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2? (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-25/33

TITLE: § 1. The Single-channel Time Analyzer (§ 1. Odnokanal'nyy vremennoy analizator)

PERIODICAL: Atomnaya energiya 1958, Supplement, Nr 6, pp 123 - 126 (USSR)

ABSTRACT: A coincidence circuit with a resolution time in the range of millimicroseconds is the simplest model of a single-channel time analyzer, which is suited for the time-of-flight spectrometry of fast neutrons. To one terminal of the coincidence circuit the pulses coming from the scintillation counter are applied, and to the other terminal the control pulses. The counting rate versus control pulse delay function then represents the distribution of the neutrons over the time of flight. G. F. Bogdanov and his collaborators (Refs 2,3) designed a single-channel spectrometer with a "differential" channel, the effective channel width of which did not depend upon the pulse amplitude of the counter. Such a single-channel spectrometer is of interest even today in spite of the existence of multichannel spectrometers, as it is simple and permits absolute measurement of the intensity of the neutron beam. The circuit diagram of the time analyzer developed by G. F. Bogdanov is given in

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§ 1. The Single-channel Time Analyzer SOV/898-58-6-25/33

figure 66. It has two similar channels, each of which consists of a fast coincidence circuit, a cathode repeater and of an amplifier with a discriminator at the output. One input of the coincidence circuit, to which the control pulses are applied, is common to both. The second input receives the pulses of the scintillation counter which are taken from the anode of the photomultiplier. These two inputs are separated by the delay Δt. The two fast coincidence channels and the anticoincidence circuit between them constitute the differential channel of the analyzer. The control pulses, which are synchronized with the high-frequency voltage of the cyclotron, are controlled by a generator (the main element of which is a cathode ray tube with a plane deflecting beam. In a diagram the curves of the delayed coincidences are shown, which characterize the time analyzer, and which are given for all three channels recording the γ-radiation coming from the target of the cyclotron. The characteristic curves of the wide channels have plane apexes, which correspond to a hundred per cent efficiency of the fast coincidence circuits. There are 3 figures.

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21 (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-26/33

TITLE: § 2. The Chronotron (§ 2. Khronotron)

PERIODICAL: Atomnaya energiya 1958, Supplement, Nr 6, pp 127 - 130 (USSR)

ABSTRACT: An important stride in the development of time analysis is the development of multichannel systems. By their use the time required for measurements is much reduced. A simultaneous measurement of the entire spectrum alleviates the requirements placed upon the stability of the neutron source which is an important feature in work on fast neutrons. One of the simple multichannel time analyzers is the "chronotron" which has come into use for circuits with two nuclear particle counters. The chronotron is composed of several delayed coincidence circuits from which cables of different length are run to the counters. The principal circuit diagram of the chronotron is visualized in a figure (Fig 69). Two cables carry the pulses coming from two counters (A and B). The pulses actuate the coincidence circuit of either one or the other channel, depending upon the time displacement between the two pulses. The number of coincidences is recorded separately for each channel. A basic disadvantage of this type of circuit is found in the circumstance

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that the time width of the channel is in no way connected with the distance between the channels. In this respect the chronotron does not differ from a single-channel analyzer. It is difficult to attain a sufficient uniformity of the channels owing to the fact that the width of the channel depends upon the sensitivity of the coincidence circuit. The channel width of the chronotron depends upon the amplitude of the counter pulses, as is the case in simple coincidence circuits. In order to eliminate this dependence and to ensure a sufficient uniformity of the channels the same principle may be applied upon which the differential time analyzer described in the first paragraph of this chapter is based. A conventional chronotron usually incorporates 10 channels. R. Grismore and W. C. Parkinson (Ref 6) used a chronotron in a fast neutron time-of-flight spectrometer. The detectors were operated in such a way so as to minimize the dependence of the amplitude of the output pulse of the diode upon the way of superimposing the pulse coming from the scintillation counter over the control pulse. A considerable disadvantage of this system is its low counting rate owing to the necessity of photographing every individual recording process. There are 3 figures.

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21 (3) SOV/89S-58-6-27/33

AUTHORS: Rybakov, B. V., Sidorov, V. A.

TITLE: § 3. The Fast Oscilloscope (§ 3. Bystryy ostsillograf)

PERIODICAL: Atomnaya energiya 1958, Supplement, Nr 6, pp 130 - 131 (USSR)

ABSTRACT: In many laboratories engaged in time-of-flight spectrometry of fast neutrons the method of the "fast" oscilloscope has been used in the initial experiments as the principal element of the time analyzer in the range of millimicroseconds. This section treats of the analyzer developed by K. G. Malmfors et al., which operates on this principle. It makes use of the universal model of the fast oscilloscope Tectronics-517 which features a short rise time of the vertical amplifier (7 mμsec) a high velocity of development (up to 10 mμsec/cm) and a high accelerating voltage (24 kv). The principle of operation of one of the first variants of this device is described. The last variant operates with a fixed film which photographs the screen of the oscilloscope during the entire series of measurements. In this case the vertical electrodes of the oscilloscope receive only control pulses, whereas the development is actuated by the pulses of the neutron counter. If such a system is used it is possible to replace the tedious interpretation of many photographs by the pho-

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§ 3. The Fast Oscilloscope SOV/89S-58-6-27/33

tometric evaluation of one photograph. In spite of the considerable non-linearity of the development (~10%) the authors attained a high accuracy in measuring the time integrals. The absolute value of the error (± 0.2 mμsec) is many times smaller than the resolution time of the spectrometer. A figure shows a typical picture of a neutron spectrum corresponding to the recording of 10,000 pulses and the curve derived from their photometric interpretation. The main disadvantage of the system based upon photometric interpretation are the difficulties encountered in the determination of the absolute and the accurate relative intensity of the individual peaks of the neutron spectrum.

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21 (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-28/33

TITLE: Time-amplitude Transformation (Preobrazovaniye "vremeni v amplitudu"

PERIODICAL: Atomnaya energiya 1958, Supplement, Nr 6, pp 131 - 136 (USSR)

ABSTRACT: Among multichannel time analyzers operating in the range of millimicroseconds the analyzers operating according to the so-called principle of time-amplitude transformation have found widespread application. The main circuit element of such an analyzer is the condenser which is charged with a direct current during a time equal to the interval to be measured. The voltage pulses generated by the condenser can be analyzed with any multichannel amplitude analyzer. The main advantage of this system of time analysis is the fact that a multichannel amplitude analyzer can be used which has already been developed or which is available. The procedure involving the least technical difficulties for a time-amplitude transformation is the use of a beam tube with a double control (of the type 6AZP or of the American type 6BN6). The measurement of the time interval between the two pulses is briefly discussed. In a figure the block scheme of the time analyzer used by L. Cranberg et al is shown. A Van-de-Graaf gen-

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erator (the beam of which had been interrupted by a simple interruptor) was used as a neutron source. The performance of the analyzer is exposed in a figure in which the pulse distribution observed in the recording of the γ-radiation coming from a radioactive source is shown. As the counter pulses exhibit a statistical distribution over time, it must be found that the pulses are equally distributed over the channels of the time analyzer. This is found to be well satisfied in the medium range. Another diagram shows the spectrum produced by the scattering of 2.45 Mev neutrons at an angle of 90° on titanium, which was recorded with this spectrometer. In this case the resolution time of the spectrometer is determined completely by the resolution time of the scintillation counter. There are 5 figures.

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21 (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-29/33

TITLE: § 5. The Principle of the "Vernier" (§ 5. Printsip "noniusa")

PERIODICAL: Atomnaya energiya 1958, Supplement, Nr 6, pp 136 - 142 (USSR)

ABSTRACT: A new principle of time analysis in the millimicroseconds range has recently become known under the term "vernier principle". A time analyzer operating according to this principle was designed by the IAE AN SSSR (Institute of Atomic Energy, AS USSR) (Ref 27). Such an analyzer operates according to the following principle: If two short-pulse generators have adjacent pulse sequence frequencies, it is possible to utilize the number of cycles of one generator (counted from a certain reference limit to the first coincidence) as a measure of the time interval between the pulses of the two generators at the reference limit. The vernier principle and the block-scheme of the selectometer are illustrated in figures. The main component element of the time analyzer is a generator operating in phases and driven by the pulses coming from the scintillation counter. It consists of a trigger with delaying feedback connected to a pentode with secondary emission. The operation of the time analyzer according to the vernier principle requires that the difference between

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§ 5. The Principle of the "Vernier" SOV/89S-58-6-29/33

the frequencies of the analyzer generators remains constant. If the frequencies of these two generators are independent of each other, they must be very stable. An important feature of the multichannel analyzer is its constant channel width. In order to elucidate the mode of operation of the spectrometer, a photograph of the screen of the oscilloscope tube of the recording system ELA-2 is shown. There are 4 figures.

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21 (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-30/33

TITLE: Chapter VIII (Glava VIII). The Fundamental Characteristics of a Time-of-flight Spectrometer (Osnovnyye kharakteristiki spektrometra po vremeni proleta). § 1. Resolving Power (§ 1. Razreshayushchaya sposobnost')

PERIODICAL: Atomnaya energiya, 1958, Supplement Nr 6, pp 144 - 149 (USSR)

ABSTRACT: The line width of a spectrometer (and hence its resolution) can be subdivided into some "partial" widths, which can be ascribed to various factors causing an error in the determination of neutron energy. These factors include, e.g., the finite length of the neutron pulse and the resolution time of the detector. In the calculation of the total resolution of the spectrometer the partial widths must be added geometrically: $\delta = \sqrt{\Sigma\delta_i^2}$. In practical cases there is introduced no considerable error by this procedure. The resolution of a spectrometer applied to the investigation of a primary neutron spectrum is determined by its resolution time Δt and by the indeterminacy ΔL of the flight distance. The relative error in the determination of the energy is twice the error in the measurement of the time-of-flight,

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which is causative of the other errors: $\delta_t = 2\frac{\Delta t}{t}$; $\delta_L = 2\frac{\Delta L}{L}$. The time inaccuracy is caused by the following factors: length Δt_1 of the neutron pulse, resolution time Δt_2 of the neutron counter, resolution time Δt_3 of the time analyzer, the error Δt_4 of the synchronization of the electric control pulses after the instant of neutron emission. The total resolution time Δt is equal to $\sqrt{\Sigma(\Delta t_i)^2}$. The best models of time-of-flight spectrometers existing at present have resolution times of $\Delta t \sim 3$ mμsec. The resolution of the spectrometer, with disregard to the indeterminacy in the flight distance, is given by $\delta(\%) = \frac{2.8\sqrt{E(\text{Mev})}\,\Delta t}{L(\text{m})}$;

t in mμsec. According to this formula there appears a variation of the resolution within the energy interval in question, it changes in proportion to $\sqrt{E}$. The geometrical factor limiting the resolution of the spectrometer (the indeterminacy in the flight distance) is related to the finite thickness of the target and of the neutron counter scintillator and may attain considerable

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values. If relatively slow neutrons are used, a reduction of the thickness of the scintillator becomes imperative. This, however, does not diminish the efficiency. When secondary neutrons are investigated, the distinction between the time- and the geometrical component of the resolution becomes more difficult. The time inaccuracies have the following causes: pulse duration of the charged particles, non-monochromacy of the primary neutrons, thickness of the target (if it is gaseous), finite dimensions of the scatterer, thickness of the scintillator, photomultiplier (RCA-6342), time analyzer. The actual resolution of modern spectrometers is about ~3%. In the last diagram of this paragraph the neutron spectrum is given as an example which has been produced by an irradiation of lithium with 9.8 Mev protons. Two groups of neutrons with an energy of 8.2 and 7.8 Mev are found in the reaction $Li^7(p,n)Be^7$. They correspond to the ground state and the first excited level of Be^7. There are 4 figures, 1 table, and 6 references, 4 of which are Soviet.

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21 (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-31/33

TITLE: § 2. The Efficiency (§ 2. Effektivnost')

PERIODICAL: Atomnaya energiya, 1958, Supplement Nr 6, pp 149 - 154 (USSR)

ABSTRACT: The efficiency of a spectrometer based upon the time-of-flight principle with a pulsed neutron source is determined by the efficiency ε of the scintillation counter and by the solid angle stretching from the source to the counter: $\eta_l = \varepsilon \frac{S}{L^2} = \frac{n_0 \sigma}{L^2} (1 - \frac{B}{E})$ where S denotes the area of the scintillator cross section, L the distance traveled by the neutron, and n_0 the total number of hydrogen atoms in the scintillator. When the efficiency η of the spectrometer is computed the total weight of the scintillator and not its density must be known. When the neutron flux and the neutron spectrum are determined from the experimentally found distribution of the counting rate over the channels of the spectrometer the absolute value of the channel width and the dependence of the width upon the number of the channel must be known. Several simple time analyzers have no channel width in this sense, but only an effective channel width which is deter-

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mined by the shape of the spectrometer line. A formula for experimental determination of the channel width under an assumed 100% efficiency of the time analyzer is presented. If the effective channel width varies within the operational range, it is necessary to calibrate at different energies of the monoenergetic neutron beam in order to be able to determine its dependence upon the number of the channel. Also if multichannel time analyzers are used, the method of the gliding track can be applied in many cases, although the design of the recording system presents some difficulties. At the end of this paragraph the efficiency of the spectrometer versus neutron energy function at constant resolution is computed. There are 6 figures.

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21 (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-32/33

TITLE: § 3. The Dynamic Range (§ 3. Dinamicheskiy diapazon)

PERIODICAL: Atomnaya energiya, 1958, Supplement Nr 6, pp 154 - 162 (USSR)

ABSTRACT: The resolution of a neutron spectrometer with respect to the flight time is limited primarily by the intensity of the neutron source, which does not permit the use of sufficiently long flight ranges. In a few cases, however, (for example when the natural modulation of the beam of a large cyclotron is used) the resolution is not limited by the neutron beam intensity, but by the sequence frequency of the pulses. If this period is sufficiently small, there may be cases where with a sufficiently long flight range L the fast neutrons of one pulse would reach the counter just when the slow neutrons of the preceding pulse arrive. Hence the maximum length L is restricted at a given pulse sequence frequency by the requirement that the neutron spectra of different orders and within the same dynamic range $q = E_{max}/E_{min}$ shall not be superimposed, where E_{max} and E_{min} denote the maximum and minimum neutron energy accessible to a simultaneous measurement. If it is desired to improve the

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resolution and to widen the dynamic range it is in such cases necessary to reduce the neutron pulse sequence frequency artificially. For the real dynamic range of a time-of-flight spectrometer it holds: $q = 0.7\ (E_{max}/B)$. B denotes the energy threshold of the counter. No superposition of neutrons produced by subsequent pulses will occur if the flight time of the slowest of the neutrons recorded does not exceed that of the fastest neutrons by a value exceeding the pulse sequence frequency T: $t(B) < t(E_{max}) + T$. Under actual conditions with finite resolution this condition must be rendered somewhat more stringent: $t(B) < t(E_{max}) + T - 3\Delta t$. Δt denotes the resolution time. This condition imposes certain limitations upon the value of the dynamic range of the spectrometer. Under certain conditions it is not possible to utilize the entire scale of the spectrometer. An extension of the dynamic range of the spectrometer with given resolution or an increase of the resolution with given dynamic range makes an increase of the effective number of scale points necessary. This can be achieved by reducing the resolution time or by increasing the neutron pulse sequence frequency. The dy-

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namic range of the spectrometer is not only limited by the superimposition effects of neutrons of neighboring periods but also by the fact that the high sensitivity to γ-radiation of a scintillation counter designed for neutron detection causes acute γ-peaks in the time distribution of the counter pulses. Primary neutrons usually also cause a peak. As an example the authors describe the measurement of the neutron spectrum which is produced by the irradiation of deuterium with 8.6 Mev protons. This investigation was carried out by means of the multichannel spectrometer of the IAE AN SSSR (Institute of Atomic Energy AS USSR). There are 6 figures.

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21 (3)

AUTHORS: Rybakov, B. V., Sidorov, V. A. SOV/89S-58-6-33/33

TITLE: Supplement (Prilozheniye). Table: Time-of-flight Versus Energy (Tablitsa: Vremya proleta-energiya)

PERIODICAL: Atomnaya energiya 1958, Supplement, Nr 6, pp 163 - 175 (USSR)

ABSTRACT: The energy E (Mev) of a neutron which corresponds to a neutron traveling through 1 m was computed by the formula $E = E_0 ((1/\sqrt{1 - \beta^2})-1) \sim 52.2680(10/\tau)^3 + 4.3617(10/\tau)^4 + 0.4044(10/\tau)^6 + 0.0394(10/\tau)^8 + 0.0039(10/\tau)^{10}$. In this formula τ is given in mμsec/m. The table difference between $\tau = 10$ mμsec/m and $\tau = 50$ mμsec/m is 0.02 mμsec/m and between 50 and 150 mμsec/m it is 0.1 mμsec/m. This table comprises the energy range of from 0.2 to 57 Mev and covers 12 printed pages. There is 1 table.

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21(7)

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

TITLE: The Reaction $T(p,n)He^3$ at Proton Energies of 7 to12 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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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 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 Barshall's condition asymmetry is not higher than 5%. A noticeable asymmetry was observed in the case $\theta_1 = \theta_2 = 40^0$, 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.

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PHASE I BOOK EXPLOITATION SOV/4985

Rybakov, Boris Vasil'yevich

Avtomatika i telemekhanika v narodnom khozyaystve (Automation and Remote Control in the National Economy) Moscow [VINITI] 1960. 227 p. 1,500 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov SSSR, Akademiya nauk Soyuza Sovetskikh Sotsialisticheskikh Respublik, and Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii.

Ed. (Title page): N. A. Babakov, Doctor of Technical Sciences, and N. D. Mazalov, Candidate of Technical Sciences; Tech. Ed.: N. M. Soboleva.

PURPOSE: This book is intended for personnel concerned with automation and telemechanics in industry.

COVERAGE: The book describes Soviet achievements in automation and telemechanics. The subject matter is [illegible] on industrial expositions, as well as information provided by the Academy of Sciences. Prospects for further development are

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discussed. Numerous diagrams, drawings, and photographs are included. The following personalities are mentioned for their contribution to the field: N. M. Krylov, N. N. Bogolyubov, and A. A. Andronov (automatic regulation); B. V. Bulgakov (gyroscopes, autopilots, automatic regulation, etc.); Academician V. S. Kulebakin (regulation, control, automatized drives, and aeronautic electric devices); V. S. Pugachev and V. V. Solodovnikov (optimal regulation systems); Ya. Z. Tsypkin (theory of impulse and automatic-regulation systems); Corresponding Member V. A. Trapeznikov (automatic and analog systems); Corresponding Member B. N. Petrov (automatic regulation and control); N. N. Shumilovskiy and V. L. Lossiyevskiy (production automatization); Corresponding Member V. K. Arkad'yev, V. I. Kovalenkov, B. S. Sotskov, P. A. Goryunov, M. A. Gavrilov, G. M. Zhdanov, B. K. Shchukin, R. L. Raynes (telecontrol); M. V. Mikhaylov, V. A. Il'in, V. S. Malov (remote-control measurements); P. V. Timofeyev, Corresponding Member D. V. Zernov, Academician S. A. Vekshinskiy, B. G. Kolomiyets, and Academician A. F. Ioffe (electronics, photocells, and semiconductor instruments); and Academician M. P. Kostenko, A. G. Iosif'yan, V. K. Popov, and V. V. Solodovnikov (synchronous coupling, tracking systems, and electric drives). M. I. Tolokonnikov wrote subheading 2 of Ch. I., S. I. Bashmachnikov - Ch. II., A. K. Smirnov and A. I. Khomutov - Ch. VI., V. I. Shamanina - subheading 3 of Ch. VII., and Z. K. Shibayev - Ch. VIII. The author thanks Corresponding Member B. N. Petrov, Doctor of

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Technical Sciences B. V. Sotskiy, and I. V. Popov. There are 65 references, all Soviet.

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1. Fundamental information on automatic and telemechanical instruments and devices 19
2. Automatic instruments and devices using radioactive isotopes 19
3. Semiconductor instruments and thermistors 29
4. Use of ferrite materials 45
5. Computer, logical, and information machines 57
6. Control machines 74

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

S/089/60/009/005/006/020
B006/B070

24.6720

AUTHORS: Pankratov, V. M., Vlasov, N. A., Rybakov, B. V.

TITLE: Fission Cross Sections of Th^{232}, U^{235}, Np^{237} and U^{238} for Neutrons Having Energies of 10-22 Mev

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 5, pp. 399 - 401

TEXT: Measurements of fission cross sections for high-energy neutrons are communicated in this "Letter to the Editor". The neutron source was the reaction $D(d,n)He^3$; the analysis was made by the time-of-flight method, as it avoided some of the difficulties discussed in the introduction. The deuteron energies were varied from 6.5 to 19.5 Mev (E_n: 9.7 - 21.7 Mev) by means of platinum foils. The energy spread of the neutron was between 250 and 700 kev. All measurements were made at an angle of 0° to the deuteron beam. The fission events were recorded by means of a gas scintillation fission chamber (xenon) and a photomultiplier of the type ФЭУ-33 (FEU-33). The pulses from the multiplier were fed into a multi-channel time-of-flight spectrometer. The results

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Fission Cross Sections of Th^{232}, U^{235}, Np^{237}, and U^{238} for Neutrons Having Energies of 10-22 Mev

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B006/B070

of the study are shown in Fig.2. The statistical error was 3%, the relative error not more than ±5%. The broken parts of the curves correspond to the data from Ref.1 (Los Alamos). The behavior of the curves is briefly discussed. S. P. Kalinin is thanked for help in the solution of methodological problems; and N. I. Venikov and A. A. Kurashov for the smooth working of the apparatus. There are 2 figures and 5 references: 4 Soviet and 1 US.

SUBMITTED: July 21, 1960

Card 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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 Spectra of the d+p Reaction

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

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B006/B070

2.5 mμsec; the channel width of the time analyzer was about 0.8 mμsec. 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 mμsec. 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→2p+n at angles of 0 and 180°, respectively, with the deuteron beam, and for E_0=4.0 Mev and E_0=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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Neutron Spectra of the d+p Reaction S/056/60/038/006/023/049/XX
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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→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

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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B006/B070

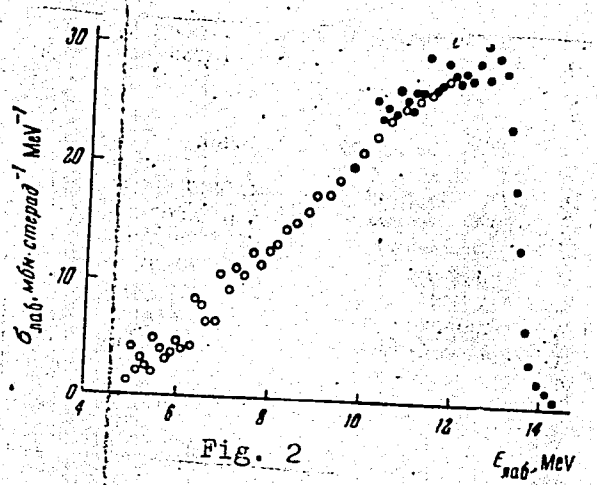

Fig. 2

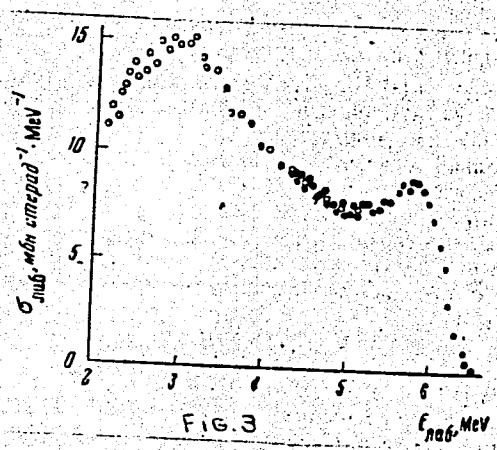

FIG. 3

Card 4/5

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B005/B070

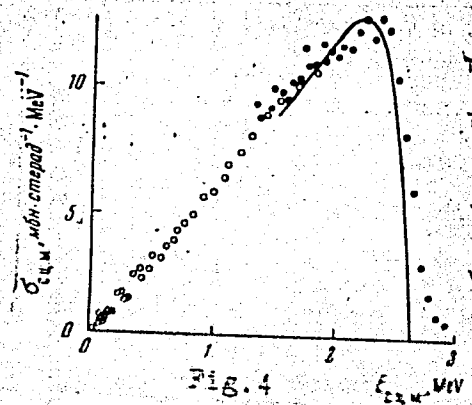

Fig. 4

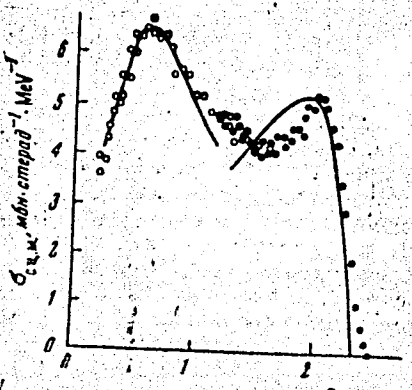

Fig. 5

$E_{c.m.s.}$

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

VYAZEMSKIY, V.O.; LOMONOSOV, I.I.; PISAREVSKIY, A.N.; PROTOPOPOV, Kh.V.; RUZIN, V.A.; TETERIN, Ye.D.. Prinimal uchastiye KLYUCHNIKOV, V.N.; RYBAKOV, B.V., red.; SMOLYAN, G.L., red.; POPOVA, S.M., tekhn. red.

[Scintillation method in radiometry] Stsintilliatsionnyi metod v radiometrii. By V.O.Viazemskii i dr. Moskva, Gos. izd-vo lit-ry v oblasti atomnoi nauki i tekhniki, 1961. 429 p. (MIRA 14:9)
(Scintillation counters)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, B. V.

Cand Phys-Math Sci, Diss -- "Energy distribution of neutrons in reactions with the formation of three particles". Moscow, 1961. 8 pp, 20 cm (Inst of Theor and Exper Phys, Acad of Sci USSR), 100 copies, Not for sale, 14 ref in bibl on pp 7-8 (KL, No 9, 1961, p 176, No 24263). [61-52321]

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

22619
S/089/61/010/004/022/027
B102/B205

21.5100

AUTHORS: Alekseyev, N. G., Yemel'yanov, K. N., Klimenko, G. K., Rybakov, B. V., Rostovtsev, A. A.

TITLE: A universal gamma-ray source for use in radiochemical studies

PERIODICAL: Atomnaya energiya, v. 10, no. 4, 1961, 396-400

TEXT: A gamma-ray source for use in radiochemistry is described, which meets the following requirements: 1) It has an inner radiation chamber of 50 cm^3 and a dose rate of 500 r/sec + 10% (depending on the spacing between source and irradiated sample, the dose rate varies from 150 to 15 r/sec); 2) tests can be made at regulated high and low temperatures; 3) remote control of temperature and telemetering of several parameters is possible; 4) the source operates without water, is reliable in operation, has exchangeable parts, and causes no radiation damage. The cylindrical radiator is composed of 24 Co^{60} sources, is 160 mm high, and has a total activity of 5000 gram-equivalent of Ra. The sources are arranged in two rows within a diameter of 75 mm. Thus, the volume in the center is

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22619

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A universal...

~50 cm^3. The sample specimen is placed inside the aluminum container (see Fig. 1). The radiator is housed within a lead container weighing 1200 kg, which serves for protection against radiation during transport and operation. It is enclosed by a steel jacket, and has three gates, one in the direction of its axis and two on the sides, which are closed during transport. Outside the closed device, the dose rate is not higher than 20μr/sec. During operation the device is placed in a special channel within a shielded cabin, and is shielded by 600-kg plates. The whole setup is shown in Figs. 2 and 3. A general view of the device in working position is shown in Fig. 4. The circuit diagram used to control the radiator chamber, the signaling, and the automatic blocking of the gates and the magnetic gate lock is shown in Fig. 5. Control operations are done from a board. The individual operations are done in strict order (indication of the pilot lamps 1-4). Unloading and loading operations are illustrated by Figs. 6-7. There are 7 figures.

SUBMITTED: July 2, 1960

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

L 06497-67 EWT(m) JXT(CZ)

ACC NR: AP7000461 SOURCE CODE: UR/0367/66/004/001/0093/0096

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

22
B

Reaction He^4 (He^3, n) Be^6"

16

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 29.8 ± 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°, 7.5°, 15°, 22.5°, 30° 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 pm

0923 1165

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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

55
B+1

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 $He^4(He^3, n)Be^6$, 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 Be^6 nucleus in the reaction $He^4(He^3, n)Be^6$. 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 He^3 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 Be^6 nucleus were observed. The energies of the excited state of Be^6 ($E^* = 1.73 \pm 0.1$ MEV) and its energy width ($r = 1.7 \pm 0.3$ 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 He^3 ions were measured. Orig. art. has: 3 figures.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

L 1847-66

ACCESSION NR: AT5022290

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NO REF SOV: 004 OTHER: 004

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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

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

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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

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

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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

Ground state of the Be^6 nucleus. Zhur. eksp. i teor. fiz. 44 no.6:1829-1831 Je '63. (MIRA 16:6)

(Beryllium isotopes)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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.; Ry*bakov, 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 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 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, Boris Vasil'yevich, kand. tekhn.nauk; SHTEYNBOK, G.Yu., inzh., ved. red.; SOKOLOV, I.D., inzh., red.; SMIRNOV, B.M., tekhn. red.

[Electronic device for measuring phase-shifted code impulses] Elektronnoe ustroistvo dlia sravneniia kodovykh impul'sov, sdvinutykh po faze. Moskva, Filial Vses. in-ta nauchn. i tekhn.informatsii, 1957. 15 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 40. No.P-57-6/1) (MIRA 16:3)

(Information theory)
(Pulse techniques (Electronics))

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

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, He^3 and He^4 nuclei

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960 g. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 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 $\sigma(E)$ 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 He^3+d (0°) one at ~4 Mev

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(range 0-7 Mev), that of α+d (0°) one at ~7 Mev, corresponding to Li^7 formation (range 2-9 Mev) and that of α+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 α+d→α+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 and 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)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

STEPANOV, Viktor Aleksandrovich, kand. tekhn. nauk, dots.; VLASOV, Pavel Andreyevich, assistent; RYBAKOV, Dmitriy Yur'yevich, st. prepod.; BANNIKOV, P., red.; VORONKOVA, Ye., tekhn. red.

[Some problems in the repair of parts and units of motor vehicles and tractors; generalization of advanced experience and research results] Nekotorye voprosy remonta avtotraktornykh detalei i agregatov; obobshchenie peredovogo opyta i rezul'tatov nauchno-issledovatel'skikh rabot. Penza, Penzenskoe knizhnoe izd-vo, 1963. 86 p. (MIRA 17:4)

1. Kafedra "Remont mashin i tekhnoligiya metallov" Penzenskogo sel'skokhozyaystvennogo instituta (for Stepanov, Vlasov, Rybakov).

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, D.Ya.; STEPANOV, V.A.; KOSOROTOV, B.V., red.

[Reconditioning tractor frames] Vosstanovlenie ram traktorov. Moskva, Kolos, 1964. 110 p.
(MIRA 18:5)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, D.Yu., inzh.

Finish burnishing of cast-iron cylinders with ball rollers.
Vest. mashinostr. 45 no.1:60-62 Ja '65. (MIRA 18:3)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

L 45403-65 EWT(1)/EEC(m)/EPF(n)-2/EWG(v)/EPR/EWA(h) Pe-5/Po-4/Pq-4/Fs-4/
Pu-4/Pab/PI-4 GG/WW

ACCESSION NR: AP5010927 JR/0286/65/000/007/0112/0112

AUTHORS: Kirshteyn, G. Kh.; Rybakov, E. K.

TITLE: Device for contactless measurement of the flow rate of conducting liquids. Class 42, No. 169816

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 7, 1965, 112

TOPIC TAGS: flow meter, conductive fluid, liquid flowmeter

ABSTRACT: This Author Certificate presents a device for contactless measurement of the flow rate of conducting liquids according to Author Certificate No. 166516. The device uses a pulsed magnetic field and contains a flat inductor, an indicator, and a synchronous detector. To increase the sensitivity and accuracy of measurements, the indicator is made in the form of a steel core. The distance between the teeth of the core is twice as small as the distance between the teeth of the inductor with sectional coil (see Fig. 1 on the Enclosure). The coil sections are connected through one so that the voltages induced in them are added and connected to the output of the compensator. Orig. art. has: 1 diagram.

ASSOCIATION: Institut fiziki, AN Latviyskoy SSR (Institute of Physics, AN Latvian SSR)

Card 1/3

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L 45403-65

ACCESSION NR: AP5010927

SUBMITTED: 04Oct63 ENCL: 01 SUB CODE: ME

NO REF SOV: 000 OTHER: 000

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

L 45403-65

ACCESSION NR: AP5010927 ENCLOSURE: 01

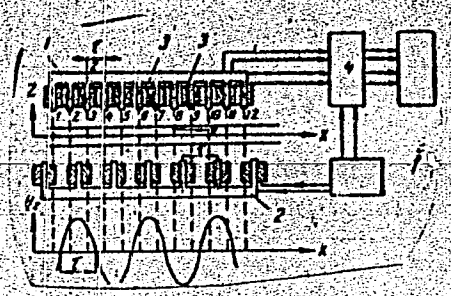

Fig. 1. Device for contactless measurement of the flow rate of conducting liquids

1- steel core; 2- inductor; 3- sectional coil; 4- compensator

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L 63117-65 EWT(1) IJP(c)

ACCESSION NR: AP5019977 UR/0371/65/000/002/0035/0040

22
21
B

AUTHOR: Kirsteins, H. (Kirshteyn, G. Kh.); Ribakovs, E. (Rybakov, E. K.)
55 55

TITLE: A method for the measurement of the velocity of conducting media by means of pulsating magnetic fields 21

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 2, 1965, 35-40

TOPIC TAGS: flow measurement, flowmeter, pulsed magnetic field, conducting medium, conducting medium velocity

ABSTRACT: In non contact measurements of the velocity of conducting media by electromagnetic methods, theprecision of the measurements is substantially affected by the temperature dependence of the medium. To minimize this factor, a method is proposed which is based on the use of phenomena associated with the motion of such media in a pulsating magnetic field. If the conducting band moves in a pulsating field

$$H = H_0 \cos \omega t \cos \alpha y = \frac{H_0}{2} [\cos (\omega t + \alpha y) + \cos (\omega t - \alpha y)],$$

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L 63117-65

ACCESSION NR: AP5019977

the character of the distribution of the currents induced in the medium will be largely determined by the velocity of the medium. Thus, if the latter moves at velocity $v_c = \frac{\omega}{\alpha}$, only those currents will be induced which are due to the field component $\frac{H_0}{2}(\omega t + \alpha y)$, whereas the component $\frac{H_0}{2}\cos(\omega t - \alpha y)$ will not induce any currents. Hence, the current distribution in the conductor will obey the law of a traveling wave. This phenomenon was utilized for the development of a device measuring the velocity of conducting media. The device and its operation are fully described, and the main factors determining its sensitivity are discussed. Orig. art. has: 4 figures and 10 formulas.

ASSOCIATION: Institut fiziki AN Latv. SSR (Institute of Physics, AN Latv. SSR)

SUBMITTED: 16Jul64 ENCL: 00 SUB CODE: EM

NO REF SOV: 002 OTHER: 000

Card 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

ACCESSION NR: AP4031875 S/0286/64/000/007/0067/0067

AUTHOR: Kalnin, R. K.; Ry*bakov, E.K.; Ginzburg, A. S.; Kirshteyn, G. Kh.; Sermons, G. Ya.

TITLE: Flow meter for measuring electroconducting fluids. Class 42, No. 161514

SOURCE: Byulleten' izobreteniy i tovarny*kh znakov, no. 7, 1964, 67

TOPIC TAGS: flow meter, electroconducting fluid meter, traveling magnetic field

TRANSLATION: The flow meter for measuring the velocity of electroconducting fluids covered by this author's certificate consists of two inductors, which set up traveling magnetic fields, two yokes with sensing coils, and an indicator. In order to eliminate any effect that the meter may have on the flow of the liquid, the two inductances are so oriented that their traveling magnetic fields meet head-on.

ASSOCIATION: none

SUBMITTED: 21Jan63 DATE ACQ: 29Apr64 ENCL: 00

SUB CODE: IE, SD NO REF SOV: 000 OTHER: 000

Card 1/1

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F. F.

USSR/Petroleum - Prospecting Oct 48
Oil Regions

"Prospects for the Permian Petroleum Deposits in the Kuybyshev Region of the Left Bank of the Volga," F. F. Rybakov 5 pp

"Neft Khoz" No 10

Stratigraphically describes Permian petroleum deposits, referring to "Burguruslanneft'" method. Results obtained are of practical and theoretical significance, but Permian deposits are not yet satisfactorily investigated. Author is convinced, from actual examples (Yablonevka, Piluygino, [redacted] 43/49T100

USSR/Petroleum - Prospecting (Contd) Oct 48

Kozhemyaki, Nizhne Klyuchi, etc.), that three productive strata exist, comparable to Kazan, Kungursk, and Artinsk formations. Gives table and illustrations of Permian deposits.

[redacted] 43/49T100

PA 43/49T100

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

Rybakov, F. F.

AID P - 338

Subject : USSR/Mining

Card : 1/1

Authors : Rybakov, F. F. and Berezina, M. D.

Title : The use of spectral analysis of rocks for correlation of geological cuts

Periodical : Neft. Khoz., v. 32, #5, 55-58, My 1954

Abstracts : The authors outline a general method of semi-qualitative spectral analysis of various rock core samples containing traces of oil or organic substances. The geochemical characteristics of rocks on horizontals are given in relation to adopted strati-graphical scheme for the Permian period. The authors present the analysis of many regions and recommend a method for the plotting structural maps and correlation of geological sections. One graph.

Institution : None

Submitted : No date

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F.F.; BEREZINA, M.D.

Microelements in the ash of paleozoic petroleum of the eastern part of the Russian Platform. Geol.sbor. no.3:266-269 '55. (Russian Platform--Petroleum geology) (MLRA 8:6)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F.F.; KALASHNEV, V.V.; SERGEYEV, B.Z.

Thermometric investigations of gas wells in the Stavropol Territory. Gaz. delo no.12:11-17 '64. (MIRA 18:2)

1. Stavropol'skiy filial Groznenskogo neftyanogo nauchno-issledovatel'skogo instituta.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F.F.

Magnesites of the Saratov trans-Volga region. Razved.i okh. nedr 21 no.6:7-8 N-D '55. (MLRA 9:12)

(Volga Valley--Magnesite)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

Subject : USSR/Geology AID P - 3059

Card 1/1 Pub. 78 - 13/20

Author : Rybakov, F. F.

Title : Some specific characteristics in the development of tectonic structures of Permian depositions in the Southeast Section of the Russian basin

Periodical : Neft. khoz., v. 33, no. 8, 57-64, Ag 1955

Abstract : The territory of the Southeast portion of the Russian basin in the boundaries of the right bank of the Volga River from Saratov to Kazan' in the West, and Ufa-Chkalov in the East, is divided from a morphological point of view into four categories of tectonic structure. Maps are given showing the location of those four tectonically different sections.

Institution : None

Submitted : No date

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F.F.; KALASHNEV, V.V.

Efficient depth for lowering tubing in marginal gas wells.
Gaz. delo no.4:3-5 '65. (MIRA 18:6)

1. Stavropol'skiy filial Groznenskogo neftyanogo nauchno-issledovatel'skogo instituta.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F.F.

Lower Permian stratigraphy in the Volga Valley portion of Kuybyshev Province. Trudy Giprovostoknefti no.1:53-67 '58. (MIRA 13:9)

(Kuybyshev Province--Geology, Stratigraphic)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

3 (5)

SOV/11-59-4-11/16

AUTHOR: Rybakov, F. F.

TITLE: Stylolitic Formations of the Volga Region (Stiloliticheskiye obrazovaniya Povolzh'ya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya, geologicheskaya, 1959, Nr 4, pp 108-111 (USSR)

ABSTRACT: Stylolites are small structures occuring in sedimentary rocks, especially in limestone, up to 20 - 25 cm high and 10 - 12 cm in diameter, in variegated shapes. In the Volga region they are mostly found in the Paleozoic sedimentary strata. The author describes different varieties of stylolites, but cannot advance a theory explaining their occurence or origin. Presumably, he says, stylolites were formed during the formation of sedimentary strata. Stylolites have been known by geology for more than two hundred years, and many theories have been advanced but not one had any factual basis.

Card 1/2

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SOV/11-59-4-11/16

Stylolitic Formations of the Volga Region

ASSOCIATION: Oblastnoy institut "Giprovostokneft'", Kuybyshev. (The "Giprovostokneft'" Oblast Institute, Kuybyshev)

SUBMITTED: August 1, 1957.

Card 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

S/009/60/000/005/003/003
B027/B076

AUTHOR: Rybakov, F. F.

TITLE: Oil and gas deposits of the Southern part of the Kuybyshevskaya Oblast' and Saratov Transvolga region

PERIODICAL: Geologiya nefti i gaza, no. 5, 1960, 14-20

TEXT: The structure of this region shows deposits of the Paleozoic, Mesozoic, Tertiary, and Quaternary. The crystalline foundation has a depth of 1714 to over 3780 m. The architectonic has been investigated for many years by means of structural and deep drilling and all geophysical methods. On the whole, a linear expansion of the tectonic zones and dislocations were found in the South of the Kuybyshevskaya oblast', these being buried step-like towards the East and Southeast. In general, 90 structures were determined by various methods. The material obtained by deep drilling makes possible the drawing of a diagram of the most important paleotectonic elements. During the Lower Paleozoic period the Kuybyshev Transvolga region was a large dome with three elevations, surrounded by cavities which merged into the geosyncline of the Ural. In the South Ural huge

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deposits of bituminous clay are therefore frequently to be found. P. S. Khokhlov states that these bituminous types of soil contain up to 7 % organic material including mineral oil bitumen. In the Jurassic cavity of the Caspian depression facies of calcareous clay with organic material formed, but due to unfavourable geological conditions they remained, as I. M. Gubkin remarks, underdeveloped and changed into bituminous shale. The geological development of the region described shows a peculiarity in the periodic appearance of large geotectonic elements, such as domes and cavities in varying directions. Deep drillings showed the presence of oil and gas over almost the entire cross section, beginning with the crystalline foundation up to the Tertiary deposits. In 46 stratigraphic subdivisions there are 15 industrial oil or gas deposits and 19 oil or gas deposits of practical interest; in only 11 horizons no oil has yet been found, which is probably due to the absence of or insufficient core drilling. A "dispersion" of the oil to this extent over the whole cross section was only possible as a result of an extensive migration of oil and gas during the entire geologic history of this region. The occurrence of asphalt in the Jurassic deposits of the Samarskaya Luka and the presence of bitumen in the deposits of the Upper Tertiary at the Sok River indicate that the

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

occurrence of oil in the South of the Kuybyshevskaya oblast' originates from the migration of the oil from the South and Southeast in the Upper Tertiary or at the beginning of the Quaternary. During the period between the Devonian and Upper Tertiary, oil, gas-oil, and gas accumulations formed in all horizons with favorable reservoir rocks. The mass of the oil and gas migrated from the depressions and cavities within the plateau into the marginal zones and tectonic domes. The author believes that oil and gas continually migrate or float ever higher into younger geologic horizons if there is an almost uniform water horizon in all sediment layers of the Paleozoic and Mesocenozoic. The first zone is probably gas bearing (also rare gases) and partly oil-gas bearing, the second possibly oil and gas-oil bearing, while the third zone may have oil deposits. There are 2 figures.

ASSOCIATION: Kuybyshevskiy nauchno-issledovatel'skiy institut NP (Kuybyshev Scientific Research Institute of the Petroleum Industry)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F.F.; SAVINA, A.I.

Lower bounday of the Kungur stage in the Kuybyshev area of the trans-Volga region and the central part of the Ural Mountain region. Dokl. AN SSSR 139 no.3:688-691 Jl '61. (MIRA 14:7)

1. Kuybyshevskiy gosudarstvennyy nauchno-issledovatel'skiy institut neftyanoy promyshlennosti. Predstavleno akademikom N.M. Strakhovym.
(Volga-Ural region--Geology, Stratigraphic)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, F.F.

Surface morphology of the crystalline basement in Kyubyshev and Orenburg Provinces. Dokl. AN SSSR 140 no.6:1400-1402 O '61. (MIRA 14:11)

1. Predstavleno akademikom D.I.Shcherbakovym.
(Kuybyshev Province--Geology, Structural)
(Orenburg Province--Geology, Structural)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.F.

Spectra of neutrons formed by bombarding light nuclei with 14-m.e.v. deuterons. G. R. Bogdanov, N. A. Vlasov, S. P. Kalinin, B. V. Rybakov, and V. Sidorov. Sovet Phys. JETP 3, 793-6(1956)(English translation).—See C.A. 51, 98d. B. M. R.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.G.

Kustanay Lake Expedition. Vest.AN.Kazakh.SSR 16 no.5:91 My '60. (MIRA 13:7)
(Turgay Valley--Lakes)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

POPOLZIN, A.G.; TRIFONOVA, T.M.; RYBAKOV, G.G.

Freshwater lakes of the Teniz-Kurgal'dzhin Lowland. Trudy otd. geog. AN Kazakh. SSR no.9:3-62 '62. (MIRA 15:6)
(Teniz-Kurgal'dzhin Lowland--Lakes)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.L.

POLYAKOV, N.N.; RYBAKOV, G.L.

PAT-110 impregnation dyeing apparatus. Leg.prom. 17 no.8:21-23 Ag '57. (MIRA 10:10)

(Dyes and dyeing--Apparatus)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.V.

The K-123 12 ton capacity crane. Biul.tekh.-ekon.inform. no.6: 74-75 '58. (MIRA 11:8)
(Cranes, derricks, etc.)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.V., inzh.

New hoisting cranes. Vest. mash. 38 no.9:26 S '58. (MIRA 11:10)
(Cranes, derricks, etc.)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.V., inzh.

The improved K-123 crane with pneumatic tires. Stroi. i dor. mashinostr 3 no.5:15-17 My '58. (MIRA 11:6)
(Cranes, derricks, etc.)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.V., inzh.

New crane. Mekh. trud. rab. 12 no.5:33 My '58. (MIRA 11:6)
(Cranes, derricks, etc.)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, G.V., inzh.

The K-123 crane with pneumatic tires. Mekh. stroi. 15 no.4:8 Ap '58.
(Cranes, derricks, etc.) (MIRA 11:5)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV

118-58-5-11/18

AUTHOR: Rybakov, G.V., Engineer

TITLE: A New Crane (Novyy kran)

PERIODICAL: Mekhanizatsiya Trudoyëmkikh i Tyazhëlykh Rabot, 1958, Nr 5, p 33 (USSR)

ABSTRACT: The Odesskiy zavod imeni Yanvarskogo vosstaniya (Odessa Plant imeni The January Uprising) has manufactured a single motor, 12-ton crane with a pneumatic wheel drive - "Yanvarets" K 123 (Figure 1). The crane is intended for loading-unloading and construction work as well as for operations with a 1.5 cubic meter content grab bucket. The hoisting speed can be changed from 7 to 53 m/min. The crane has a 10 m arm which can be extended, by inserts, to 18 and 22 m. At construction work with 2 ton loads, an extension is fixed to the 18 and 22 m arm (Figure 2) which gives a further 2-3 m increase in lifting height. The speed of rotating the turning part of the crane changes from 0.6 to 4 turns per minute. The crane can work with heavy weights at construction work where low turning speeds are required and with a grab bucket when increased turning speeds are needed. The crane drives at a rate of

Card 1/2

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A New Crane 118-58-5-11/18

1.6 to 11.5 km/hour. Thanks to a short wheel base (3.4 m), the crane easily turns in a radius of 6 m. The maximum width is 3.7 m, the length with the short arm (10 m) is about 14 m, the weight - 23.5 tons. The mechanisms are operated by a D-54 engine of 54 hp. There are 2 photos.

AVAILABLE: Library of Congress

Card 2/2 1. Cranes-Design 2. Cranes-USSR

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBAKOV, I., inzh.

"Meter" of rights. Izobr.i rats. no.11:33 N '62. (MIRA 15:12)
(Patent laws and legislation)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

RYBNIKOV, I.

Collective Farms

Collective-farm construction brigade Kolkh. proizv. 12 No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.
2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

UKOLOVA, A.Ye.; RYBAKOV, I.I.

Remodeling the small stacker as sluice box for the bucket discharge screen. Kolyma 21 no.1:7-8 Ja '59. (MIRA 12:6)

1.Priisk im. Gastello.
(Dredging machinery) (Hydraulic mining)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

KISEL', I.I., kand.tekhn.nauk; RYBAKOV, I.M., inzh.; POZNYAK, O.G., inzh.

Effect of temperature and rarefaction on the moisture transfer in casting and on the properties of ceramic crocks. Sbor. nauch. trud. Bel. politekh. inst. no.82:144-148 '60. (MIRA 15:5)

(Pottery) (Gypsum)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446330004-6

Rybakov, I. M.

PHASE I BOOK EXPLOITATION SOV/4136

Minsk. Belorusskiy politekhnicheskiy institut

Khimiya i khimicheskaya tekhnologiya silikatnykh materialov (Chemistry and the Chemical Technology of Silicate Materials) Minsk, Red-izd. otdel BPI imeni I. V. Stalina, 1960. 165 p.. (Series; Its: Sbornik nauchnykh trudov, vyp. 82) 1,000 copies printed.

Editorial Board: M. A. Bezborodov (Resp. Ed.) Academician, Academy of Sciences BSSR, L. A. Zhunina, Candidate of Technical Sciences, N. N. Yermolenko, Candidate of of Technical Sciences, P. F. Mikhalevich, Candidate of Technical Sciences; Resp. Ed. for this issue: L. A. Zhunina; Ed.: N. V. Kapranova; Tech. Ed.: F. T. Kuz'menok.

PURPOSE: This book is intended for chemists and technicians interested in the physicochemical properties and the production of glass.

COVERAGE: The collection contains 20 articles which give data on the synthesis and physicochemical properties of various widely used and some experimental glass compositions. Numerous property and phase diagrams of glass compositions.

4. Bezborodov, M.A., N.N. Yermolenko and L.A. Zhunina, Candidates of Technical Sciences, and Ye. Z. Novikova, Engineer. Light Refractivity and Crystallization Capacity of Glasses Found in Some Sections of the System Na_2O-CaO-BaO-ZrO_2-SiO 29

7. Maselev, L.Ya., and A.I. Zelenskiy, Candidate of Technical Sciences. Hypthesis and Study of the Properties of Glasses of High Clay and Low Alkali Content 54

8. Marurenko, V.D. Investigation of Some Properties of Glass in the System Li_2O-BaO-B_2O_3-SiO_2 64

9. Zhunina, L.A., A.M. Kripskiy, and Ye.Z. Novikova. Experiment in Producing a Glass Crystal Material From Easily Melting Belorussian Clays 79

10. Zhunina, L.A., Candidate of Technical Sciences. Study of Crystallization in Glasses Produced From Easily Melting Clays 86

11. Zhunina, L.A., and N.N. Yermolenko. Development of Compositions for Semleaded Cut Glass 94

12. Zhunina, L.A., and Ye. I. Mikhlyukov and G.G. Kusonskiy, Engineers. Utilization of Easily Melting Clays in the Production of Glass Containers 100

13. Kovtunenko, G.A., Candidate of Technical Sciences. The Effect of Individual Components and Some Additives on the Process of Forming the Ruby Color of Glass 112

14. Yermolenko, N.N., and L.N. Lambin, Engineer. Graphical Method of Converting the Composition of Glass From Percentage Weight to Molar Percent and Vice Versa 116

15. Kripskiy, A.M. Utilization of Microphotometer MF-4 as a Radiation Receiver During Spectral Studies 120

16. Mikhalevich, P.F., and N.K. Yagovik, Candidates of Technical Sciences. The Possibility of Producing Porous Materials From Various Belorussian Clays 126

17. Mikhalevich, P.F., Yagovik, and L.I. Rusak, Engineer. Factory Test of an Experimental Saggar Composition 137

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M. G. Moore

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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