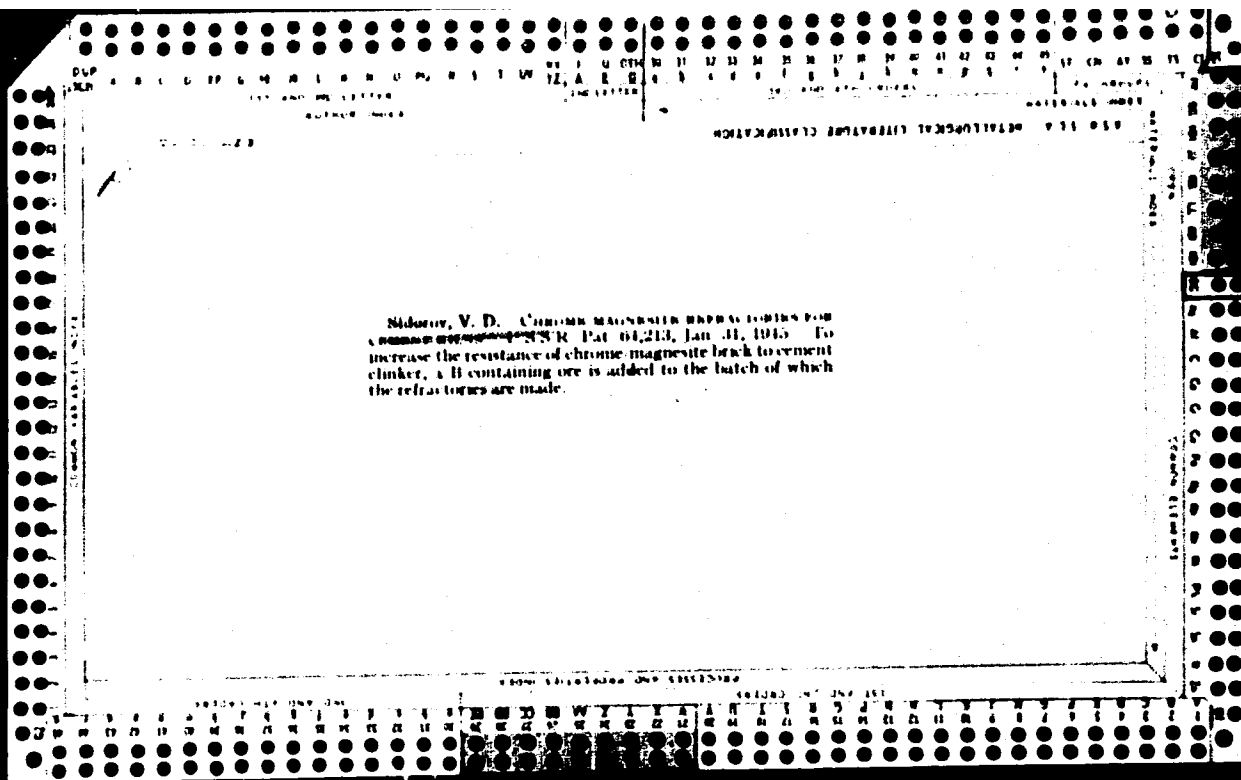
11

20

Processes and Properties of
 Chrome-magnesite brick linings for the sintering zones
 of rotary cement kilns. V. D. Sokolov. *Tsvetmet* 8,
 No. 3, 14-23; *Dnepropetrovsk* 7, 321-9 (1970). The spalling
 resistance of ordinary chrome-magnesite brick was low,
 that of the grade "resistant to spalling" considerably
 higher (cracks appeared after 4 castings, 20% loss of wt.
 after 20 castings). The resistance to the effect of clinker
 was high. Trial runs were made in kilns of several cement
 works. The bricks possess better qualities than the usual
 linings of clinker-cement brick and other materials. The
 brick must be laid dry with iron interlinings. The kiln
 must be started in such a way as to form a coating on the
 surface of the lining; the kilns must work with a minimum
 amount of stop and slow runs. K. R. Stefanovsky

AS 6 51 6 METALLURGICAL LITERATURE CLASSIFICATION





SOV-28-58-4-17/35

AUTHORS: Vorob'yev, Yu. A. and Sidorov, V.D., Engineers

TITLE: Determination of Tolerances on Dimensions of Non-Ferrous Alloy Casts (Ustanovleniye dopuskov na razmery otlivok iz tsvetnykh splavov)

PERIODICAL: Standartizatsiya, 1958, Nr 4, pp 56 - 58 (USSR)

ABSTRACT: The setting up of a tolerance system for non-ferrous casts was preceded by expanded investigations. Obtained results were subjected to statistical analyses and full values of tolerances were calculated. As a result, a standardization project was elaborated determining tolerances for dimensions of casts from non-ferrous metals and alloys produced by different means. Series of precision tolerances for different cast dimensions are given in tables. There are 3 tables, 1 diagram and 2 Soviet references.

1. Castings--Standards

Card 1/1

18(5), 25(5)

SOV/128-59-8-7/29

AUTHOR:

Vorob' yev, Yu.A., and Sidorov, V.D., Engineers

TITLE:

Standardization of Tolerances on Size of Non-Ferrous Castings

PERIODICAL:

Liteynoye proizvodstvo, 1959, Nr 8, pp 15 - 17 (USSR)

ABSTRACT:

There are no standard norms (GOST) in USSR for processing non-ferrous metals. In the MVTU imeni Bauman (MVTU imeni Bauman) together with the NII (Scientific Research Institute) 30,000 measurements of 500 different components cast from non-ferrous metals were carried out and the size tolerances were determined statistically. As the basis for the system of tolerances the following formulas are given: For components smaller than 500mm - $i = 0.1 (\sqrt{N+0.03 N+2})$; and for parts larger than 500 mm - $i = 0.004 N + 1.9$. The allowance is to be found from $\delta = i \cdot a$, where i = tolerance unit in mk, N = normal dimension in mm, δ = size of tolerance, a = quantity of tolerance units equal to the consecutive series from 1 to 9:64 - 100 - 160 - 250 - 400 - 640 - 1000 - 1600 and 2500 respectively. There are 9 tables, 1 graph, and 6 Soviet references.

Card 1/1

MANUKYAN, A.A.; GLUSHKOV, V.P.; SHVEDKOVA, V.M.; SVIRIDOVA, Z.P.; CHEBOTAREVA, Ye.A.; SHUMILIN, V.I.; PUDINA, K.V.; BRAGINA, N.N.; LUTSKAYA, Ye.Ye.; KODACHENKO, A.S.; KOSOVA, V.A.; MOKLYARSKIY, B.I.; GRECHIKHIN, A.A.; KULIKOV, N.I.; RYDVANOV, N.F.; BEL'CHUK, A.I.; VINTSER, Yu.I.; ROZENTAL', Ye.I.; BELOUS, T.Ya.; SIDOROV, V.F.; ZHDANOVA, L.P.; ALEKSANDROVSKAYA, L.I.; KOVAL', V.V.; KHAVINSON, Ya.S., glavnyy red.; SOKOLOV, I.A., nam.glavnogo red.; ALEKSEYEV, A.M., red.; ARZUMANYAN, A.A., red.; BELYAKOV, A.S., red.; BECHIN, A.I., red.; VARGA, Ye.S., red.; LEMIN, I.M., red.; LYUBIMOVA, V.V., red.; SKOROV, G.Ye., red. V redaktirovaniye uchastvovali: SHAPIRO, A.I., red.; TATISHCHEV, S.I.. KOVRIGINA, Ye., tekhn.red.

[Economic conditions of capitalistic countries; review of business conditions for 1958 and the beginning of 1959] Ekonomicheskoe polozhenie kapitalisticheskikh stran; kon'yunktturnyi obzor za 1958 g. i nachalo 1959 g. Moskva, Izd-vo "Pravda," 1959. 127 p. (Prilozhenie k zhurnalu "Mirovaia ekonomika i mezhdunarodnye otnosheniya," no.8, avgust 1959 g.) (MIRA 12:9)

1. Akademiya nauk SSSR. Institut mirovoy ekonomiki i mezhdunarodnykh otnosheniy. 2. Kollektiv sotrudnikov kon'yunktturnogo sektora Instituta mirovoy ekonomiki i mezhdunarodnykh otnosheniy AN SSSR (for Glushkov, Shvedkova, Sviridova, Chebotareva, Shumilin, Pudina, Bragina, Lutskaia, Kodachenko, Kosova, Moklyarskiy, Grechikhin, Kulikov, Rydvanov, Bel'chuk, Vintser, Rozental', Belous, Sidorov, Zhdanova, Aleksandrovskaya, Koval'). (Economic conditions)

MANUKYAN, A.A.; RYDVANOV, N.F.; BELOUS, T.Ya.; SVIRIDOVA, Z.P.; CHEBOTAREVA, Ye.A.; SHUMILIN, V.I.; PUDINA, K.V.; LUTSKAYA, Ye.Ye.; BRAGINA, N.M.; SANDAKOV, V.A.; MUSSO, S.; ZABELTSKAYA, A.I.; VDOVICHENKO, D.I.; MIRKINA, I.Z.; MORENO, I.; SIDOROV, V.F.; MOKLYARSKIY, B.I.; GRECHIKHIN, A.A.; KOSOVA, V.A.; KULIKOV, N.I.; ZHDANOVA, L.P.; ROZENTAL', Ye.I.; PETRANOVICH, I.M.

[Economic conditions of capitalist countries; survey of economic trends in 1961 and the beginning of 1962] Ekonomicheskoe polozhenie kapitalisticheskikh stran; kon'iunkturnyi obzor za 1961 g. i nachalo 1962. g. Moskva, Izd-vo "Pravda," 1962. 157 p.
(MIRA 16:9)

1. Sotrudniki kon'yunkturnogo sektora Instituta mirovoy ekonomiki i mezhdunarodnykh otnosheniy AN SSSR.
(Economic history)

GENZER, M.S., inzh.; MARISOVA, O.I., inzh.; SIDOROV, V.F., inzh.

Analyzing the formation of the stocking welt on the FSW-2 "Tekstina"
Cotton machine. Izv.vys.ucheb.zav.; tekhn.leg.prom. no.6:116-123
'60. (MIRA 14:1)

1. Leningradskaya trikotazhno-chulochnaya fabrika "Krasnoye Znamya"
(for Genzer). 2. Leningradskiy tekstil'nyy institut imeni S.M.Kirova
(for Marisova & Sidorov). Rekomendovana kafedroy tekhnologii
trikotazhnogo proizvodstva Leningradskogo tekstil'nogo instituta
imeni Kirova.

(Hosiery)

(Knitting machines)

KRASNIN, I. I., in kom. nauka; MENDELIN, V. I., in kom. nauka; IVANOV, Vasilii Fedorovich; TSIPKIN, R. I., retsenzent; PETROV, Yu. I., retsenzent; VASILIANI, R. Ye., nauchn. red.; NIKIFOROVA, R. D., red.

[Experience in the automation of the control of marine diesel engines] Opyt avtomatizatsii upravleniia sudovymi dizeliami. Leningrad, Sudostroenie, 1965. 177 p. (MIRA 18:3)

ALYAVDIN, N.I., doktor tekhn.nauk, prof.; SIDOROV, V.G., inzh.

Use of the factorial method for investigating the possibilities of perspiration absorption by silica gel in airtight rubber footwear. Izv. vys. ucheb. zav.; tekhn. leg. prom. no. 1:116-123 '60. (MIRA 14:5)

1. Moskovskiy tekhnologicheskii institut legkoy promyshlennosti. (Boots and shoes, Rubber--Testing) (Silica)